CASE STUDY

Kimberly-Clark's Huntsville mill reduces cost, improves performance with Enel demand response

The big picture

Kimberly-Clark and its global brands are an indispensable part of life for people in more than 175 countries. With brands such as Kleenex, Scott, Huggies, Pull-Ups, Kotex and Depend, Kimberly-Clark holds the top share position in more than 80 countries. The company's Canadian Huntsville mill, in the Muskoka tourism region of Ontario, makes Kleenex Facial Tissue, the Kleenex Pocket Pack, and Scott 1000 Bath Tissue. The Huntsville, Ontario mill is a 24/7 operation that manufactures large rolls of tissue and has several conversion operations that fold facial tissue, wind bath tissue, and package the products.

Since 2011, K-C's Huntsville mill has partnered with Enel X to earn payments though Ontario's demand response program. A local expert with global backing, Enel has substantial on-the-ground knowledge of Ontario's demand response program, and more importantly, the ability to understand the Huntsville plant's operations for a win-win partnership.

Starting small

In 2010, Huntsville management entertained the idea of a 500 kW reduction in energy use at the plant in order to participate in demand response. Enel visited the site to evaluate its energy use, and determined that the 7 MW facility could actually reduce up to 5 MW during a demand response dispatch to maximize payments. After two successful dispatches, the Huntsville mill found that 5 MW was actually a conservative estimation, and that the entire tissue machine could be shut down during a 4-hour

Location
Huntsville, Ontario

Industry
Personal and healthcare products

DR Strategy
Curtailment

Program
IESO DRA

Total Payments
Over $2.3M since 2011

dispatch to take a total of 5.3 MW off the grid. Because the Huntsville mill operates with inprocess inventory on hand, the packaging operations can continue uninterrupted, even while the tissue machine is down.

Optimizing downtime

Kimberly-Clark has built a culture of flexibility around its ability to respond quickly to a DR dispatch and make the most of its downtime. Huntsville utilizes the 4-hour period of downtime during a dispatch to perform standard required maintenance on the tissue machine. Regular maintenance on the machine is essential to prolonging its lifespan, and critical to avoid having to replace it.

By performing maintenance during the dispatch periods, Kimberly-Clark not only prolongs the lifespan of its expensive equipment, but also earns capacity payments at the same time. "Being able to take advantage of downtime has really helped us internally to get our maintenance act together," said Anthony Magistrale, Electrical Engineer – Tissue Manufacturing, at the Hunstville mill. "And we did it with an 'empty wallet' approach we didn't have to invest in capital to make our operations more efficient."

Getting buy-in

Huntsville's mill managers faced questions at first on whether the facility's curtailment plan would conflict with its primary goal of making paper products. Magistrale answered these questions with a 42-inch LCD monitor, installed at the entrance to the plant, showing the facility's energy use and greenhouse gas (GHG) emissions. The screen also shows the potential load reduction and payments to be received during a demand response dispatch. While some employees were at first skeptical, the proof was in the numbers. "When I look at the numbers, it's pretty easy," said Magistrale. "The payments well outstrip the cost of our downtime." The site receives 'standby payments' just to participate in the program, whether or not a demand response dispatch occurs, which have amounted to more than $2.3 million since 2011.

The benefits

From receiving regular payments that can be fed back into the mill's infrastructure, to organizing the workflow of maintenance activities, to gaining an awareness of the status of Ontario's power grid, demand response helps Huntsville remain competitive in energy efficiency and cost-savings relative to Kimberly-Clark's other global operations.

Business intelligence

"I've learned a lot about the electricity market," said Magistrale. "Knowing the status of the Ontario grid is really useful, and is something we'd never looked at before." This is especially important for anticipating power interruptions, and understanding the pricing and supply of electricity.

Local support

Huntsville's role in demand response is a way to maintain the stability of Ontario's electric power grid. By taking over 5 MW of load off the grid during peak usage periods, Huntsville is able to assist in balancing supply and demand of electricity, enabling the grid to function smoothly without interruptions in service.

Straightforward participation

Working with Enel, Huntsville knows exactly what to shut down during a dispatch, and stays in constant touch with the Enel team to test and verify its ability to curtail as needed.

A comprehensive approach to sustainability

Kimberly-Clark's corporate headquarters is committed to sustainability standards, and now recognizes the Huntsville facility as a direct contributor to those goals. By participating in demand response, Huntsville has distinguished itself within the K-C portfolio as a leading energy efficient facility.

The future

Huntsville's success with demand response has Magistrale thinking about what else he can do to optimize energy use at the plant. Enel's demand response application has given him and his team insights into how the facility utilizes energy, and Magistrale knows there are more changes that can be made. "We're looking at options for energy auditing, and we're looking for efficiency improvements that would come out of those audits," he said.

Additionally, Kimberly-Clark has expanded its demand response participation to Australia. Its operations in Ingleburn, New South Wales, are earning payments through the Australia Renewable Energy Agency (ARENA) and NSW government-funded demand response trial. Kimberly-Clark executes their energy reduction plan within 10 minutes of receiving dispatch instructions from Enel X, playing a valuable role in a program that helps prevent blackouts in the National Electricity Market (NEM).