

CASE STUDY

GENPAK

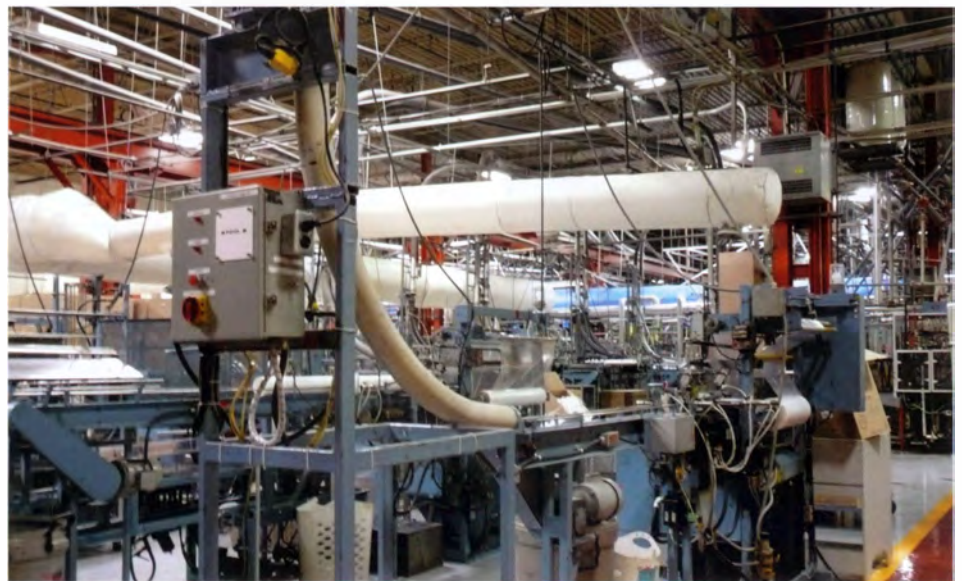
At a glance

- ▶ Improved productivity through continuous improvement in energy use per unit of production
- ▶ Estimated reduction in 2009 natural gas use - 6.7%
- ▶ Estimated reduction in 2009 electricity use - 12.9%
- ▶ Combined estimated natural gas and electricity payback of around 1 year
- ▶ Environmental benefits - over 965,000 kg projected annual reduction in CO₂
- ▶ Enbridge incentives for Energy Management Information System (EMIS) components and other capital projects totaling over \$75,000

Energy information boosts competitiveness at Genpak

Challenge: How to generate continuous productivity improvements

Genpak's production of polystyrene food packaging is very energy intensive. Managers at the Mississauga plant are continually looking for ways to reduce energy costs through process efficiencies and capital investments. But they were often frustrated by a lack of precise information on where energy was being used - information that would enable them to pinpoint low and no-cost savings opportunities, and to back up proposals for capital investments with reliable savings data.



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Solution: Use information to scale up efficiency results



Roosevelt Austin, Genpak's Director of Operations, Canada, has been working with Enbridge Gas Distribution for several years. Energy Solutions Consultant, Daniel Chum and Energy Solutions Manager, Bob Griffin, have helped him identify a number of energy savings opportunities in the plant. In 2008 they concluded that Genpak could scale up its efficiency drive significantly by putting in place a plant-wide EMIS coupled with an information awareness strategy. Austin recognized this as the missing piece that would enable him to sell capital projects to senior management and get all of the staff involved in day-to-day monitoring of energy waste and savings opportunities.



Once again Enbridge and Genpak worked closely together. Enbridge's Griffin conducted an initial Scoping Study to determine where the energy and water was being used and where sub-meters and other instruments would be required. This study formed the basis for a Request for Proposals for an EMIS.

Quad Automation Incorporated (QAI) won the tender to design and install the instrumentation, data communication and software for the EMIS system. In order to make the system as cost-effective as possible **QAI** created a PC-based application using off-the-shelf software that is expandable and easy to maintain. Their Quad Metering and Reporting System (QMRS) collects signals from gas, water and electricity main utilities, the water system, boiler plant, and compressor plant. Several sub-meters and instruments were added while the main gas and water meters were retrofitted for pulse outputs.



The **QMRS** features Human Machine Interfaces (HMIs)—user-friendly, one-touch screens—at strategic locations. This gives key production personnel easy access to energy use information on the factory floor. The web-based analysis and reporting system is multi-purpose which provides:

- detailed flow information for trouble-shooting
- calculations of energy cost per unit of production on a daily basis
- query capabilities to check past performance
- trends and energy variance reports relative to targets
- verification of utility bill

An information-based energy management strategy works best when plant personnel are involved in the ongoing effort to identify energy waste and improve efficiency. At Genpak all staff from the production manager to boiler operators, electricians and plant operators and supervisors access the system on a daily basis, flagging problems as they arise. Genpak's financial planners use **QMRS** reports as powerful tools for budget forecasting and continuous improvement.

Knowledge translates into dollar savings

A key success factor for any information-based energy strategy is target setting. Genpak and [QAI](#) used the initial Enbridge Scoping Study to establish the range of energy and water use for the plant's "business-as-usual" operations and then set the targets for savings. The system provides colour-coded "alarms" to alert users when energy consumption goes above or below these targets. Genpak's EMIS system went into operation in early 2009. With one full year of operation on record, the company is chalking up the benefits and dollar savings.

Genpak has met its overall energy management targets and, through monitoring and operational improvements, estimates 2009 natural gas savings of 6.7% and electricity savings of 12.9%. The energy reductions will also result in improved environmental performance: estimated 966,138 kg reduction in CO₂ and significantly less NO_x and SO_x emissions. Austin is now looking to set new, more ambitious energy and water saving targets going forward.

The EMIS continues to prove its worth in identifying maintenance and capital projects. Three examples include:

- The system alerted Genpak to problems with their boiler efficiency which were overlooked by the servicing company. A more thorough inspection resulted in corrective action that brought the equipment back to full efficiency.
- Detailed information enabled managers to identify components of the compressed air system that were not working properly. Subsequently they demonstrated to senior management how quickly the measured savings were offsetting the capital investment for the upgrades.
- Better information also allowed Genpak to conduct a water balance assessment. This made it possible for them to identify and stop excess boiler blowdown.

An added benefit of the [QRMS](#) is that it automatically calculates and displays all process variables. This provides invaluable input for **process improvements**.



Knowledge is power

Better energy performance information can enhance competitiveness across a wide range of industrial and manufacturing businesses.

Call Enbridge to get support for profitable energy solutions

Enbridge provides ongoing support for Genpak's energy management program. Enbridge conducted the initial Scoping Study, helped with sourcing and provided technical support to the contractors. Enbridge also contributed \$65,000 towards EMIS development and related gas improvement projects. Incentives are based on the natural gas savings resulting from the projects.

Enbridge continues to provide support for audits, studies and tests as well as energy efficiency projects for industrial customers. From opportunity identification, through to project screening and implementation, our Energy Solutions Consultants are here to support you every step of the way.



To get started on an energy information project for your business, contact Enbridge Gas Distribution at:

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