

National Energy Performance Rating System

Use it to track your energy performance, set priorities, and receive recognition.

By Clark A. Reed, U.S. Environmental Protection Agency

How do you know where you're going, unless you know where you've been? It's a powerful question to ponder whether you're on the yellow brick road to Oz or in a business setting trying to figure out what to do next. What lies at the heart of this question is the belief that you must track how far you've come in order to know how far you have left to go. In facility management, measuring progress is sometimes easier said than done. Not only do you need a baseline to benchmark from, you also need a clear destination. Historically, healthcare engineers have not had an easy way to gauge the energy performance of their hospitals, or for that matter a destination to shoot for. But last November, everything changed. You're not in Kansas anymore...

For the past decade, thousands of hospitals, schools, hotels, and other organizations have partnered with EPA's ENERGY STAR® program to demonstrate environmental leadership and adopt energy best management practices that produce twice the energy savings as typical approaches. Many ENERGY STAR® partners have asked us for guidance, especially for energy performance tracking tools and targets. We responded by creating the national energy performance rating system, now available to office buildings (since 1999), K-12 schools (2000), hotels, supermarkets, and hospitals (2001).

Measuring Energy Performance

Facility managers who replace lights, install VSDs, tune up or commission, install low-E windows, join a voluntary program, or design to 30% better than code expect to have energy efficient buildings. Intuitively, this makes sense. After all, today's building components are at least



Money Isn't All You're Saving

30% more efficient than twenty years ago.

However, analysis of DOE's Commercial Building Energy Consumption Survey data reveals a surprising fact: the energy intensity (kBtus per square foot per year) of buildings varies by 200 - 400 percent, regardless of the year of construction (See Graphic 1). In short, a building built today may not automatically perform better

than one built thirty years ago, hospitals included.

ENERGY STAR® is promoting the idea that facility managers need to know how their buildings perform in order to make the most effective management decisions. Just knowing you have energy efficient equipment isn't enough. Knowing your actual energy consumption however, will enable you to confirm your intuition, evaluate maintenance, ensure proper equipment installation, or implement other practices that save significant amounts of energy.

National Energy Performance Rating System

The national energy performance rating system uses a 1 - 100 scale to give relative meaning to energy use. Hospitals rating high on the scale are considered to be better energy performers (lower energy use) than those with low ratings (higher energy use). A rating of fifty (50) is defined as the industry average. So a hospital with a rating of seventy-five (75) means that it performs better than 75% of similar hospitals across the country. Or to put it another way, 25% of similar hospitals perform equal to or better than this one. A hospital that rates in the top 25% is now considered a "top performer" and eligible to receive the EPA's award for superior energy performance, the ENERGY STAR® label.

But Jean Lupinacci, ENERGY STAR's® chief of

commercial buildings, cautions the rating system is more than just about winning labels. "While only the top 25% of hospitals will receive a label-qualifying score, hospitals anywhere along the scale can use the rating system as a regular part of their monthly energy management activities", she says. "Setting performance goals and tracking changes to your baseline rating is the real value of this system."

Many of the 4000 (and growing) users of the national rating system, who have already benchmarked over 10,000 buildings, are asking their energy service and product providers to incorporate ENERGY STAR® into their service contracts. Baselineing is a common request. We're also beginning to see an interest in specifying RFP language to guarantee performance rating increases for a given upgrade package. Architects can use the rating system to design high energy performing buildings through a tool called Target Finder. Given its widespread application, the national energy performance rating system is fast becoming the miles-per-gallon equivalent for buildings in the commercial sector.

Behind the Curtain

The national energy performance rating system is accessible to the public for free through ENERGY STAR's® website at www.energystar.gov/benchmark. Users create their own private password-protected account in the benchmarking "Portfolio Manager" software tool. For hospitals, the tool is a "campus-based" application, meaning users are asked to describe basic features of their hospital campus or stand-alone facility.

Our model recognizes that energy intensity is a function of the business activity, the climate, and the choice of fuel mix. Analysis of data obtained from the Electric Power Research Institute's (EPRI) Energy Benchmarking Survey (1997) indicates that hospital energy intensity in particular, is related to the following key characteristics which are queried in the rating tool:

- Hospital Type: Acute Care or Children's Hospital*
- Total Campus Square Footage
- Number of licensed beds
- Number of buildings on campus
- Total number of floors of the tallest building on campus
- Special Features such as Tertiary Care, Laboratory, On-site Laundry
- Above ground parking

Once the hospital space has been defined, users enter energy consumption data from utility bills or an energy management system. At least twelve months of data are needed to receive a rating and users have the option of

* Acute Care and Children's Hospitals are the only eligible healthcare space-types to use the rating system at this time. Healthcare space-types such as Cancer Centers, Rehabilitation Centers, Skilled Nursing Facilities, and Psychiatric Hospitals are currently under beta test. To join, please contact the author.

What Are the Best Practices of Top Hospitals?

ASHE recently won a two-year grant from ENERGY STAR to identify best operations and maintenance practices in hospitals across the country. We are calling on all members to join in this major effort, called the Hospital Energy Profile Study, to uncover no- or low-cost O&M practices that increase hospital energy performance. It's easy to get involved and professionally beneficial, too. ASHE will give all participants who complete the study two Continuing Education credits and we will release the report on Best Management Practices to the healthcare engineering community in 2003. Participants will also receive a national energy performance rating for their hospital and an account in ENERGY STAR's "Portfolio Manager" to immediately begin energy performance tracking. To begin your participation or for more information about the study, visit www.ashe.net.

— Wayne Klingelsmith, FASHE, CHFM

baselining even further back in time to see trends in energy performance. For those wanting to track the cost per square foot over time, cost is also listed as an optional field.

Energy performance ratings are automatically calculated and immediately available to the user. Ratings are weather normalized to account for the year-to-year variations in the weather. So if the weather is more severe one year than the 30 year average for that location, the algorithm adjusts the rating upwards (or vice versa for milder weather) to avoid "penalizing" the facility for using more energy than normal.

I Have a Rating - Now what?

Since increasing your facility's energy performance will lead to lower operating costs, increased competitiveness, and greater pollution prevention, the only direction to go now is up, wherever profitable. Although the national energy performance rating system does not identify specific buildings on your campus to upgrade or prescribe specific actions to increase performance (that's better left to energy auditors and other professionals), the ratings can provide general recommendations.

Low ratings (1-49) - Greatest opportunities for investments

Hospitals in this category have the most attractive returns for capital investments. Look for opportunities to upgrade lighting and other significant energy using systems, including system coordination. Renewing the commitment of senior executives to energy management will be an important component to your strategy.

Middle ratings (50-74) - Fine tune O&M

Hospitals with mid-range benchmarks should consider low- or no-cost activities such as re-commissioning campus buildings, developing and implementing preventative maintenance plans, increasing employee training, or re-assessing incentive, recognition, and reward systems to ensure that they drive energy performance. Often, these relatively low-cost efforts can turn these facilities into "top performers".

High ratings (75-100) - Reward and Learn

Hospitals within this range are among the highest energy performers in the country and may be eligible to receive the ENERGY STAR® label award. To apply, a professional engineer must verify the data and eligibility requirements and confirm that indoor air quality meets industry standards. For more information, see the Professional Engineer's Guide to the ENERGY STAR® Label for Buildings on our website.

Besides publicity, facility managers can share their energy management plans and operational strategies with other hospitals in their system. And they can continue to improve performance. Many office building owners have told us they increased in score from the low 90's to the upper 90's or from the upper 70's to the mid 80's. Consider it a challenge.

First ENERGY STAR Hospitals


Last November, EPA Administrator Christie Whitman traveled to the AHA in Chicago to launch the national energy performance rating system for hospitals and honor the first three to receive the ENERGY STAR® label. "For the first time, hospitals can now compare their energy performance to others nationwide and are eligible to earn

and display the ENERGY STAR® for highest achievements in adopting energy efficient products and practices," she said. "Enabling hospitals to participate in this program will allow us to improve upon our success and have an enormous impact on our environment. Already a few hospitals have earned this mark of distinction and I am pleased to recognize them today."

The first hospitals to receive the ENERGY STAR® include the Naval Medical Center of San

Diego, Memorial Hospital of Carbondale, Illinois and Saint Joseph's Hospital in Yonkers, New York.

Tom Stewart, Director of Facilities at Memorial Hospital, appreciated the ability to confirm what he knew all along. "EPA's national energy performance rating system has helped our facility demonstrate it's environmental commitment to our patients, staff, and the community through the publicity we've received after earning the ENERGY STAR®," he said. "Although we recognize internally that the hard work we've put into facility planning, energy conservation, and efficient building operations has paid off through savings in energy consumption and costs, we are pleased to have a method to compare to other facilities and to make others aware of our efforts."

The ENERGY STAR® Healthcare team provides assistance on a daily basis to healthcare facility managers nationwide to support their benchmark efforts. Contact us for assistance to review your profile or with any questions or feedback. 

Clark Reed is the National Healthcare Manager for ENERGY STAR®. ASHE is pleased to have him as a regular columnist for inside ASHE beginning with this issue. He can be reached at the U.S. Environmental Protection Agency - MC 6202J, 1200 Pennsylvania Ave NW, Washington, D.C. 20460. Email: reed.clark@epa.gov Phone: 202-564-9146. Web: www.energystar.gov.

