CUSTOMER CASE STUDY

Beyond a balanced breakfast: Kellogg's uses data to drive sustainability

Kellogg's - www.kelloggs.com
Industry - Consumer products

Goals

- Meet company-wide 10-year energy-reduction targets for natural gas, electricity, and water usage
- Optimize asset efficiency

Challenge

- Without a data-informed view of plant energy use, it is difficult to optimize energy efficiency effectively

Results

- Annual savings of $3.3 million, and an additional $1.8 million in rebates, in one plant alone
- Achieved a consistent downward trend in natural gas, energy, and water usage

Solution

- AVEVA™ PI System™

Like a lot of large manufacturers, Kellogg's has ambitious goals for making better use of energy. In 2005, the Michigan-based food company adopted a 10-year plan for energy reduction, with benchmarks for making more efficient use of electricity, natural gas, and water. But in order to hit those targets, Kellogg's needed a holistic, data-informed sense of where energy was being used and for what purpose. And to do that, the company turned to AVEVA PI System.

"Since 2005, our plant is saving $3.3 million annually, and we've claimed $1.8 million in rebates – and those rebate unlocks don't come without data."

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John Gothberg
Engineering and facilities manager, Kellogg's

Setting the stage: The value of baseline data

Founded in Battle Creek, Michigan, at the turn of the 20th century by two brothers who accidentally invented a new way to turn grain into cereal flakes, Kellogg's now has $14Bn in sales annually. The company manufactures and distributes breakfast and snack foods in more than 180 countries. In 2000, Kellogg's began using the AVEVA PI System as the backbone of its data architecture, a decision that would prove valuable when the company later moved toward digital transformation to drive its energy-reduction goals.

Before tackling the energy project, Kellogg's had already had some success in using data to drive operational change. In 1999, the company established its Operational Asset Effectiveness group to take a closer look at the company's operations and to target opportunities for improvement. That project helped pave the way for hitting Kellogg's ambitious energy goals, said John Gothberg, the company's engineering and facilities manager. "We had a lot of success with the OAE project in measuring real-time data to feed decisions on the floor."

The first step in meeting the new energy targets was gathering fine-grained data on where, when, and how energy was being used. Kellogg's installed meters throughout the plant and created standardized AVEVA PI Server tags at the start of the project, creating a wealth of baseline data that would drive the company's reduction efforts. "I can't tell you how much value that's brought to our plant," Gothberg said. "It's hard to prove something after the fact, and that project set the stage for a lot of success."

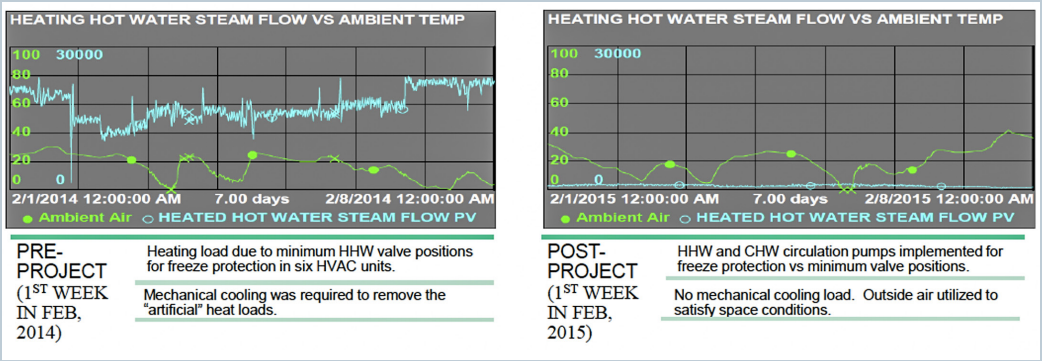
Making systems work together

The Kellogg's main plant at its headquarters in Battle Creek is large and complex, with 44 HVAC units controlled by a single building-management system. By analyzing real-time data on energy usage at the plant, Kellogg's plant managers and engineers found that some parts of the plant were effectively working against each other.

One example of low-hanging fruit for the energy project: the plant's system for keeping the coils in the HVAC units from freezing, which involved heating air to 80-100°F to keep the coils warm, then cooling the air down again for discharge. Retrofitting the controls on this older system to prevent unnecessary energy use resulted in savings of several hundred thousand dollars a year, Gothberg said.

Another insight gleaned from energy data: Kellogg's engineers found that a system that brought fresh air into six HVAC units was wasting energy by delivering air to each unit separately and heating it up. Bringing in air to all six units at once, and mixing it with return air from the building, allowed Kellogg's to realize dramatic savings on heating costs; in one week in February, the company saved $40,000 on heating costs for those six units.

Each successful project helps to make the case for identifying the next opportunity. By studying its own historical energy usage and how energy flows within plant systems, Kellogg's is finding more and more potential areas for improving efficiency and reducing energy at the Battle Creek plant.



Using AVEVA PI System, Kellogg's identified areas of improvement in its HVAC units that not only improved air quality but also saved the company more than $40,000 in just one week

Looking ahead: Data drives sustainability

Building on the success of the initial 10-year energy project, Kellogg's set even more challenging energy-reduction targets for 2020. The company has achieved a consistent downward trend in natural gas and energy usage and has identified a variety of innovative ways to save on water.

For Kellogg's, AVEVA PI System data has been key to making progress on sustainability goals. "We use that data to execute and validate," Gothberg said. "Hope is not a business strategy."

For more information about AVEVA PI System, please **click here.**