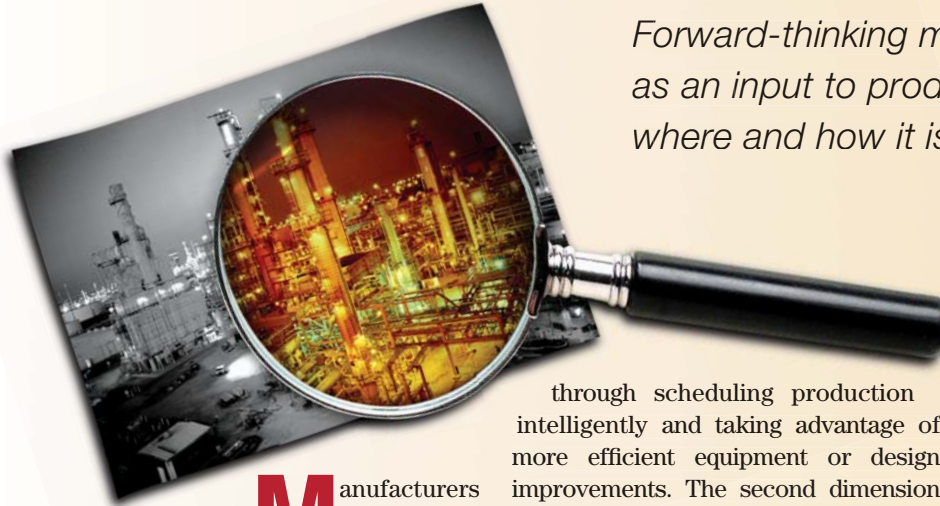


Use Energy as a Resource to Be Managed

Forward-thinking manufacturers treat energy as an input to production, tracking precisely where and how it is used.



Manufacturers around the world have put forth commendable efforts to reduce their energy consumption. Despite their efforts, the world's consumption of fossil fuels continues to grow, and recent reports indicate that world manufacturing energy consumption is projected to increase by 44 percent from 2006 to 2030.

Energy has become one of the most elusive and hard-to-manage costs in manufacturing, with high levels of cost variability and supply volatility. In fact, manufacturers today face the very real possibility that water, gas, fuel oil or electricity may simply not be available when they need them.

The prospects of energy uncertainty can wreak havoc on a company's operations, ability to deliver and, ultimately, their bottom line. That is why it is critical for manufacturers to better understand and manage energy consumption across the company, so that they can better defend themselves against these threats.

Unfortunately, some manufacturers have a one-dimensional view that industrial energy consumption is an unavoidable, fixed cost of doing business. Progressive manufacturers, on the other hand, are actively searching for answers to managing energy, viewing it from the perspective of a three-dimensional challenge: less, cheaper and optimal.

The first dimension centers on manufacturing using less energy

through scheduling production intelligently and taking advantage of more efficient equipment or design improvements. The second dimension focuses on using more cost-effective energy by managing where, how and when energy is used in order to harness it when it is least expensive, such as during off-peak times. The third dimension involves manufacturing optimising energy use so as to achieve production goals in the least expensive, most profitable ways while balancing the many variables inherent in operations.

By addressing these challenges, manufacturers can make the transformation from passive energy users to strategic managers of their energy resources. Such an "inside-out" approach enables manufacturers to use their existing automation and power control investments to begin saving energy more effectively.

A "Greenprint" for Energy Optimisation

Rockwell Automation® authors Phil Kaufman, business manager, Power & Energy Management, and Marcia Walker, market development manager, Sustainable Production, identify several steps manufacturers can take to help optimise their energy use in the white paper titled *Industrial Energy Optimization: Managing Energy Consumption for Higher Profitability*. They describe a methodology for energy management comprised of seven pillars of capability – facility monitoring, production monitoring, capturing energy on the production bills of

material (BOMs), modeling, controlling, responding and "scorecarding."

A manufacturer can begin to build its energy foundation with any of the pillars, either independently or simultaneously, and the pillars do not have to be addressed sequentially. As with any structure, it becomes increasingly stable with additional pillars of support that are incorporated into the overall energy management program.

Before embarking on the road to energy optimisation, Kaufman and Walker recommend establishing an ongoing program of audits and assessments to provide a strong foundation to each of the individual pillars. Energy assessments and audits can help companies identify a range of changes that they can make to help reduce energy consumption.

Such assessments can help to establish the scope of an energy-savings effort, define key metrics and put resources in place who can take a holistic view of energy for the organisation. Evaluation and prioritisation of capital improvement opportunities can also be included in the analyses.

Understanding Your Facility and Equipment

Before a manufacturer can begin to manage its energy consumption, it first has to gain visibility into facility energy usage and quality patterns. At the facility monitoring level, building management personnel monitor the facility's metering infrastructure to collect data about all the energy resources – water, air, gas, electricity and steam – in relation to equipment usage and environmental conditions. This data is logged and time-stamped in an energy historian program to establish trends or discrepancies in energy quality and consumption as

well as to establish benchmarks for future improvement.

With a picture of a facility's overall energy use, management can make operational changes to help reduce energy consumption and costs, such as shedding loads or lowering power levels for a few minutes when the facility is approaching peak use. Management also can identify power quality issues such as voltage sags or harmonics that can cause damage to equipment inside the plant and cause power factor problems on the energy grid.

Within the pillar of production monitoring, manufacturers extend data collection and analysis practices down to the plant floor, where plant managers can collect information about energy consumption and its relation to the machines, lines and production units involved in the process. Many companies already are collecting data that is useful for energy management in their control and information systems, often for regulatory reasons. However, most do not leverage this data for energy

they move to a new pillar of the energy management architecture in which energy requirements are included in resource planning and scheduling decisions in the same way that the availability of raw materials or other inputs are considered an element on the production BOMs.

Empirically tying energy consumption requirement to the production BOMs enables a plant manager to make proactive production decisions and better manage energy investments in a way that can generate a greater return.

At this stage, energy no longer is regarded as a set allocation that is simply part of unavoidable overhead. Manufacturers that add energy to the production BOMs can actively manage it as an input to achieve higher profitability.

Modeling and Controlling

According to Kaufman and Walker, the pillar of modeling is the step in which production scheduling managers can leverage production simulation software tools to input variables – such as peak

Responding and Scorecarding

Within the responding pillar of the architecture, companies are able to make external market and regulatory influences part of their energy management strategy. With a strong understanding of the energy consumption within their own plants, manufacturers can establish effective programs to achieve plant-wide energy optimisation.

What's more, companies also can begin to focus on how to make intelligent economic decisions based on altering energy consumption in response to market fluctuation and regulatory demands. For example, the open market for electricity on the grid may require manufacturers to commit to certain blocks of time of energy use. By modeling production and correlating it to energy consumption needs, manufacturers can predict whether or not they will reach production targets using less energy than the permit allows. If so, the company can contact other plants on the industrial complex and sell remaining time blocks or kilowatt hours.

The final pillar, scorecarding, relates to manufacturers' readiness to comply with requests from governments, power retailers and even consumers to share sustainability scorecards, such as carbon or energy labels, on products. With the ongoing convergence of information from multiple sources, companies also recognise that it may be possible to better optimise their full supply chain to enhance their sustainability and energy programs.

This is a time of unprecedented complexity for manufacturing, which must manage production operations while balancing supply, pricing, retailer requirements, consumer demands, operational efficiencies, corporate image, compliance with regulations and other demands. Kaufman and Walker point out that the automation, control and information solutions necessary to conquer the energy challenges exist today and can be applied to achieve measurable results. **AT**

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management purposes.

Kaufman and Walker explain that once a system is in place that extracts energy information from the plant floor, companies gain the capability to separate plant floor consumption data from facility consumption data. The information can be viewed in a reporting dashboard where a plant manager can pinpoint variable energy costs on the plant floor and begin to consider ways to improve profitability. Manufacturers also can influence machine design practices to improve energy management, such as specifying motors in different power ranges or attaching monitoring devices to assist with data collection.

Capturing Energy Use

Once manufacturing energy consumption data is stored and analysed in the information system, plant managers can begin to see clear trends in how energy has been used among various historical events such as specific product cycles or batches. They can also begin to project in advance how much energy will be required for similar loads or batches. In doing so,

and off-peak energy costs, raw material costs, labor and projected emissions – and pre-test “what-if” scenarios to see how production outputs and costs will change as a result of modifications.

Within this pillar, manufacturers can optimise production assets and forecast the most economical way to manufacture their products, using energy as one of the variables. They can also forecast the full sequence of production scheduling to optimise overall production.

In the fifth pillar, controlling, companies drive all data sets into a single automation solution that can identify, model, visualise and present control options, or automatically control production changes. The modeling capability would automatically implement decisions without unnecessary management intervention.

Manufacturers gain a better understanding of how the source of energy can affect production. With the advanced control and optimisation capabilities, companies can tie information about the cost of energy resources and the quantity needed for production and make better decisions about which resources to consume.

on the web

For a copy of the white paper, visit www.rockwellautomation.com/solutions/sustainability. For more information on industrial energy-management solutions, visit www.rockwellautomation.com/solutions/sustainability/energy.html

Rockwell Automation busy with upgrades

With more and more sophisticated systems in use, newspaper press controls, computers and software now frequently become obsolete well before the press hardware reaches its 'use-by' date.

Often older presses still print as well (or even better) than newer equivalents but lack the control automation and safety features needed in today's competitive workplace. An upgrade might provide a new configuration, the benefits of 'shaftless' drives... or simply upgrade PCs from an out-of-date operating system.

"The Rockwell Automation Systems and Solutions business has been involved with a number of such projects from its local South Pacific base, and has extensive experience in press control and drive systems," says solutions consultant Peter Tomazic. "Very often we would have supplied the original control equipment when a press was installed, perhaps 25 years ago."

That's the case in two recent projects for News Limited at its Australian print sites in Adelaide and Melbourne, where Rockwell Automation/Reliance Automation drive controls were specified as part of the installation of the 18 manroland Newsman presses installed through the 1990s. Recently, extra printing couples from Sydney have been relocated to the three Adelaide presses, adding additional colour capacity. Rockwell Automation undertook all the software and electrical hardware changes required to interface the new units to the existing press controls, and upgrade the press control desk. Similar requirements applied in Melbourne, where an additional printing unit was

added to one of the Newsman presses.

Another big press installation of similar vintage to be upgraded by Rockwell Automation is at APN Print Ellerslie, printers of the 'New Zealand Herald' and various other publications in Auckland. Rockwell Automation (UK) supplied the original press control and drive systems for the Goss HT presses which were commissioned in 1994. Now the newspaper – part of the APN News & Media group – is to benefit from an upgrade which modernises the system and addresses component obsolescence.

"With daily deadlines to be met, we will be undertaking the upgrade on a staged basis to ensure the presses are available to meet day-to-day production requirements," says Peter Tomazic. Rockwell Automation has followed a complex upgrade project at Victoria's Shepparton Newspapers – where twin systems now provide control capacity for an eight-tower, three-folder Goss Community press – with a recent project for Fairfax Media in Tamworth, NSW. Here a six-tower, two-folder Community configuration was assembled from plant relocated from Wagga Wagga and elsewhere. Four drive motors and their controls are networked and controlled from two desks, all of which are overlaid by a PLC-based GuardLogix safety system.

With a number of other improvements on the press, the outcome is a flexible installation which meets best-of-class

standards for productivity, usability and safety. Motorised sidelay and circumferential register are controlled from the new consoles. On the mechanical front, Fairfax replaced bushes and bearings, scored ink film rollers, rebuilt folders and matched a sixth tower to the rest with new plate and blanket cylinders "To all intents and purposes it's like a new machine," says Anthony Payne, who adds that the cost of the project was "significantly less" than installing a new press.

Tomazic says that on both the Tamworth and Shepparton lines, numerous combinations of folder and units can be achieved with press clutch selection. "But it's extremely important from a safety aspect that 'unit safe' stops work when they are meant to, and that the system is engineered to ensure that the failure of a device does not compromise an operator's safety," he says.

Elsewhere in the Asia-Pacific region, Rockwell Automation has just brought the control systems of a recently-acquired manroland Uniman press up-to-date at Thailand's Rung Silp Printing. New press controls, folder and colour desks, new DC drives and a host PC for ink-key presetting have been installed at the privately-owned Bangkok contract printer, and are currently being commissioned.

All of these projects deliver value by extending the useful life of newspaper press equipment and introducing the latest control and safety systems. They are testament of the local Rockwell Automation team's understanding and ability to deliver the best possible outcomes.

For further information please contact Peter Tomazic e-mail ptomazic@ra.rockwell.com.

Acknowledgement and thanks to GXPress Newsleaders for allowing Rockwell Automation to reprint this article. AT



TechConnect Helps to Keep Automation Systems Up and Running

Get answers to your technical questions quickly via the Web and phone.

Manufacturers and machine builders understand that time to market is a critical factor in gaining a competitive edge in the global economy. Ensuring that their operations remain up and running enables them to meet time to market demands as well as other key project, production and business goals.

Given the sophisticated nature of manufacturing equipment and systems, forward-thinking companies also know that it is important to have

access to prompt and comprehensive support for all of their components. That is why they have chosen to subscribe to the Rockwell Automation TechConnectSM Support programme, which provides a range of real-time electronic and phone support to meet business needs.

Staying in Touch

TechConnect Support offers tools and solutions to help manufacturers with installing, configuring and maintaining equipment and software; obtaining software updates; diagnosing and fixing operator problems; or performing basic programming tasks. The newest of these tools include Live Chat, Ask a Question and the Rockwell Automation Support Forum.

Live Chat offers technical assistance in real time without having to pick up the phone. Via the Rockwell Automation Knowledgebase – an online database of technical notes covering Rockwell Automation products, software and services – Live Chat enables engineers to connect and chat online with Rockwell Automation support engineers for troubleshooting and issue resolution.

Live Chat provides complete logs of support conversations, stored in the Knowledgebase, available for review or printing at any time. Live Chat also enables support on the plant floor when it is loud or difficult to get to a phone. In addition, it enables time to perform multiple tasks at once.

With a TechConnect Support Authorisation Number in a Knowledgebase profile, the Live Chat tab appears at the top of users' computer screens. Users click on this tab to initiate a real-time support session with a Rockwell Automation technical support engineer.

In Asia Pacific, support engineers are available to chat in the English, Chinese, Hindi, Indonesian, Japanese, Korean, Malay, Tamil, Thai and Vietnamese languages. Support is available for hardware, software, drives/motion and ICM/Entek systems between 8:00 a.m. and 5:00 p.m. local time Monday through Friday. A Knowledgebase account is required to log in.

Ask A Question is another new electronic support option available to TechConnect customers. It links them to a Rockwell Automation network of more than 350 automation specialists, who can field their queries.

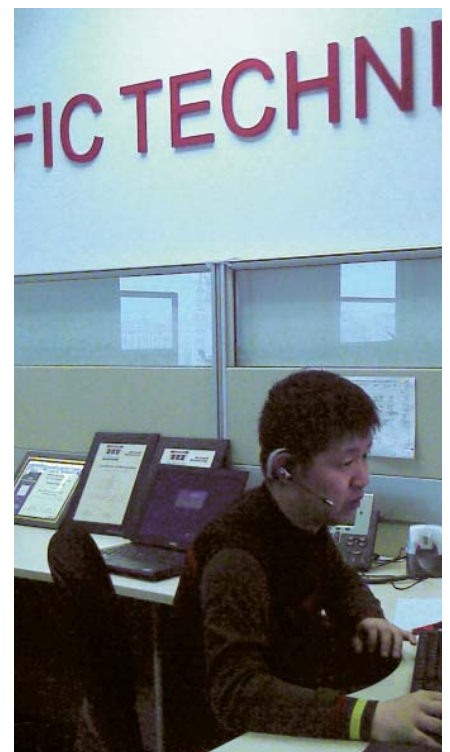
In addition, TechConnect Support Agreement holders have access to the Rockwell Automation Support Forum. This peer-to-peer community enables customers to discuss products, ask for help and help others.

THE RIGHT RESOURCES

The Asia Pacific Technical Support Center (TSC) is part of a network of several Rockwell Automation global facilities delivering the tools and answers to keep customers' operations up and running. With locations in Melbourne, Australia, and Shanghai, China, the TSC is based on a follow-the-sun service model: Global customers need only dial one number, and their call is routed to centres in Asia, Europe or North America, depending upon the time of the day. A common database enables engineers around the world to work on cases.

The Shanghai TSC began operations in January 2010. It provides telephone, Live Chat and Ask a Question support in Chinese and English and is staffed with experienced engineers from Rockwell Automation China and the United States.

Cathy Langlois, service director of Rockwell Automation, Asia Pacific, says, "I am confident that with Shanghai TSC's opening, Rockwell Automation can help meet the requirements of Chinese customers in a more comprehensive way to enhance our service capabilities with consolidated resources of technical support for the business development of Chinese customers."





Scalable Service

Companies have different support needs depending on the number of shifts they run, the staffing on those shifts and the type of manufacturing process. TechConnect Support offers three levels of service:

- **PriorityConnectSM** – Under this highest level of support, customer calls are routed to a select group of engineers experienced in supporting

Rockwell Automation systems. The group – experts in discrete automation systems and process automation systems – will own a case from the initial call to the final resolution of an issue.

- **DirectConnectSM** – DirectConnect support is designed for companies that need to supplement internal technical resources with real-time phone support (unlimited number of calls) from product specialists at Rockwell Automation.

- **eConnectSM** – The eConnect solution provides online resources for manufacturers that have noncritical support issues, few planned process improvements or significant internal troubleshooting capabilities across all shifts. It includes unlimited online access to Rockwell Automation support specialists and software updates downloadable via the Web.

Making a Difference

TechConnect Support offers manufacturers numerous advantages.

First, it is simple to manage, with a single agreement that carries one expiration date for easy renewal. A universal authorisation number helps eliminate the need to manage individual contract numbers to access support at each plant. Complete coverage for all sites and software is provided. What's more, product coverage is based on eight product families, not thousands of individual products.

Second, TechConnect Support helps promote efficiency. It does so by helping to decrease time to market through faster integration of new equipment. It also helps to meet design, delivery, installation, start-up and other project requirements by leveraging Rockwell Automation technical resources throughout the project cycle.

Finally, TechConnect offers peace of mind. Manufacturers reduce their risk of wasting unnecessary time on debugging automation systems. The time can be used more effectively in pursuing business objectives. **AT**

TECHCONNECT SUPPORT

Rockwell Automation offers a range of service levels in its global TechConnect Support programme. Review the PriorityConnect, DirectConnect and eConnect options, and select the one that best meets your business needs.

TechConnect Features	PriorityConnect	DirectConnect	eConnect
Priority Case Management by Senior Support Staff	Yes	--	--
Proactive Case Resolution Follow-up	Yes	--	--
Interactive Case Management Web Site	Yes	--	--
Unlimited Real-time Phone Support 8-5, M-F	Unlimited Cases; Routed to Systems Support Specialists	Unlimited Cases; Routed to First Available Support Specialists	--
Live Chat	Yes	Yes	--
On Demand PC Sharing	Yes	Yes	--
Software Media Shipments	Yes	Yes	--
Premium Knowledgebase Content	Yes	Yes	Yes
Unlimited "Ask A Question" Email Support	Yes	Yes	Yes
Technical Support User Forums	Yes	Yes	Yes
Software and Firmware Downloads	Disk and Web Download	Disk and Web Download	Web Only
Technical Reference Library DVD	Yes	Yes	Yes
24x7x365 Unlimited Phone Support Available	Yes	Yes	--