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Energy Efficient

Efficiency NB's industrial program is designed to help industry increase its competitiveness by combining the use of energy management information systems, best practices and energy efficiency projects to deliver improved profits and environmental performance. For more information on Efficiency NB visit [www.energycynb.ca](http://www.energycynb.ca).

*"If your company is implementing an EMIS, then you're already on the right track. Just don't be afraid to ask for help from the right people. For us, that was Efficiency NB. They had the contacts and the resources we needed."*

—Tom Gilmore, Project Engineer

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**MARWOOD**  
Build Something Beautiful

### **On track for energy savings: Marwood's energy champion helps the company reap the benefits of energy-efficiency investments**

Since the 1920s, Marwood Ltd. (formerly Atlantic Pressure Treating) has been manufacturing a variety of wood products including deck accessories, lattice, siding, and fencing. Marwood is keenly aware of its role in protecting our natural resources for future generations. It maximizes the value of every tree by reusing waste wood fiber to produce wood fuel pellets and animal bedding, is FSC-certified (Forest Stewardship Council), and is also certified with the Program for the Endorsement of Forest Certification Canada.

*Efficiency NB (ENB) & Marwood Ltd.*

When Tom Gilmore first joined Marwood five years ago as a project engineer, the company was looking for options to reduce energy costs.

Gilmore says that although the company spends about \$1.2 million in energy costs every year, energy was one of the few components of the business that they didn't have a measure for other than the monthly bills.

He knew that, with the global financial crisis of 2008/2009, knowing those energy costs and improving the efficiency of Marwood's operations would save the company money and make them more competitive. His first step was to sign up for Efficiency NB's large Industrial program to take advantage of their program components, especially the training courses.

Gilmore began with an energy management information system (EMIS)



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training course. “An EMIS is not a one-size-fits all system so the training helped me determine the type of system and the type of information that we needed,” he says. Gilmore then used his ENB training as a jumping-off point to convince senior management of the benefits of energy-efficiency investments. “Once I was able to show them how they could use the information to save money, it wasn’t hard to get early buy-in from management.”

## Energy Management Information System

Marwood’s EMIS consists of six electricity meters on the treatment, pellet, specialties, remanufacturing, lattice and fence plants at the company’s production facility in Tracyville, NB. Using customized software, each meter is equipped with communication modules that send data every 15 minutes to a central data server.

“The EMIS training course helped us figure out the type of system we needed, the kind of information we needed to collect and how we would use it,” says Gilmore. “Getting the right people to identify what we needed and identify the proper equipment was a key part of the implementation.”

He also says that the EMIS expert that ENB brought in for the training sessions was excellent. “He understood where we could gain value from the information and who needed to see it.”

Implementation took roughly eight months and Marwood was able to involve its own electrical staff to install the meters and its own information technology staff to create a new database and make the EMIS software work with the company’s existing production software.

“We’re a small team and we worked at it whenever we had time,” Gilmore says. “We put our own internal resources into it so anytime we had a hiccup in the process we had to find the right person.” While working on the implementation phase, Gilmore canvassed all of the facility’s site managers to determine the type of information they needed, and ensured that all staff were trained to use the new system.

Marwood’s EMIS has been in operation since January 2010. “Factoring in implementation, the cost of the meters and the initial audit, we have spent about \$75,000 on our EMIS. That’s less than a two-year payback,” he says, although he notes that training and expanding the system will be an ongoing cost. “We have a lot of small process machinery so we can expand the EMIS as we need to.”

### *Challenges & Benefits*

During implementation ... “there were several software communication issues we had to deal with such as calibrating the readings, networking the communications and linking them with other data sources. ENB put us in touch with people who helped us with that.”

Gilmore says that Marwood’s EMIS is still in its infancy and that the financial savings have not yet been fully tracked. “But just having the knowledge of what energy is being used and where it’s being wasted gives people the ability to do



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things differently,” he says. He cites one instance where a manager noticed his plant’s electrical baseload was running continuously and, using data from the EMIS, was able to determine the best times to shut it off. “We know where the electricity spikes are but we still need to collect a lot of data and learn how to manage our energy use. It’s part of the long-term gain in terms of performance targeting.”

## **Other Projects**

In addition to EMIS, Marwood applied for and received ENB funding to help offset the costs of an energy audit, which was conducted in February 2009. The audit highlighted the energy-efficiency opportunities that were available at Marwood’s Tracyville production facility, many of which have now been implemented.

## **New Air Compressor**

Marwood’s lattice plant spends more than \$185,000 annually on electricity, 13% of which is spent on compressed air. The February 2009 energy audit found that with a relatively simple modification the plant would save about \$15,300 each year in electricity, plus some additional savings from reduced maintenance of their old air compressor. A detailed feasibility study to confirm the initial information and determine costs was conducted in the fall of 2009 and was funded in part by ENB.

Gilmore explains that they replaced their old 150-HP air compressor with a new 50-HP one, increased the receiver capacity, reduced air leaks, and improved the compressor controls so that their existing 25-HP unit could operate alone during low load, or with the 50-HP air compressor when needed. Only minor modifications were required to the piping system.

“The new 50-HP unit is much smaller than the old one and, for what we’re doing, is much more efficient,” he says. “The old unit used to run all day, but this one turns on and off as required. We’ve set up a smart system that controls when the two compressors run, based on the load of the plant, without interfering with production.”

Purchasing and installing the new air compressor cost approximately \$32,000, half of which was covered by a one-time implementation stimulus fund, managed by ENB. Gilmore reports that these costs have almost all been recovered.

By working with the compressor’s manufacturer, staff is able to solve some minor issues with the unit’s controls and can now program and adjust the compressor as needed. As an added bonus the new compressor also came standard with a sound enclosure that has reduced noise in the compressor room and the plant.

## **Heat Recovery**

Like its other energy-efficiency measures, the opportunity to install a heat recovery system at Marwood’s remanufacturing plant was first identified in the energy audit. A more detailed feasibility study was then conducted to determine the type of system required and the cost.



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The remanufacturing plant produces about 6.4 million board feet of finished products each year. Energy use is dependent on production levels but also has a strong correlation with the weather conditions. The feasibility study showed that the plant's annual energy consumption cost more than \$132,000 but that a heat recovery system could save the company more than one-third of that—\$50,000—each year.

Initially, the heat recovery idea was put on hold due to its long payback (5+ years). "Because of the economy and product changes, we usually look for projects that have short, one-year paybacks," explains Gilmore. The issue was eventually resolved when the company located a cheaper, used system for sale online. "It was sized right for the application we needed so we bought it through an online auction in the U.S.," says Gilmore. The price differential reduced the payback period from five years to two.

The system works by recycling the air that was typically vented to the outside. "We have two fans that pull the sawdust away from the manufacturing process. Before we vent all that heat, we now run it through an air filter (bag house) that separates out the dust and fine particulate matter and then brings the warm air back into the building," Gilmore explains.

Employees noticed the difference right away. "People used to complain about the cold," laughs Gilmore, "but now they're on the verge of complaining that it's too warm!"

Some ongoing maintenance costs are associated with the air filter and bag house, but Gilmore says that, now that the system has been installed it is virtually self-sufficient. "And we've reduced the heating bill."

### **Advice to Other Industries**

For any industry wishing to stay competitive, Gilmore says that controlling energy use is essential. "We've done a good job managing our known consumable energy," he says. "The EMIS helps us have more control over it. We can react immediately to changes in energy load by shifting power or eliminating it entirely."

Gilmore says that if a company has never used an EMIS before, they will need help and there's no better place to start than with ENB. "They helped us identify the best use of our money, time and energy and put us in touch with the people who could determine what our data meant and how to use it," he says. "They're also very encouraging if you lose momentum."

### **Marwood's Energy Champion**

Tom Gilmore is reluctant to talk much about himself, but there's no mistaking the fact that he is Marwood's energy champion. On top of his day-to-day duties, he has taken more than 10 ENB training courses over a two-year period, spearheaded all of Marwood's energy-efficiency projects, and often travels to the company's other plants to oversee energy-efficiency improvements.



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“I joined the company about five years ago and the energy-efficiency work started about a year later,” he says. “It was an opportunity for a change...I looked at it as a challenge.”

He says that the ENB training gave him the tools to identify other energy-saving opportunities. “It helped me to see whether a measure was a good use of money or not,” he says.

His efforts have paid off and energy-efficiency is now top-of-mind with Marwood’s senior managers. “They are seeing the savings and the potential savings,” says Gilmore, “and the information has trickled down throughout the company.” Staff, he says, are much more aware of energy management and managers are quick to identify waste or ways to improve energy efficiency.

“In the end, these projects have helped give the company the confidence to go ahead with other measures,” he says, adding that without the funding and planning assistance from ENB Marwood probably wouldn’t have invested money bringing in its own consultants. “One is no good without the other.”

### **What’s Next?**

Marwood continues to consider additional energy-efficiency projects that could be implemented at its Tracyville facility including the possibility of adding a second heat recovery system, the use of alternatives fuels and steam reduction.

“These ideas are all conceptual at this stage and we continue to look for other opportunities,” says Gilmore. “We are also still in the monitoring and verification stage of these projects but are branching out and will take what we’ve learned on this site to our other major sites in Nova Scotia.”