

# WHY DO UTILITIES CARE ABOUT ENERGY EFFICIENCY?

It seems counterintuitive for power companies to want industrial customers to cut energy use, but they have many business reasons to reduce power consumption.

>> Do car manufacturers want you to drive less? Do beverage manufacturers want you to drink less? Do food manufacturers ask you to eat less? Of course not!

However, while power generation companies make money from generating and selling electricity to businesses and consumers, they actually *want* their customers to use less.

We always need electricity, from the first cup of coffee of the day, to recharging a phone and turning on a light. We have come to expect a steady, on-demand supply whenever we want it, wherever we are, and that need continues to rise.

Yet generating enough electricity to meet that demand is a challenge for utility companies given industry drivers they face. These include environmental regulations, high availability of plants and energy optimization, aging assets, increased demand for renewable energy and improved operational safety.

## Continuous Power Generation and Avoiding Obsolescence

Generation of electricity, regardless of operating conditions and variations in demand, is key to operational success. Control systems within power plants must be highly reliable and available, and scalable across all process and discrete applications, allowing for one platform end-to-end within a facility.

Many operational DCS systems are more than 20 years old. They face obsolescence issues, such as spare parts availability, high support costs, loss of technical expertise both at the legacy system's vendor and at the plant, and access to knowledgeable operators and support staff. This creates significant operational risk associated with either unscheduled downtime or costly failure.

## Improved Power Plant Efficiency

Being a low-cost power provider is a difficult task, especially when investing in new capital-intensive systems such as Selective Catalytic Reduction (SCR) or Flue Gas Desulfurization (FGD) to reduce emissions and meet environmental regulations. That's why many power providers are turning to automation technology to maximize their return on investment (ROI).

New environmental system upgrades such as SCRs have induced draft (ID) and forced draft (FD) that require fan applications in excess of 5,000 hp. Previous systems used mechanical dampers to control airflow. However, as the load

## >> Automation Support for Utilities

Rockwell Automation provides a variety of solutions to help utilities meet their challenges head-on when supplying power to today's energy-hungry businesses and consumers.

- The Rockwell Automation PlantPAx™ process automation system provides advanced process control tools to maximize capacity, yield and quality. It helps save energy while reducing process variations and human interventions. The system features powerful FactoryTalk® services from Rockwell Automation that help provide high levels of cyber security while providing seamless integration of control and information systems across the plant.
- As the global market share leader in process safety solutions, Rockwell Automation can provide both SIL-2- and SIL-3-compliant control solutions using Allen-Bradley® and ICS Triplex safety systems.
- Rockwell Automation is a leading predictive emissions monitoring system supplier, using a nonlinear hybrid model that employs a patented sensor validation, and one-of-a-kind model validation methodology. The prediction modeling software is designed to provide excellent reliability and accuracy that exceeds global government regulations written for predictive emissions monitoring.
- Allen-Bradley variable-speed controllers help improve energy efficiency in power generation plants.
- With its partners, Rockwell Automation offers control solutions for upgrades, replacements, and long-term support of turbo machinery to improve plant operability, efficiency and availability through optimization of these critical assets.

drops below 100%, this method becomes decreasingly efficient, which can mean missed opportunities for cost savings.

Newer systems employing variable-speed controllers can yield efficiency levels in excess of 96% when running at reduced load. A system upgrade using variable speed controllers can supply significant energy savings, in some cases up to 50%.

In certain cases, utilities can minimize project and installation costs by reusing existing motors and avoiding installation of additional components to meet IEEE-519 code requirements. The same variable speed also can be deployed on other variable-torque applications, such as pumping systems, to minimize energy usage and maximize operational efficiency.

### A Sustainable Approach

Environmental regulations, such as the American Clean Energy and Recovery Act of 1997, have a profound impact both operationally and financially on the power generation industry. Power providers need an accurate, efficient and cost-effective way to capture information for report-

ing to government regulators. Inaccurate or untimely reporting will result in prohibitively expensive fines.

In addition, pending cap and trade legislation likely will have significant impact on power generation and transmission in many countries. Limits on greenhouse gas (GHG) emissions will force power providers to clean up current fossil fuel generation sites.

Unfortunately, traditional approaches to monitoring and controlling emissions involve complex data-collection systems and workflows. This can be very labor intensive and lack accuracy, timeliness and security demanded by today's regulations. Even small errors from these systems can lead to inaccurate reporting, missed deadlines, permit violations, financial penalties and lost profits.

### Maximizing Asset Utilization

Some of the most critical and complex machinery within power generation plants are turbines, generators and compressors. Power providers are exploring methods to optimize efficiency while minimizing the emissions generated during the combustion process.

### Meeting Government Demands

Cyber security threats in the United States grow every year, and the Federal Electric Regulatory Commission (FERC) is now enforcing new regulations to help protect the United States' critical assets. The North American Electric Reliability Corporation (NERC) has developed cyber security standards, NERC CIP, to help protect the North America Bulk Electric System from cyber threats, which FERC has adopted.

Power providers are now under pressure to meet deadlines and be in compliance for all "critical assets." With potential fines up to US\$1 million per day, power providers must be able to comply.

If a utility company's customers are more efficient and use less energy, then the power provider can be more cost-efficient, sustainable, energy independent and secure.  *Are you a best-in-class manufacturer in terms of energy management and sustainable production? Complete Aberdeen Group's short online analysis, and you'll get a personalized scorecard showing how you stack up. Also receive a free copy of their Energy Management Report describing how top performers achieve success. Go to [www.rockwellautomation.com/goltjenergy](http://www.rockwellautomation.com/goltjenergy).*

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