



Northwest Hospital, a LifeBridge Health Center

Comverge provides solution for design issue, significantly reduces carbon footprint

Background

Established in 1962 and known for 30 years as Baltimore County General Hospital, Northwest Hospital is a not-for-profit community acute care hospital located in Randallstown, Maryland, serving the northwest Baltimore metropolitan area. As a member of LifeBridge Health, the largest regional health care organization serving northwest Baltimore County, Northwest is an all-private-room hospital.

In 2006, LifeBridge engaged Comverge, as its Curtailment Service Provider (CSP), to enroll Northwest's sister facility, Sinai Hospital, in the PJM (the regional wholesale electric market) demand response (DR) program, a voluntary program in which customers are compensated for reducing their demand during specified times. Due to existing design and operational issues Northwest did not meet program eligibility requirements at the time.

In May 2009, LifeBridge commissioned Comverge to perform a comprehensive energy audit to determine approaches for reducing cost, optimizing operations,

and lowering their environmental footprint. The review also highlighted opportunities to participate in the PJM programs. Comverge completed the analysis and presented the findings, which identified significant opportunities for Northwest to upgrade its facilities with little or no incremental cost.

"Comverge, in partnership with Plant Operations, presented solutions no other energy consultant even considered. We are pleased to receive the Trailblazer Award for Environmental Improvement. We are grateful to our partner, Comverge, for helping us realize an improved energy future."

— Lewis Poe, Director of Plant Operations, LifeBridge Health

“We appreciate the focus Northwest Hospital and LifeBridge Health gave to identifying environmentally constructive improvements to their facilities. We were particularly pleased to assist in working through original design issues that will lead to a better use of existing resources and better air quality for staff, patients, and the Baltimore region.”

– George Hunt, Senior Vice President, Commercial and Industrial Sales, Comverge

Solution

Comverge provided a comprehensive list of Energy Conservation Measures (ECMs) identifying reductions in electricity, natural gas, and water demand and consumption, as well as a detailed analysis of financial, operational, and emissions related savings for each ECM. The report also provided financing options including use of available incentives and participation in PJM’s DR programs. Comverge developed a unique financial approach using DR program revenues to offset the capital cost. That approach reduced the upfront capital required by LifeBridge and made the project cash flow positive from day one.

Of particular note, Comverge’s analysis provided a solution to a design issue with the hospital’s exhaust ductwork. By retrofitting the hospital’s two existing 1.5MW diesel-run emergency generators with natural gas, Comverge captured lucrative financial benefits that allowed Northwest to participate in the PJM DR programs.

Benefits

Northwest Hospital was able to pay for design and operational improvements with revenue produced from PJM’s DR programs.

Benefits include:

- Fuel flexibility (diesel and natural gas)
- Added redundancy through increased load on the emergency generators
- Additional sub-metering and control of their plant equipment

Strategies

Comverge’s customized and comprehensive approach set it apart from other companies. Through its innovative financial package, they were able to deliver the benefits to Northwest Hospital in a simple “one stop shop” approach. Comverge increased the efficiency and use of the emergency generators by reconfiguring the exhaust, extending the natural gas mains, and retrofitting the engines to provide bi-fuel capability. The resultant system significantly reduced greenhouse gases, bringing the generators into compliance with all environmental regulations, and allowed them to participate in the PJM Demand Response programs to generate revenue for the hospital.

In order to maximize the DR revenue potential and provide additional emergency generation support for critical systems, the retrofit process added the following additional load to the generators: two 750-ton chillers, two condenser pumps, two primary chilled water pumps, two cooling towers, two secondary chilled water pumps, and one fan coil pump.

The solution also included automatic transfer switches, controls, and submetering to enhance the operation of the system. The entire project was paid for with the revenue generated from participation in the DR programs.

Results

Based on Northwest’s 2.2MW of bi-fuel generation and 600 kW load shed, the hospital is estimated to reduce annual carbon dioxide emissions by 202 tons, nitrous oxide by more than 4 tons, and non-methane hydrocarbon emissions by 91 lbs/yr. The three-year deal will result in no out-of-pocket cost to the hospital.

Northwest Hospital was also able to resolve an engineering issue that impacted use of their emergency generators while providing additional back-up power support for critical building systems.

The bottom line being they helped create additional cash flow and a healthier environment for all.

In 2010, LifeBridge received Maryland’s Trailblazer Award for efforts such as these. Proof positive that Northwest and LifeBridge are leading the way as good citizens and solid members of the Baltimore business community.

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