

The University of Iowa

Energy Hawks Process

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Background

To help offset state de-appropriations of historic magnitude in FY2009, The University of Iowa (UI) began looking for additional ways to improve energy efficiency and save utilities costs. Facilities Management (FM) determined it could accelerate energy-savings by assembling a team to streamline processes and develop new methodologies for identifying and correcting operational inconsistencies, equipment deficiencies and system imbalances.

The Energy Hawks, named for the Iowa Hawkeyes, took flight in July 2009 to further reduce energy costs in 60 buildings. In short order, this quick-hit, high impact team completed approximately 300 improvements in eight buildings, triggering noticeable changes in energy efficiency, building function and occupant comfort.

Each year, the Energy Hawks program is expected to discover an additional \$1 million in savings. As this team migrates from building to building with a keen eye toward reducing energy waste, the Energy Hawks give new meaning to the phrase "Watching like a Hawk!"

The Energy Hawks Team

Saving energy and reducing utilities costs while improving occupant comfort is the goal of the Energy Hawks. The team consists of specialists drawn from various Facilities Management units and includes energy engineers, building controls technicians, maintenance personnel and operations engineers. Team members are selected for a specific building based on their knowledge of the building systems. They work on solutions ranging from tuning, calibrating and adjusting controlling devices to projects with longer-term paybacks like replacing dampers and louvers. To maximize efforts, the team searches out opportunities where a concentrated minimal investment will produce a major return.

Ingredients of Success

Holistic Approach

Team members begin by looking at the building as a whole. They scrutinize energy data – chilled water usage, air flow, average temperatures— before visiting the building. By concentrating on the relationship between components, team members can uncover problems and fine-tune building systems to keep them functioning at a 90-100% efficiency level.

Cross-organizational and cross-functional team

The Energy Hawks employ a cross-organizational and cross-functional method that facilitates collaboration across Facilities Management departments. Historically, utilities

departments manage the systems leading up to the envelope of the building, and building maintenance departments manage the building systems, which can result in goals that are out of sync. The Energy Hawks promote working collaboratively to optimize systems.

Evolved practices

In the past, core issues could go unresolved because there were not enough resources or time to commit to the process. Dedicating a full-time team to this challenge reveals opportunities for better systems management solutions. The Energy Hawks understand that they are creating measurable value by going beyond asking routine operational questions to the more comprehensive evaluation of “is it performing optimally?”

Steps in the Process

1. **Determine priority of buildings** based on past energy usage on a per-square-foot basis comparing similar occupancy and usage.
2. **Review building systems** including drawings and testing and balancing reports and assign team members based on skill sets.
3. **Conduct a walkthrough** of the entire building and all the systems with area maintenance personnel to gain a better understanding of the issues.
4. **Make a detailed list of findings and prioritize** based on short-term, intermediate, and long-term projects.
5. **Work as a team** and refer issues of greater expense or magnitude to a steering group .
6. **Communicate with each other and occupants** throughout the process

Energy Hawks Support

The University of Iowa has a strengthened emphasis on sustainability, led by President Sally Mason. She has publicly commended energy savings already in progress and has challenged us to do more. As further indication of support, the UI invested \$1M in the Energy Hawks during a time when most budgets were being reduced.

Other sources of financial support include reinvesting utilities savings from previous years, leveraging deferred maintenance and recurring maintenance funds and incentives offered through local utility rebate programs.

A steering committee meets weekly to plan the sequence of buildings to be inspected and to discuss more complex or expensive issues. The Energy Hawks also work with Building Coordinators and FM area managers to ensure collaboration and continued best practices.

Employee commitment is a major component of the success of the Energy Hawks. FM staff members know the work they are doing helps save energy dollars and improve occupant comfort.

Energy Hawks Results

While some of the work will result in long-term paybacks, there are already a number of favorable outcomes.

In Trowbridge Hall, energy engineers have estimated annual savings of nearly 13.7% in

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electricity, 3% in chilled water and 5% in steam. The Energy Hawks also documented 60 energy-efficiency fixes at the Nursing Building. In the Lindquist Center, the Energy Hawks discovered that exhaust fans were not cycling off on schedule. With adjustments to the exhaust fan scheduling and other fine-tuning, the systems in the building are now working in synchronization to create a comfortable environment with improved efficiency.

Tina Hass, assistant to the Dean, College of Education, sums up the process, "The experience with the Energy Hawks has been seamless and painless. They came in (Lindquist Center) and got to work with no disruption to the building occupants. Faculty and staff have commented on how much more comfortable their offices are and we have noticed a difference in energy efficiency and comfort levels throughout the building."

The ongoing analysis of data and customer feedback will help Facilities Management document best practices and train the next generation not only to recognize and treat the symptoms of energy inefficiency but also to repair the root cause.