tekWorx

Boston Teaching Hospital Operates on Energy Bills, Cuts Costs by a Third

Smart optimization heals an ailing utility budget without compromising patient care for an 800-bed teaching facility.

33%
reduction in energy costs

2,000,000
gallons of water saved annually

THE PROBLEM

Inefficient Systems in a High-Stakes Environment

The prestigious medical institution faced opportunities for energy optimization despite housing sophisticated equipment and serving hundreds of patients daily. Their 2,400-ton cooling capacity system operated on static temperature setpoints throughout the year, regardless of seasonal demands or occupancy fluctuations. While the facility maintained a functional Invensys building automation system, it lacked the intelligent optimization sequences needed to adapt to changing conditions. Analysis of the existing infrastructure revealed several key challenges:

- The variable/primary hydronic system design presented untapped efficiency potential
- Static temperature setpoints consumed excess energy during periods of lower demand
- Rising utility costs competed with budget allocations for patient care initiatives

THE SOLUTION

Seamless Integration Preserves Operations While Enhancing Efficiency

Hospital administrators partnered with tekWorx energy efficiency experts to implement a holistic approach that would respect the facility's unique requirements. The Xpress® chilled water plant optimization solution was seamlessly integrated with the existing Invensys system, using supervisory control architecture that preserved all existing equipment and wiring.
The tekWorx Xpress® solution functions as an intelligent optimization layer for the hospital's chilled water plant:

- Prioritizes system reliability while finding energy-saving opportunities
- Analyzes real-time operational data to dynamically adjust multiple system parameters
- Calculates optimal chiller sequencing based on efficiency curves and load conditions
- Implements automated temperature reset strategies for both supply and return water
- Controls variable frequency drives for pumps and cooling tower fans to minimize energy use
- Maintains strict environmental standards required for patient care areas
- Adapts to changing facility demands, weather conditions, and equipment performance
- Operates alongside existing controls rather than replacing them

Strategic Partner:

I·E·S·G
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This strategic implementation **minimized disruption to daily hospital operations**— a critical consideration for a facility where interruptions could impact patient care.

THE RESULTS

Triple-Win for Budget, Operations, and Sustainability

The transformation of the hospital's energy management system delivered impressive results decreased energy costs by 33% while the system maintained precise temperature control essential for patient comfort and medical requirements. The financial impact was immediate and substantial, with the entire project achieving complete payback in just one year, aided by a $30,000 utility rebate from the local utility.

The project also delivered several sustainable operational improvements across multiple areas:

- Equipment now operates within optimal efficiency ranges, reducing wear and maintenance needs
- Water conservation surpassed 2,000,000 gallons annually
- Real-time performance data enables continuous optimization and rapid response to changing conditions

The successful optimization project demonstrated that healthcare facilities can achieve significant energy savings without compromising the exacting standards required for patient care and medical operations.

LOCATION
Boston, MA

SIZE
2,400 tons capacity

INDUSTRY
Healthcare

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