DRANETZ™
THE STANDARD FOR ENERGY & POWER MEASUREMENT

APPLICATION NOTE

CORRCHOICE CORRUGATED BOARD MANUFACTURING

Dranetz Encore Series and PowerVisa Application at CorrChoice, a Large Corrugated board Manufacturer

INTRODUCTION

Corrugated, cardboard and other paper container manufacturing facilities are huge energy consumers, with very high demand for electricity and other utilities. Understanding and managing electrical energy usage is of vital importance in today's deregulated energy world, especially for such energy intensive operations. Even a small improvement in efficiency can translate into thousands of dollars or more in savings. Also of concern is Power Quality and the compatibility of the power supply to the loads within the facility. Most manufacturing facilities have computer controlled processes today. Power quality problems originating from the utility or within the facility can wreak havoc on the operation and translate into significant financial loss from unplanned downtime, increased maintenance costs, missed production/customer schedules and more.

LARGE MULTI-SITE CORRUGATED BOARD MANUFACTURER EXAMPLE

CorrChoice, a division of Greif LLC, is a large corrugated board manufacturer with manufacturing facilities in Michigan, Ohio, North Carolina and Kentucky. Annual electricity costs for just one plant exceed one million dollars, so power and energy management are extremely important. Both the portable Dranetz PowerVisa Power Quality, Demand & Energy analyzer and permanently installed Encore Series power monitoring system were chosen by CorrChoice to assist with assessment of planned expansions, as well as ongoing energy management, and to provide proactive power quality analysis.

CorrChoice is very data centric and has a 'knowledge is power' philosophy. They employ a state of the art process and facility monitoring system called ***FIN*** (Factory Intelligence Network) from Automation & Control Inc. (http://automation-control.com) of Moorestown, NJ. FIN acquires data from key points within their process for statistical analysis in order to cut downtime, reduce waste and increase profitability. Encore Series has been integrated with FIN using the available Encore Series Software EssOPC gateway. The resultant integration makes Power Quality, Demand and Energy information seamlessly available within FIN for side-by-side comparison to process parameters.

PLANNED EXPANSION

Outgrowing one of their key facilities in Ohio, CorrChoice has plans for an expansion to increase their manufacturing capacity. The expansion may require an increase in the electrical service to handle the additional load. Wanting to know the actual facility loading vs. system design, one of the first objectives was to use the Dranetz PowerVisa to evaluate the utility service and other distribution points for both energy usage and Power Quality. Was an increase in electrical service even necessary? If so, what changes are required? CorrChoice was also having issues with some machine controls and suspected voltage variations as the source of the problem. In parallel with the energy survey, they wanted to evaluate the utility service and determine if they had PQ issues, and if so, were they originating from the utility or within the facility. See figures 1 and 2 for monitoring results. The sag identified in figure 1 was coincidental with a machine failure, so PQ issues were determined to be the cause of the problem and the source was identified as originating from the utility. The Demand and Energy profile shown in figure 2 was crucial information and was provided to their electrical design team planning the expansion.

The successful energy and Power Quality survey performed using the PowerVisa enabled the facility manager to gain approval from upper management to purchase a Dranetz Encore Series System to continually monitor the utility service entrance and key distribution points within the Ohio plant. In fact, initial results were so successful, an Encore system has been budgeted for each of their other plants, to be installed over the next year.

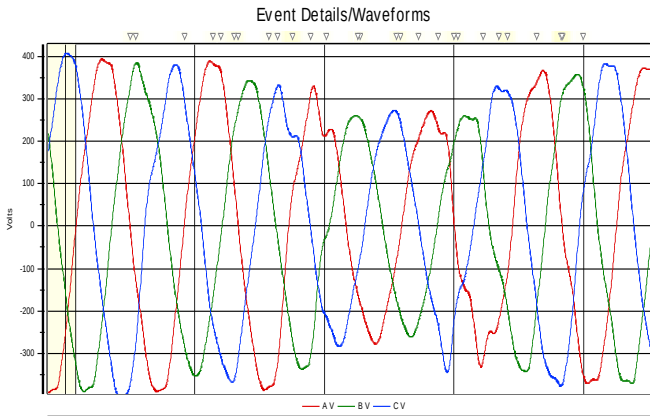

Figure 1. Voltage SAG detected at the utility service entrance in Ohio

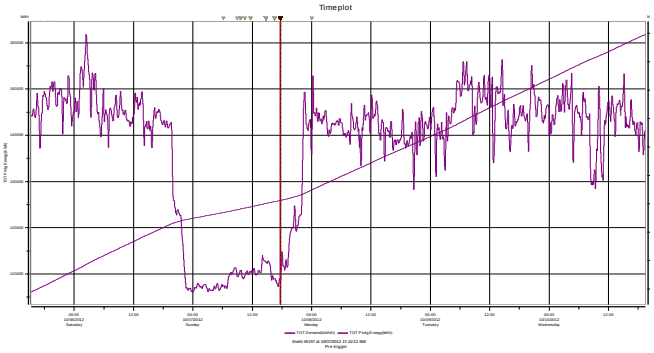

Figure 2. Ohio plant Demand and Energy profile

PRODUCTION THROUGHPUT

A very unique planned application is to use both the PowerVisa and Encore system to determine the payback of increased work flow through their plants. CorrChoice plants have the ability to increase run rates by increasing the feet per second of material through their production machines. The obvious benefit is increased top line sales by producing more product per hour, reducing customer lead times and servicing additional customer orders. However, being a very energy intensive operation, does it make financial sense to do so? What's the overall bottom line profitability when considering the increased electrical and other energy costs? CorrChoice will conduct tests on their machinery, evaluating the energy usage at today's run rates, and at incremental increases in run rate, to evaluate the profitability at each point.

The FIN system collects important process data, such as machine status and other details from throughout their facilities. Encore's energy data has been integrated into FIN and is available side-by-side with all other information acquired. In addition, the PowerVisa will be used to collect any electricity usage information at specific individual machine loads. Dranetz DranView software can then easily export the energy and other data to a .csv format that's easily imported into the FIN system for finer resolution in their profitability analysis.

ONGOING POWER MANAGEMENT

Ongoing energy management is quite important to CorrChoice, with the goal being to benchmark today's usage in order to plan for tomorrow's cost savings. The combination of Encore Series and the PowerVisa give CorrChoice a powerful arsenal of power monitoring capabilities. Encore series will be used for continual monitoring at key distribution points in order to manage usage throughout the life of the facilities.

The PowerVisa will be used to benchmark energy usage at large loads or other areas of the plants that are ripe for energy reduction in order to determine the payback in possible cost reduction scenarios. The instrument will also be available for portable Power Quality troubleshooting and analysis.

The next steps for CorrChoice include evaluating their facilities for potential energy savings. Everything is on the table, including evaluating the cost benefits and payback of energy efficient lighting, more efficient drives and motors, optimizing motor loads, demand response for time of use billing and more.