



# ITHACA SAVES ENERGY



Dining at Ithaca College in New York, operated by Sodexo, recently teamed up with a group of sustainability-minded students for a plan to chop the energy bill by 30 percent, and slice the kitchen carbon footprint by 26 percent by switching to energy-efficient equipment and promoting a conservation mindset.

“A big part of our focus on sustainability at Ithaca College Dining was focused on waste reduction, but not necessarily focused on energy reduction,” said Jeff Scott, general manager with Sodexo at the college. “We didn’t really have a handle on what our carbon footprint was. In talking with the different stakeholders, especially with student interest, we figured that there might be some great value in developing a program that would assist us in understanding all of the different components, whether they are mechanical systems, pieces of kitchen equipment, work practices, lighting and cooling in spaces where, not only our employees work, but also where we serve our guests.

“We wanted to get a comprehensive assessment of all of our equipment and our systems and what they use for energy and establish a baseline and work with engineers, technicians and folks with the college facility staff to identify opportunities where, either with changes to work practices, replacement or upgrades of systems, we could reduce our carbon footprint and the energy we use, using new technology or new advances in equipment and/or simply create new schedules for preventive maintenance.”

Student interns were involved in the identifying and tagging of 438 pieces of kitchen equipment. Each piece of equipment was given a barcode for future reference. "All of the information was loaded into spreadsheets initially to document the estimated hours of usage, and we extrapolated out to an annual basis," he said. "We took manufacturers' specifications for use of those and were able to determine that our energy use was focused on electricity and natural gas."

The findings helped develop a baseline estimate of dining-service energy consumption and carbon emissions. Short- and long-range ways to curb energy use were identified, including the installation of energy-efficient exhaust fans, making employees more aware of energy use and the addition of light sensors.

The initial scope of the project was estimated to cost about \$233,000 that would, going forward, yield an estimated energy savings of \$137,000 per year. The payback in years was about 1.6. "It made a strong business case to the institution for investment," said Scott.

One project that ended up with an energy savings was the upgrade of the large kitchen's ventilation system. "We upgraded from existing very traditional, conventional exhaust that runs at two speeds – on or off," he said. "When you picture a large kitchen facility you may not have every kitchen appliance in use. You may have very limited amount of staff first thing in the morning, at slower periods or at the end of the day. In one of the kitchens we already installed a variable feed fan system. The power of the fan adjusts to the quantity of cooking and thus the appropriate level of ventilation. Thus it creates a dramatic reduction in energy use and energy costs. We estimate savings there of about \$22,000 annually."

In another area, pre-rinse nozzles were changed to control the amount of water being used in a prep sink area. "It was running at a rapid pace that wasn't required for the task that was being done in that area," said Scott. "We estimated a savings of \$1,500 in that area just to heat that water that was being used."

Door closures were added to all of the

walk-in coolers so that the door would start closing the minute someone walked in or out to dramatically reduce the time that door was left wide open and result in lost cooled air. "We estimated a savings of about \$1,600," he said. "We also installed variable speed drives on some of the boilers in Terrace Towers and the Campus Center Dining Hall. What that does is it allows the motors to work at lower speeds when the demand isn't high, versus running at one full speed. It is a dramatic savings there of \$9,500."

Another part of the initiatives is the creation of a five-year kitchen equipment replacement plan. "If pieces of equipment were either at or about to come to the end of their useful life, we had a schedule and cost estimates prepared, so that we could replace them, and obviously we would know what that would cost looking out over five years," said Scott. "Anything replaced, we would go for the most energy-efficient models available. We also identified pieces of equipment that maybe had useful life, but were high consumers of energy, and if there were more efficient

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# Equipment

models out there on the marketplace and there were substantial savings, make recommendations for replacement. One discovery was a bakery oven, and that's one of the biggest paybacks and one of the biggest reductions, so it is on the top of our list for replacement.”

He continued, “Another aspect of this whole project was to really identify a much more robust preventive maintenance plan and schedule so that not only extend the life of our kitchen equipment, but it would also operate much more efficiently, certainly from an energy use and cost standpoint.”

In addition to the equipment, other methods to save energy were implemented. “We found an opportunity in one of our dining centers where we needed air infiltration repair, meaning there were leaks,” he said. “We were getting negative pressure. Simply replacing gaskets, we estimated through technicians that that saved \$1,000 per year.”

Energy-saving guidelines have also been established for employees. “Instead of a cook or a chef turning on all of the



ovens first thing in the morning so they are warm and available for use because that is what they have always done, they are now powered up 30 minutes before use,” said Scott. “We estimate a savings of \$2,300 year-to-date just by changing work behaviors.”

More initiatives are planned for the program going forward. “One of the big projects we are going to be doing is installing sub-metering so that we can have an absolute number on how much en-

ergy is being used by location,” he said. “That is going to help us as we put all of this theoretical data together and actually track what’s saved by changing out equipment or upgrading systems, and also give us data to share with our employees. Our plan is to have an employee program just like we focus on other business objectives with our employees, get them involved by continuing with these behavioral aspects of reducing energy use.”

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