# Polk County Case Study

As the 8th-largest school district in Florida and the largest employer in its county, the School Board of Polk County stands as an example to the community as a longtime leader in energy efficiency. Since its inception in 1991, the district's energy management program has achieved a cost avoidance of more than $62 million. While the district's square footage has increased by almost 67 percent, electricity usage has increased by less than 30 percent and gas and water usage have actually decreased, by 30 percent and almost 24 percent respectively. These remarkable achievements demonstrate the School Board of Polk County's commitment to using fiscal and natural resources responsibly and showing the importance of environmental stewardship to students.

Among the largest 40 school districts nationally, the School Board of Polk County covers more than 2,000 square miles, including 65 elementary schools, 19 middle schools and 18 high schools. These school sites also include charter schools, career centers, adult schools, and alternative schools. The district educates more than 90,000 students, and employs nearly 13,000 people, more than half of whom are teachers. Its mission is to ensure rigorous, relevant learning experiences that result in high achievement. To accomplish this mission and serve its staff and students, the district operates almost 12 million square feet of air conditioned space—equivalent to operating 5 and half Empire State buildings.

As the energy management program at the School Board of Polk County has evolved, so have its energy efficiency goals. When the School Board of Polk County began its energy management program 17 years ago, the primary goal was to save money by saving energy. The district began working with Energy Education, Inc. to develop a behavior-driven energy efficiency program. The first few years of the program were about "teaching people how to use their existing equipment." Some of the district schools conducted energy patrols, in which students monitored the energy usage of classrooms. This component helped instill an ethic of energy efficiency that is still a part of the district culture. The district also benchmarked its energy use with EnergyCap software to track its energy usage and percent reductions.

After the program was more firmly established, it was expanded to include an emphasis on equipment upgrades, such as installing timers on lighting, replacing inefficient lighting with T-8 bulbs and fixtures, and installing low-flow toilets and urinals. The district adopted a decentralized approach that empowers principals and teachers to control their energy reductions. Principals are sent a monthly usage report, which has motivated the staff to realize further energy savings at the school level. Each classroom also has an individual air conditioner, enabling teachers to control their environment to their comfort level. This approach has been integrated into the way that new buildings are constructed in the district, with all new buildings having individual classroom controls. In addition to basic comfort, teachers and staff are motivated to participate because energy costs and salaries come from the same funding source, and the energy management team frames the cost savings in terms of teacher salaries.

The district also capitalized on the synergistic relationship between indoor air quality (IAQ) and energy efficiency. For example, district officials stopped running the air conditioning at night, which resulted in a lower relative humidity. This lower humidity, in turn, helped eliminate conditions conducive to mold growth. The district also accounts for all necessary IAQ measures while saving energy in gymnasiums and auditoriums as well. Rather than having one large HVAC unit for these rooms, there is one small HVAC unit that is capable of maintaining a temperature for the average number of occupants (for example, a gym class with 30 participants). If there is a large game or pep rally, the large unit is used to provide adequate ventilation.

The current objectives of the energy management program embrace all of these components: saving energy and money, preventing greenhouse gas emissions, and improving IAQ. The goals are to 1) help the district conserve energy to save the nonrenewable resources of the planet; 2) help the district maintain a quality learning environment for the students, teachers, and staff; and 3) help save money that the district can productively reinvest in ongoing educational activities.

The energy management program now has four full time energy managers and realizes a significant return on investment—$24.73 for every dollar spent. The School Board of Polk County currently has the lowest cost per square footage in the entire state of Florida and saves approximately $7 million per year. If all school districts in the state operated at the same cost per square footage as Polk County, the State of Florida would save $239 million per year.

As discussed above, the energy management department achieved these savings through a combination of behavioral changes and equipment upgrades, including:

- Educating all staff in the most energy-efficient way to use equipment that they control.
- Providing detailed shutdown procedures for periods when the buildings are not occupied.
- Monitoring all school sites during operational and non-operational hours for the most energy-efficient use of equipment and to ensure control systems are working correctly.
- Monitoring all utility accounts for proper rate structure and accurate billing.
- Inputting usage and cost for all utility bills into EnergyCap software for tracking purposes and to report savings results.
- Participating in the planning of all new buildings and additions to help ensure the most energy-efficient design.
- Helping in educating students and staff about energy efficiency through classroom presentations and printed information.
- Conducting frequent walk throughs of the school buildings and talking to teachers and staff about comfort and energy efficiency measures.

Participation in both ENERGY STAR and the Southeast Rebuild Collaborative (SRC) has provided the district with national and local recognition for its energy conservation efforts in the schools. The district recently earned the ENERGY STAR® for superior energy performance for 35 of its buildings and plans to apply for recognition for 88 additional school buildings in 2009. The School Board of Polk County plans to continue its school-based, decentralized approach while continuing to find new ways to save energy, such as saving $30,000 per day in the summer by working a compressed week.