

HELPING SHRINK A GIANT

In business, it's generally a good thing to be the biggest, to be a giant in your field. But this is not always true. Giant facilities generally mean giant electricity bills. That was one part of being a giant that the world's largest ground wood pulp manufacturer, Canadian-based Abitibi-Price, decided it could do without. They are doing it with new breakthrough technology from USES MFG INC>

Counting the two mills in the U.S., 10 of Abitibi-Price's facilities consume the equivalent of 1% of all the electricity generated in Canada. In fact, even though it produces 40% of their energy needs internally. In many of Abitibi-Price's plants, electricity is the second most expensive raw material.

Because the company consumes literally billions of kilowatt hours of electricity annually, John Reinsborough, Senior Engineer at Abitibi-Price's Sheridan Park Technology Centre in Mississauga, Ontario, Canada, naturally was interested in new technology which could deliver substantial reductions in energy consumption.

In October of 1993, such technology came to Reinsborough's attention. An American product, the USES Shunt Efficiency System, promised to solve a myriad of electrical problems and provide a plethora of other benefits as well. It promised to reduce wattage, reduce current levels, reduce the total harmonic current, content, balance loads, improve power factor, suppress voltage spikes and surges, and much more.

It sounded too good to be true. Reinsborough was skeptical himself, but decided to study the USES technology further. He wanted to understand what made the system work, what allowed it to do all those different things. After some deliberation and discussion, it was decided that the USES system would be installed at the Sheridan Park facility at no cost to Abitibi-Price, for a one-month trial.

Then the electric bill one month later showed a savings in both consumption and the demand peak level, it was decided to extend the trial over several months, to lessen the impact of month-to-month variations caused by the changing levels of activities at the Centre.

For 14 months the Centre's utility bills were tracked and then compared to the same calendar month for the previous three years. It was no fluke. The Centre's utility costs had been reduced an estimated 10% while its power factor, which had previously been under 0.9 before the USES units were installed, had risen to 0.99.

These results led to further testing, this time at the company's mill in Iroquois fall, Ont. Similar testing was performed at their plant in Augusta, GA. In the Iroquois Fall test, the USES units were connected to the 600 volt feeder lines to three motor control centers fed by a transformer substation. Readings were then taken with the units switched on and off. The test results indicated a reduction in both amps and wattage (see graph). Power factor improvement was also noted in all but one set of test results which were disregarded in light of the consistency of the other sets of test results.

The final computed results determined that the USES units had:

Reduced kW 13.4%

Reduced kvar 33.1%

Reduced kVA 20.3%

Improved the power factor from .78 to .85.

Based on these results, Abitibi-Price's research team estimated that installing the USES Shunt Efficiency System can reduce power consumption 10-15% when properly applied. They also estimated a projected payback period of approximately 15 months or less, depending on the plant load.

Reinsborough concluded, based on his analysis of the system's technology along with the test results, that the USES product also works as a power factor correction device, a surge suppressor, and a harmonic filter. In a recent article, Reinsborough said, "(USES units) have demonstrated that they are capable of reducing both demand and electrical energy on an inductive circuit, while improving power factor."

Abitibi-Price is also interested in the higher voltage models, which according to USES MFG INC. are currently being developed. To date, the highest voltage model is the 600 volt model used in Abitibi-Price's testings.