

# Three Healthcare Facilities: Three Approaches to Saving Energy

## CASE STUDY

The healthcare industry faces all-too-common challenges in today's complex business environment. Costs rise, sometimes sharply, in short periods of time. Profit margins have begun to evaporate. And, top managers and shareholders seek solutions—now.

A healthcare facility's energy-related operating costs represent an obvious target for scrutiny. Nationwide, the healthcare industry ranks second, behind the food service industry, in energy use per square foot. "Hospitals are one of the most intense energy users in the country," said Christine Todd Whitman, Environmental Protection Agency Administrator at a November 2001 event honoring the first ENERGY STAR® designated hospitals.

The U.S. Department of Energy reports that healthcare facilities use, on average, 26.5 kilowatt-hours per square foot, *almost double* the average use for all commercial buildings. The good news? Researchers estimate that these facilities can often realistically cut energy use (and costs) by 30 percent. And, newly constructed hospitals, nursing homes or clinics can begin their lives as highly energy efficient facilities, particularly if they are designed and built to ENERGY STAR or Leadership in Energy and Environmental Design (LEED™) standards.

Several healthcare facilities in Wisconsin have learned first-hand about the benefits of energy efficiency. Working with Focus on Energy, Wisconsin's statewide energy efficiency initiative, as well as key allies such as local utilities, contractors and architects, three healthcare facilities have taken tangible steps and are benefiting from the cost savings today.

## Bellin Hospital

Sometimes, timing is everything. When Tim Klein, the Team Leader for Facilities at Bellin Hospital in Green Bay, was new to his job, he was asked to propose some ideas for saving energy. Bellin Hospital's original building was constructed in the 1920's and has been renovated and expanded over the years. Numerous energy efficiency upgrades were made during these renovations. In fact, most of the lighting system has been upgraded, low-E windows were installed and insulation levels were strengthened.

So, while some of the "easy" energy efficiency upgrades had already been made, Mr. Klein knew there was still room for improvement. Fortunately, he had just learned about the no-cost services available through Focus on Energy's ENERGY STAR Buildings Program. After Focus on Energy's experts studied Bellin Hospital's 617,000-square-foot facility and examined its energy-using equipment, they made a series of energy efficiency recommendations that targeted the water heating and ventilation systems. These system upgrades are projected to cut annual energy costs by almost \$21,000 and offer a short, three year payback period.

Tim Klein appreciated the expertise offered by the Focus on Energy engineers. "The whole Focus on Energy program has been great for us. The walk-through audit identified four major projects that we never would have thought about and all four are included in next year's budget."

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## Plaza Drive Clinic

When Community Healthcare, based in Wausau, decided to build its new Plaza Drive Clinic, it wanted the new walk-in clinic to be as energy efficient as possible from the start. Since Community Healthcare had worked with Focus on Energy in the past, it called on program experts to ensure the new facility's design met this goal.

"We were visited by a representative from Focus on Energy before we started the project," said David Bliven, Manager of Facilities and Projects for Community Healthcare. "Focus made recommendations and suggested design options that would save energy."

HGA, the Plaza Drive Clinic's project architectural/engineering team, designed a two-story, 58,000-square-foot facility that consists mainly of examination rooms and office spaces. HGA had incorporated several energy efficient features in the original design in keeping with budget constraints. Plans called for a building envelope that exceeded Wisconsin's state code by seven percent and energy efficient lighting and heating, ventilation, and air conditioning (HVAC) systems. The Focus on Energy engineers concurred with HGA's design specifications but made some additional recommendations for enhancing the mechanical system's energy efficiency.

"We will definitely save money," said David Bliven. "Anything we can do to help keep our operating costs down will help us and ultimately help our patients."

The Plaza Drive Clinic opened for business in January 2001, and patients can now obtain walk-in healthcare services seven days a week.

## Northwoods Medical Center

Northwoods Medical Center (NMC), another Community Healthcare facility, is a nursing home in Phelps, Wisconsin. The Center worked with Focus on Energy through the ENERGY STAR Buildings® program and obtained an energy survey of its 67,000-square-foot facility. This survey revealed numerous opportunities for the Center to save money, prevent pollution and still keep both patients and staff comfortable.

"We had the desire to operate efficiently and the resources to invest in it," said Nancy Ellis, NMC Executive Director. "Focus on Energy provided us with the information we needed to make those investment decisions with confidence."

Focus on Energy's engineers made several energy saving recommendations. First, they recommended installing control systems to adjust the HVAC units automatically. Building control systems can reduce temperatures (from 72 degrees to 58 degrees Fahrenheit, for example) in spaces that do not need heat overnight, including the clinic, pharmacy, kitchen, dining area, laundry area, senior center, daycare center and therapy area.

Second, they recommended lighting upgrades to augment earlier efficiency projects. Suggested changes included replacing old, inefficient lights with new, state-of-the-art fluorescent bulbs; reducing light levels and glare through wattage reduction; and removing lamps from fixtures in overlit areas.

Third, Northwoods Medical Center found it needed to cool certain areas of the building year-round, even during cold



*Northwoods Medical Center, Phelps, Wisconsin*

winter months. So, auditors recommended installing ducts and fans to draw fresh, outside air directly into these areas rather than using the old, inefficient ten-ton chiller. This strategy helps Northwoods Medical Center use Wisconsin's chilly winters to its advantage. At the flip of a switch, nurses can control fans that bring in colder air whenever they want it. This upgrade provides staff members with more control and comfort. Finally, the engineers recommended upgrading kitchen equipment, and replacing the ten-ton air-cooled chiller and existing rooftop units with new energy efficient equivalents.

By taking these steps, Northwoods Medical Center expects to save \$12,000 per year, with a payback of just under five years. However, because the Center is able to use a Medicaid incentive that will pay a portion of the total project cost, Northwoods Medical Center can expect a payback in only 2.9 years. After that period, all savings will go directly to the medical center.

Nancy Ellis was very pleased with the results. "We were surprised by how quickly the savings added up," she said. "We are already seeing a reduction in our energy costs."

## WHAT THESE HEALTHCARE FACILITIES DID RIGHT... AND WHAT OTHERS SHOULD DO, TOO

### Step 1

#### Consult energy experts.

Each facility identified an energy expert—in this case, Focus on Energy—and took advantage of this available expertise. But, when picking vendors, make sure they have expertise in energy efficiency and facility operations.

### Step 2

#### Manage energy-using systems more carefully.

Use automatic building control systems to ensure that equipment operates fully when it's needed and powers down or off when it's not. Control systems can range from comprehensive energy management systems to occupancy sensors and setback thermostats. And, once these controls are installed, make sure staff is properly trained in their use.

### Step 3

#### Upgrade lighting systems.

Today's light fixtures and lamps (bulbs) deliver much more light with less energy and are cooler to operate. You will not only save energy and money with short paybacks on the lighting upgrades, but will also save on air conditioning due to reduced heat from the lighting.

### Step 4

#### Examine mechanical systems and downsize or redesign if necessary.

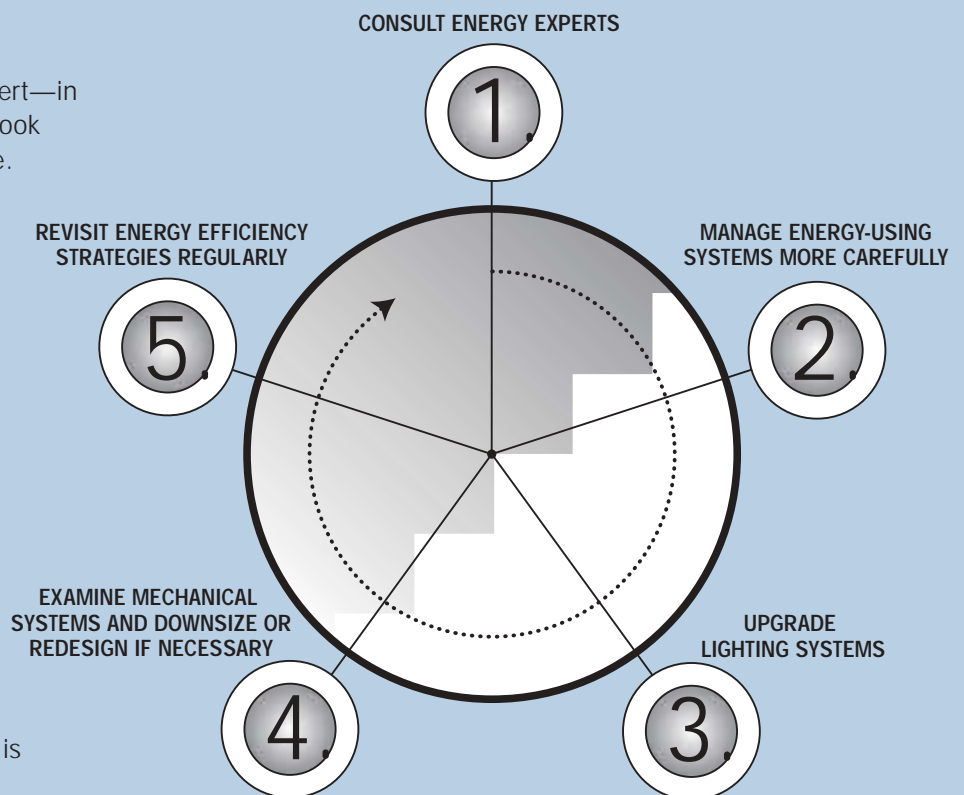
Many systems are oversized (which wastes energy and money). And many can be reconfigured to be more efficient.

### Step 5

#### Revisit energy efficiency strategies regularly.

All three healthcare facilities in this study had either made energy efficiency improvements or had specified them in construction plans before Focus on Energy became involved. And, each was able to achieve additional savings from Focus on Energy's recommendations. Never give up!

For information call 800.762.7077



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