



ENERGY TO CARE *SUCCESS STORY*

NORTHWEST HOSPITAL & MEDICAL CENTER
Savings in Seattle: ENERGY STAR® Treasure Hunt Uncovers
Savings at Northwest Hospital & Medical Center

By Ed Avis

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Overview

Searching for hidden treasure is fun, and you don't need a shovel or metal detector to do it! In the past year, four hospitals have participated in ENERGY STAR Treasure Hunts, events that uncover energy-saving opportunities throughout a facility.

The most recent event was held at Northwest Hospital & Medical Center in Seattle in July. The hunt was part of an overall energy training session held after the ASHE Annual Meeting.

"ENERGY STAR Treasure Hunts are a great way for hospitals to uncover money-saving opportunities," according to Justin Carron, global segment director for Eaton, which sponsored the Treasure Hunt training session. "And they help develop an overall culture of energy conservation in the facility."

Thirty-four people attended the Seattle event. The group was a mix of hospital facility personnel from across the country, students studying facility management, employees of vendors in the field, and other interested observers.

Before the Hunt

Searching for energy-saving opportunities was the focus of the Seattle event, but the event was preceded by three webinars in the months prior. The webinars, presented by Bruce Bremer, president of Bremer Energy Consulting, explained the importance and elements of a hospital energy program, shared best practices for such a program, and introduced the Treasure Hunt concept.

The education continued on the first day of the Treasure Hunt. Bremer, who was part of the team that developed the Treasure Hunt concept at Toyota North America, discussed various energy strategies and benchmarking practices, and showed how a Treasure Hunt can play a role in a hospital's overall energy program.

"One reason Treasure Hunts are such an important part of a hospital's energy program is that they give you a close-up view of the situation," noted Bremer. "You need to go out into the hospital and see what is actually going on."

Treasure Hunts are two- or three-day events, but Bremer explained that the culture of energy saving that emerges from a hunt can keep hospital personnel on the alert for saving opportunities continuously.

"During a Treasure Hunt the teams focus on identifying energy efficiency improvements, but equally important is developing the philosophy of building an energy culture inside the organization," Bremer said. "The purpose of the Treasure Hunt is to do both."

Details of the strategies and best practices Bremer discussed can be found on the ENERGY STAR website, energystar.gov.

Hunting Parties

The attendees at the Seattle event were divided into four groups, with an approximately equal number of hospital facility personnel and vendors in each group. Each group also had one employee of the facility department of Northwest Hospital.

After introductions, the groups fanned out to different parts of the hospital, which is part of University of Washington Medicine Seattle. The 58-year-old facility, which includes acute in-patient care and outpatient services, has 281 beds and sits on a 44-acre campus.

Altogether, the groups visited the main patient tower, the ICU, the kitchen area, the mechanical rooms, the operating suite, the outpatient surgery area, and all affiliated areas such as the roof and boiler rooms.

The participants tapped their own expertise and experiences to ferret out energy-saving opportunities in each area they visited. The key to a Treasure Hunt is that participants often notice things that hospital personnel overlook in their day-to-day movements around the hospital.

For example, attendees familiar with chiller plant operations closely examined the settings, connections, temperatures, motors, and other elements of the chillers, looking for signals that something may be using more energy than needed. They noticed that the Delta T of the water coming and going from one chiller was less than 4 degrees, a sign that perhaps the system was not running as efficiently as possible.

Two teams spent some time viewing data from the hospital's building automation system (BAS). That data provided backup for some of the things they had observed previously, and helped pinpoint energy-saving opportunities.

One best practice of Treasure Hunt participants is also to take note of safety issues. In the Seattle hunt, some minor safety issues were observed, such as tools left on the floor in the boiler room and cardboard boxes partially blocking vents.

The groups reconvened in the conference room at the end of that first day of hunting and wrote down their initial findings on flipcharts. Bremer then went around the room and asked each group to give a preliminary report on what "treasure" each team discovered. Each team prioritized its top three findings and shared the basics with the group.



The Second Day

The groups met again early in the morning of the second day of the hunt. The teams split up, with some members staying in the conference room to analyze the energy-saving opportunities found the day before, and the rest going back into the hospital to verify findings and accumulate more information.

Bremer provided the groups with a spreadsheet preloaded with calculations that would determine the dollar savings of common energy-saving initiatives and the ROI of each. The cost of electricity and natural gas in the Seattle market was already included in the formulas. Bremer also provided preformatted PowerPoint slides to be used to create the report-out presentations.

Later that morning the groups reunited in the conference room and wrapped up their spreadsheets and PowerPoint slides. Other leaders from Northwest Hospital then joined the group for a report out on the findings.

A spokesperson from each group took the stage and presented its findings, including the estimated savings and ROIs. Among them:

- Lighting upgrades from various types of bulbs to LED lights. Such upgrades may be eligible for incentive rebates from the local electric utility, and will save about \$15,000 per year, depending on how many bulbs are replaced. The ROI will depend on whether the bulbs are replaced immediately or as the current bulbs burn out, and how much rebate is available.
- Improved chiller plant staging and control. By better arranging how the hospital's chillers operate in conjunction with one another, the hospital could save \$33,400 per year. The cost of this project is primarily staff and technician labor, and the estimated ROI is 0.83 years.
- Adding an economizer to the boiler. The economizer could scavenge the heat now going up the stack and use it to preheat water. The cost of such an economizer would be \$25,500, and it would save about \$7,500 per year, which means the project would have a payback period of 3.8 years.
- Tuning the boiler. One team measured the oxygen level in the boiler stack and determined that it was 20 percent oxygen, which indicates the boiler is not running efficiently. The team estimated that it would cost \$4,000 to tune the boiler and that this would save \$10,000 per year, which would result in a 0.4 year payback period.
- Balancing the building envelope. The participants found several examples of inefficient air handling. For example, in a greenhouse-like room attached to a cafeteria, a stand-alone air conditioner was not coordinated with a mechanical roof vent system, which meant that the vents sometimes opened just as the AC kicked in, releasing cooled air into the atmosphere. Fixing this situation and several other air handling issues would cost only about \$130, but would save \$8,400 per year.

After the presentation of the findings, Bremer unveiled the total potential savings amount: \$116,600. Bremer also re-emphasized that the savings of the projects are important but equally important is instilling an energy-saving culture into the organization.

"It was great to implement the Treasure Hunt and get the team excited about it," said Kevin Kajita, assistant director of facilities at Northwest Hospital & Medical Center, after the report out. "The event played into the culture of sustainability we're trying to create here. Whenever people can see improvements right from the get-go, it's a positive."

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OSF HealthCare Holy Family Medical Center Treasure Hunt

An ENERGY STAR Treasure Hunt at OSF HealthCare Holy Family Medical Center in Monmouth, Illinois, in late January 2018 discovered nearly \$90,000 in potential savings.

“It was a very worthwhile event,” said Patrick Costello, the manager of energy and sustainability services for OSF HealthCare, which includes OSF Holy Family. OSF Holy Family is a 23-bed critical access hospital that serves a rural area. It consists of one building with 105,000 square feet.

The two-day Treasure Hunt included staff from OSF HealthCare and several outside vendors, including Paige Engelhardt from engineering firm Farnsworth Group; Chad Whitehead, business energy advisor from Ameren Illinois, a local electricity supplier; and Diana Fuller, market segment coordinator for Ameren Illinois.

The participants divided into two teams, one that focused on mechanical issues and the other on electrical issues. As with all Treasure Hunts, the energy-saving discoveries will pay off for years.

“One of the most surprising findings was that our kitchen exhaust hood was oversized,” said Michael Gorham, manager of facilities at OSF Holy Family. “It was running constantly, pulling air-conditioned air out of the room. We put together a project to downsize that hood that will cost \$17,000 but will pay for itself in less than half a year.”

Another key finding was an exhaust fan that was running 24/7/365, even though there was nothing in the room to be exhausted. Gorham said the room previously held switch gear, but it had been removed.

One participant, an expert on variable frequency drives (VFDs), examined all of the hospital’s motors to determine which could benefit from VFDs. Whitehead then calculated the rebates available from Ameren Illinois for adding the VFDs.

A representative from a local electrical supplier who joined the hunt determined that the three vending machines in the hospital were running more than needed, and recommended adding EnergyMiser devices to them. These devices, which monitor usage with infrared cameras, will save the hospital about \$600 per machine. With available rebates, the EnergyMisers only cost about \$60 each.

“It was a ‘win-win’ situation,” Gorham said. “That’s why local suppliers are excited to participate in the Treasure Hunts. They’re introducing things we can buy, so they make money and we save money.”

In addition to searching for potential energy-saving opportunities, the OSF Holy Family treasure hunters also considered ways that alternative energy could help the hospital. For example, the hospital is now evaluating a project to add solar panels.

The report out at the end of the second day of the OSF Holy Family Treasure Hunt was conducted in front of the entire administrative team of the hospital, in addition to Steve Looney, the OSF regional director of facilities. Joe Savala, OSF executive vice president of facilities and construction, participated by phone. The report-out attendees were happy to learn about the nearly \$90,000 in savings, a substantial amount for the facility.

The OSF Holy Family event was the second Treasure Hunt conducted by personnel of OSF HealthCare; the first was at OSF HealthCare St. Joseph Medical Center in Bloomington, Illinois, in November.

*The Energy to Care program, sponsored by Johnson Controls, encourages hospitals across the country to reduce their energy consumption by 10 percent or more over their baseline energy consumption. Since 2009, hospitals participating in the Energy to Care program have tracked more than \$67 million in energy savings. The free program includes a robust energy-benchmarking tool in addition to the awards. ASHE congratulates these hospitals for their leadership in reducing energy consumption.



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