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## Automated Benchmarking at K-12 Schools: Partnering with Service and Product Providers to Improve Energy Performance at Davenport Community Schools

### Familiar Challenges and Exceptional Success

As an urban school system with buildings averaging 55 years in age, Davenport Community School District in Iowa had inherent challenges to overcome when embarking on an energy performance improvement track. Declining enrollment, reduced state aid, and a 50% increase in natural gas prices had dealt a crippling blow to the school district's budget. Doing more to conserve energy became a necessity so that the district could maintain programs essential to student achievement. Davenport rose to the challenge, taking advantage of automated benchmarking technologies to measure and track the energy performance of its buildings and help identify energy cost savings opportunities. As a result of comprehensive energy management efforts, the school district estimates savings of \$1.2 million since the 2003-2004 school year. According to Bill Good, Director of Operations, "...if we had not done this, we would be facing major staff and program reductions...the \$1.2 million in energy savings will fund 20 teaching positions."

### The Value of Partnerships

In assessing the challenges facing them, Davenport officials determined that partnerships would be key to a successful energy management plan. By partnering with EPA's ENERGY STAR® program in 1992, along with the local utility and energy service and product providers (SPPs), Davenport tapped into a wealth of resources to support its energy performance improvement efforts.

To enhance the district's ability to assess and track school building energy performance, Davenport collaborated with Save More Resources (SMR), an ENERGY STAR SPP partner that provides energy tracking software to end-users. As a result, Davenport Community School District was one of the first school districts in the country to integrate automated benchmarking into its energy management program.

### Automated Benchmarking

A key component of Davenport's plan is assessing and tracking school energy performance using EPA's energy performance rating system found in the online tool, Portfolio Manager. In the past, K-12 energy managers manually entered each building's energy consumption data into Portfolio Manager to obtain a rating. To save staff time and get results faster, Davenport implemented automated benchmarking in 29 of its facilities with the assistance of SMR's Utility Pro™ software. SMR's Utility Pro uses EPA's automated benchmarking capabilities to communicate and synchronize with EPA servers so that ratings are delivered directly to Utility Pro. Utility Pro helped Davenport streamline the use of EPA's rating system and obtain ratings without manual data entry. Davenport now has an advanced energy tracking system that allows users to produce monthly, quarterly, and annual energy use and cost reports so they can compare energy use trends over the past 6 years.

### Assessing Performance and Evaluating Program Results

EPA's rating system evaluates the energy performance of K-12 school buildings on a scale of 1 to 100, compared to similar buildings nationwide. The rating system accounts for impacts of year-to-year weather variations, as well as building size, location, and several other operating characteristics. The rating facilitates comparisons within a school system and between school districts by using weather normalization and standardization of energy consumption data converted to kBtus. Because the tool factors building attributes into the rating, it can help energy managers identify potential areas for energy savings. ENERGY STAR's automated benchmarking established a performance baseline for each building in the Davenport portfolio, which allows District officials to track the effectiveness of their improvement plan over time.

At Davenport, automated benchmarking provides updated ratings on a monthly basis, along with associated energy intensities for each school. Davenport's assessment capabilities are enhanced

by the centralized processing of all energy data. The results are used to set energy goals and evaluate program success.

Davenport created the following system to identify and prioritize energy savings opportunities:

- The core energy team reviews and evaluates all district buildings' energy consumption data. Using EPA's rating system, accessed through automated benchmarking, the team determines where resources need to be targeted.
- A list is made of potential projects by building, including expected costs and outcomes.
- No-cost and low-cost initiatives are identified for immediate implementation.
- Remaining projects are prioritized by greatest impact, long-term energy savings, and cost.
- Project status/timelines are developed to include:
  - Funded projects for immediate implementation.
  - Funded projects for longer term implementation
  - Unfunded projects to be kept on the list for future review.
  - Monthly team meetings to perpetuate the improvement process.
  - Monthly progress reports.

Davenport's core energy team creates and reviews monthly reports and follows up on lack of progress or improvement on any buildings with poor performance. The team shares reports with all building principals and head custodians so together they can ensure that energy goals will be met.

### **A Successful Holistic Approach**

Davenport's comprehensive energy program is guided by ENERGY STAR's Guidelines for Energy Management. The program was founded on a deep commitment from the community, the facilities and administrative departments, and the School Board to reduce energy consumption.

Davenport achieved energy performance improvements through upgrade projects as well as energy education that changed the energy habits of students and staff. At Davenport, the philosophy is "regardless of the means used to save energy and precious resources, modeling responsible energy conservation to students equates to greater energy awareness for future generations."

### **Recognition**

Davenport's energy efficiency accomplishments have been recognized widely. In 2005, the school district received the Governor's Environmental Excellence Award and EPA's Energy Conservation Regional Award. In 2006, Davenport received the National Pinnacle of Excellence from the Association of School Business Officials International for energy conservation.