

# PaperAge

www.paperage.com

NOVEMBER/DECEMBER 2012

## TISSUE MARKETS

Will rising income  
and growing population  
in China take pressure  
off exports?

### MARKET PULP

Improved demand  
and reduced  
inventories have  
helped rally prices.

# Power Play

An energy management system can help a mill improve the stability and reliability of its operations, maximize net revenues from power sales, and reduce energy costs.

By Keith Masters

It's as true in pulp and paper as it is in many other industries: the continued rise in energy prices has put a squeeze on margin and profits.

Papermakers know that to maintain margin, they must effectively manage their energy costs. But many mills struggle to find the best ways to reduce what they pay for energy.

Mills can successfully manage energy costs by avoiding price peaks and penalty charges. Other tactics include using optimal resources to supply electric power; raising awareness of energy consumption and cost millwide; real time monitoring for early detection of poor performance against set targets; managing electricity purchase prices with accurate consumption plans and participating in the demand response market.

## SOFTWARE OPTIMIZES ENERGY USE

An energy management system, such as ABB's Energy Manager, is one of the best tools a mill can invest in for cutting energy costs. Mills using Energy Manager can typically achieve total energy cost reductions of two to five percent. To find a program that works for them, mills should look for software that includes planning and scheduling tools that help optimize energy use and supply; energy balance management tools to help procure energy at the best prices; and reporting tools to help monitor energy consumption, costs and efficiency. It's also essential that programs use real-time system data.



Planning tools can predict energy consumption and calculate a corresponding energy supply schedule. Software can also balance time-varying energy consumption with supply resources.

In Energy Manager, power schedules are monitored in real time so that deviations or unexpected events can be detected and reported, helping minimize their costs. The energy planning module automatically recalculates the demand schedule based on changes in process measurements, production plans or user inputs. If an imbalance between predicted power consumption and planned supply is detected, the deviation may be balanced through additional power trading

or automated process control.

The Power (Tie-Line) Monitoring module predicts total utility consumption within the current billing period by integrating and extrapolating the flow in the tie-line. If the predicted volume exceeds pre-set or calculated alarm limits, alarms will enable the operator to take action.

The system generates reports that help users quickly analyze energy and use. Performance reports can detail everything from the consumption and cost of utilities per hour/day/month/year to benchmarking to analysis of load profile and peak demand.

Energy Manager is completely scalable; this modular solution can start with basic energy monitoring and reporting at a single facility, and later expand to include multiple sites, or be implemented throughout the entire company to

optimize energy use and manage energy supply costs. A key component of this strategy is to tie in to sources of energy consumption, many of which are already captured in a plant level historian, others which require an OPC connection.

## CASE HISTORY RESULTS

### Cartonboard

In 2001 Mayr-Melnhof Cartonboard Group, a leading recycled cartonboard producer worldwide, implemented mill-wide energy management systems at seven board mills in Austria, Germany, the Netherlands, Switzerland and Slovenia.

The Mayr Melnhof managers are using the ABB information system to inform themselves in the morning about the events in the last afternoon and evening. "We use the system to manage energy, water, chemicals, compressed air, production and quality data and statistics," explains Johan Maier, a staff person responsible for energy and water management at Mayr-Melnhof.

"The Energy Management system represents our connection between local processes and offices, and provides a handy instrument for optimizing the process and detecting failures more easily," Maier noted.

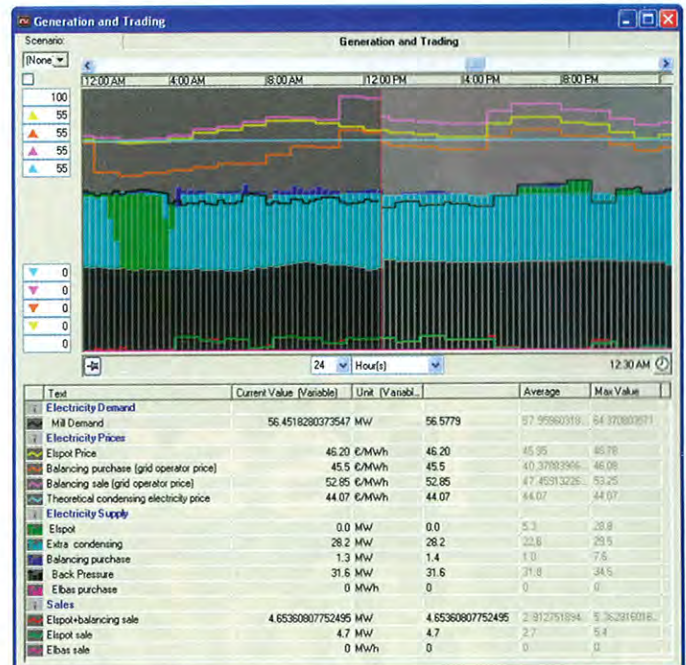
"We are happy with the system and have ordered an upgrade this year in order to obtain further benefits," he added.

### Public Works

Public Works Government Services Canada (PWGSC) oversees government assets including office buildings and central heating and cooling plants, as well as high voltage, water and sewage distribution systems that vary in size, complexity and age. Its activities include delivering, verifying, planning and reporting on utilities and different grades of fuel for all of these facilities. PWGSC also deals with many different energy suppliers and energy commodities.

PWGSC found that their multiple budgeting, reporting, billing and planning systems could not effectively manage all the required energy and asset management activities. By adding an Energy Manager they could optimize energy costs. The system is capable to collect real-time data from different energy markets. Energy Manager tools support analysis of the cost impact of different combinations of electricity and natural gas purchased from different sources. This will help PWGSC negotiate and purchase different energy commodities directly from suppliers.

The availability of real time energy data of different complex buildings allows PWGSC to perform benchmark analysis of the performance of their buildings. PWGSC uses



**Display example shows how energy demand, prices, supply and sales data can be used to optimize energy resources. This tool is used to balance resources and perform real-time monitoring and predictions.**

a wide range of reports including energy usage and cost by building. All of these activities add up to energy savings at PWGSC.

### Pulp Mill

Zellstoff Celgar, Castlegar Pulp Mill in British Columbia (BC), Canada produces approximately 520,000 air-dried metric tons per year of NBSK pulp and is one of the largest and most modern single line kraft pulp mills in North America. The mill uses Energy Manager's monitoring and reporting features to collect both in-plant energy consumption and the local utility (BC Hydro) data in the real time format. It is a report rich system which helps management understand the opportunity cost when they do not sell power to BC Hydro.

## CONCLUSION

The main goals of the ABB system are to improve the stability and reliability of the operations, maximize net revenues from power sales, and reduce energy costs. At the same time, improve the overall coordination of the power plant and pulp mill operations. ■

*Keith Masters is Business Manager, Pulp and Paper Systems, for ABB in Westerville, Ohio. He can be reached at: keith.r.masters@us.abb.com.*