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Energy Monitoring & Targeting



Taking the
guesswork
out of energy
management

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Energy Monitoring & Targeting helped auto parts firm, Gates, weather the worldwide economic downturn -- and profit from the recovery.

A Union Gas-funded research project demonstrates the power of this energy information tool.



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Summary

Union Gas sponsored a research project at Gates-Stratford to determine the benefits of employing an Energy Monitoring and Targeting (EM&T) system in an industrial organization. Use of an energy management system, with real-time feedback and predictive modeling capability, resulted in dramatically lower energy use per unit of production.

Manufacturer's energy challenges provide ideal site for research

Gates Canada Inc., from Stratford, Ontario, is a leading supplier of highly-engineered power train components to automobile manufacturers. During the economic downturn, Gates pulled back to a five-day production week. But a portion of the furnace was kept idling at full temperature over the weekend because they are difficult to restart and bring back up to the required temperature. Could natural gas savings make shutdown worthwhile?

Managers wanted to resolve this and some other operating issues. But, they faced an information gap. They had no way of knowing how much natural gas was being used in specific areas of production at any given time. Without this information, they couldn't gauge the costs and benefits of changing production or equipment. **Waiting for the monthly gas bill simply wasn't working.**

Enter Union Gas with an idea. Union Gas has been in the business of promoting energy efficiency for many years and is committed to introducing its customers to the latest and best energy practices. Union Gas wanted to determine how Energy Monitoring and Targeting (EM&T) would work in a large energy-intensive industrial operation within its franchise so the utility approached Gates to act as the research site.

Union Gas then asked Energent Incorporated, a leading provider of real-time energy monitoring solutions, to be its delivery partner for an EM&T research study. A three-party steering committee, with representatives from all three companies, managed the project. Energent acted as the general contractor during the construction phase and then beyond that as the ongoing EM&T service provider.



Energy Monitoring and Targeting is generating \$20,000 in monthly savings at Gates-Stratford

EM&T in action

Gates saw the value of the idea and agreed to host Union Gas' EM&T research project. In 2008, Union Gas, Energent and Gates concluded an agreement to install, operate and maintain an Energy Management Information System (EMIS) with EM&T capabilities at the Stratford location. Energent designed and implemented their full-service EM&T program – EnergentET. The service reports Gates energy data instantaneously via the Internet and provides the team with ongoing data interpretation and analytical support.

EM&T requires developing predictive energy models for a given process. Once established, the system collects real-time energy data and compares it against these predicted values. The technique highlights and quantifies energy use change events that would otherwise remain hidden. To get the project up and running, Gates installed 13 new meters and integrated 11 existing meters throughout the plant. These meters capture data at five-minute intervals on the energy consumed by equipment like air compressors, sintering furnaces, and furnace atmosphere generators. They also record inside and outside temperatures. The data is transmitted automatically to a customized web portal. Utility company gas and electricity meter values are also input into the EMIS.

Energent created four different energy models for facility processes. They provide target values for energy use that is adjusted for key energy drivers such as production and weather. As a result, plant personnel can immediately identify when energy use is above or below what it should be. It gives them the opportunity to experiment with different equipment and operating practices so they get the very best energy performance.

EM&T proves its value

Gates managers say the new system came just in time to help them survive the economic downturn. One of the first uses was to determine the net benefits of furnace shutdown and restart when operating on a five-day week. The real-time information showed that the natural gas savings more than justified the time and effort. EM&T also helped Gates identify other savings opportunities such as:

- Adjustments to furnace idle settings
- Programmed sequencing of compressor units to follow demand requirements
- Installation of a new and more efficient endothermic furnace atmosphere generator
- Priority scheduling of the most efficient equipment

One of the biggest impacts of EM&T at Gates has been to dramatically increase awareness of energy use and savings opportunities at all levels of the organization - from senior management to the shop floor. Gates set up an energy team to support the EM&T project and to take advantage of the new information base. The system helps them identify and quantify opportunities so staff can prioritize and secure buy-in throughout all levels of the organization. The "instant feedback" in the system (aided by an alarm mechanism) encourages a culture of "on the spot" conservation and has helped Gates identify many "low or no cost" savings.

Union Gas can also assist your energy team and help you build a culture of awareness within your organization. Check the energy team support section on our website – enersmart.com/energyteam

Wins & Highlights

- Natural gas reduced by 8.2%
- Electricity use reduced by 12.3%
- \$240,000 in first-year energy cost savings
- ROI of 150%
- Simple payback of <8 months
- Consistent reporting on energy use
- Technical support and equipment incentives from Union Gas



“Energy monitoring and targeting is a very valuable tool for us. Before, when we made operating changes, the impact was lost in the whole scope of the factory. Now, with the Energent system, we have precise information on how much energy we’re using in different parts of our processes and we can see changes instantly – both positive and negative. And anybody can use it. For instance, the people in charge of the furnaces can check for themselves. It gets the information to the people who need it – those running vital operations.

Union Gas really got us going in the right direction when they brought this research project to our attention. When we saw how involved they would be and how we could qualify for their financial support to implement conservation projects, it convinced us to do as much as possible with their EnerSmart program.”

Jim McMaster
Operations Manager
Gates Canada Inc.
Stratford, Ontario

Going forward

The EM&T system continues to make important contributions now that Gates is back to full production. Gates has a service arrangement with Energent for ongoing monitoring and analytical support that ensures the manufacturer’s hard-earned savings are sustained over time. Next steps include plant footprint planning, integrating energy data into the new Maintenance Excellence Program, and furnace-to-furnace benchmarking at full production. The system will also be used to forecast energy costs and plan future capital projects.

Lessons learned

EM&T is generating \$20,000 in monthly savings at Gates-Stratford – savings that can be reinvested in new capital equipment. This ongoing reduction in energy use also translates into improved environmental performance.

EM&T benefits include:

- Quicker response time and trouble shooting
- Easy identification of low or no cost energy savings
- Feedback for “experimentation” – pinpointing the results of changes in operating practices and equipment use
- Reliable data for capital projects and energy use forecasting
- “Culture shift” with increasing awareness of energy issues and opportunities throughout the organization.



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Call the energy experts at Union Gas

Union Gas worked with Gates to help this EM&T research project get started and made sure that the company got full value from the new system, enlisting Energent's expertise and working closely with them to ensure smooth project delivery.

Union Gas is committed to helping industrial customers make energy efficiency part of their business planning. If you'd like to learn more about energy audits, feasibility studies and installation of energy efficient equipment, contact your Account Manager or visit enersmart.com/largebusiness



Energy efficiency projects pay you year after year!