Building Technologies Program

EnergySmart Hospitals

Creating Energy Efficient, High Performance Hospitals

Hospitals are among the nation's most complex, diverse, and energy-intensive facilities. The Department of Energy (DOE) is committed to supporting the hospital sector in reducing energy use and costs. DOE's EnergySmart Hospitals initiative is reaching key hospital leaders with the message to go beyond "green" by comprehensively integrating energy efficiency and renewable energy into hospital design, construction, and operations and maintenance.

The business case for energy efficiency is compelling for hospitals, with energy costs representing one of the few cost centers hospitals have significant control over. Through partnerships, design support, training, and marketing, EnergySmart Hospitals is validating the benefits of energy efficiency and renewable energy as highly effective strategies to impact the bottom line while meeting mission-critical goals.

The Opportunities

Rising energy prices and the increasing energy intensity of hospitals have produced escalating costs, with U.S. hospitals spending over $5 billion annually on energy, equal to one-to-three percent of total budget, and equivalent to at least 15 percent of profits. In 2007, the American Society for Healthcare Engineering (ASHE) reported that 91 percent of hospitals faced higher energy costs over the previous year, and over 50 percent cited increases in double-digit percentages.

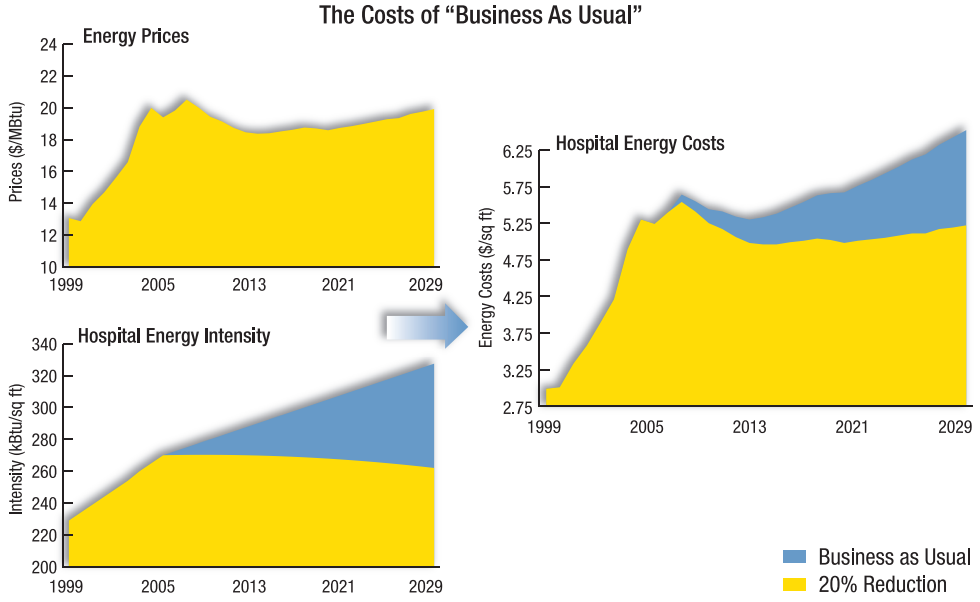
Hospitals use 836 trillion BTUs of energy annually and have more than 2.5 times the energy intensity and CO_2 emissions of commercial office buildings, producing over 30 lbs. of CO_2 emissions per square foot.[1] Beyond the significant ROI that new, energy efficient equipment and systems can bring through less expensive operation and maintenance, resulting improvements in indoor environment and comfort can enhance patient health and recovery.

The Challenges

Within the complex and diverse critical care environments of hospitals, energy efficiency competes every day with other mission-critical investments. Smaller and rural hospitals in particular can face significant financial and human capital issues when considering efficiency improvements.

Too often, the fundamental close alignment between mission-critical outcomes and the environmental and financial gains of energy efficiency are neither understood nor publicized. Investing in efficiency and renewable strategies and practices not only preserves crucial funds but can also dramatically extend power reliability during disasters and emergencies and enhance hospital standing as an effective, proactive community partner.

Utility bills account for about 1% of campus operating costs. However, with some 8 million square feet to heat, cool, and power in 26 buildings covering four city blocks, that 1% adds up to tens of millions of dollars.
– Tom DeBoer, Chief Engineer, Mayo Clinic campus, Rochester MN
Modern Healthcare, January 2008



Energy prices source: EIA; energy intensity represents assumed growth at 50% of recent increases.

[1] *2003 CBECS*

Communicating the Win/Win of Strong Energy Management

"Contrary to what many hospital CFOs may believe at first glance, strong energy management and sound fiscal direction are not an either-or equation—these two benefits are intertwined, and will prove to be a win/win at every level," asserts Jerry Arndt, Senior VP of Business Services of Gundersen Lutheran Health System in La Crosse, Wisconsin. "In hospitals, we have what I call 'the triple bottom line,'" Arndt adds. "Delivering excellent health care to our patients is the first, building a healthier community and managing our costs effectively so that we can operate at an optimum level is second, and operating our facility as efficiently as possible—in every way—to support both those priorities is third. Looking at the possibilities of energy efficiency and renewable energy is integral to achieving all three." According to Arndt, Gundersen Lutheran's wide-ranging implementation of efficiency and renewable goals has driven down costs, leading to a seven-year trend of patient fee increases smaller than the previous year—in 2007, lower than the CPI rate of inflation.

Barriers currently facing the sector include lack of communication on the best efficiency practices, lack of documented results to support the business case for efficiency, and lack of more efficient equipment due to limited "demand pull" from the hospital market. Leveraging sector-wide partnerships with government and industry resources to overcome these barriers and communicate the opportunities is DOE's focus in EnergySmart Hospitals.

Goals of EnergySmart Hospitals

- Promote 20 percent improved efficiency in existing buildings and 30 percent in new construction over current standards
- Increase efficient and renewable energy applications in hospitals
- Reduce energy use and operating costs
- Create healthier healing and work environments
- Maximize successful hospital upgrades and design strategies
- Ensure reliable backup power during disasters
- Improve environmental performance

Initiating an Energy Management Program

Hospitals can aggressively manage energy use and costs by building a comprehensive Energy Management Program through the following steps:

Step 1–Create Awareness of the Opportunity: Make the commitment to energy efficiency known to staff and provide visible leadership support.

Step 2–Perform Baseline Mapping: Consolidate energy use data and cost figures from throughout the hospital system into a broad and integrated Hospital Energy Map.

Step 3–Develop a Compelling Vision: Organize an Energy Management Steering Committee with wide representation from across the hospital (finance, maintenance and facilities, purchasing, quality assurance, government relations, clinical operations, medical personnel). Charge the committee with developing a strategic plan and setting goals in alignment with your hospital's mission.

- Include retrofitting, new construction, and operation of existing facilities in scope
- Incorporate relevant existing initiatives within the hospital system

Step 4–Turn the Vision into Action: Establish metrics and implement a comprehensive "whole-building" energy management program, addressing all building systems. Track, evaluate, and continue mapping and upgrading.

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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U.S. Department of Energy
Energy Efficiency and Renewable Energy
Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

July 2008