

CAPABILITY OVERVIEW

POWER AND ENERGY MANAGEMENT SOLUTIONS

OUR MISSION

Our mission is to help clients optimize their power and energy usage. Rockwell Automation is a global leader in helping clients optimize their manufacturing performance, productivity, efficiency and reliability. We provide valuable information and automation solutions used to monitor, analyze and control energy usage and reduce energy costs. An important component of this optimization is understanding and managing energy consumption and conservation, both at the plant level and across the enterprise.

Working with Rockwell Automation gives you automatic access to control solutions for energy accountability, electric power, heating ventilating and air conditioning, refrigeration and plant performance auxiliary applications. In short, you get expertise and capabilities that can provide system solutions for all of your energy needs.

SOLUTIONS

- Energy Accountability
- Electric Power
- Heating Ventilating & Air Conditioning and Refrigeration
- Plant Performance

MONITOR, ANALYZE, AND CONTROL ENERGY USAGE



Competition in the industry is such that it is even more imperative that you achieve your automation objectives both on time and within budget, focusing on minimizing operational costs. To accomplish that goal, it's vital that you work with a partner that has experience in designing and building systems for applications that span multiple industries – a partner that can serve as a solution provider, and has the resources and technology you need to stay ahead of your competition. Extensive product knowledge and process expertise is paramount, as well as the integrator's ability to work efficiently and effectively with your organization and consultants.

When you partner with the Rockwell Automation Power and Energy Management Solutions business, you get a team of diverse professionals, with more than 400 combined years of experience, as an in-house solution provider for powerhouse applications.

COMPLETE SOLUTIONS

RESULTS-ORIENTED ENGINEERING

Ultimately, the success of your automation project rests on the strength of the technical and project management skills of the system integrator's project team. When you work with Rockwell Automation, you get project management and system integration expertise that can help you achieve business success. The Rockwell Automation team includes project leaders, application engineers, and system and hardware designers. In short, you receive unparalleled expertise for your project and its unique system requirements.

Your system is assigned to an experienced project leader who assumes overall Rockwell Automation responsibility, and is empowered to take action. Your project leader serves as the single point of formal contact. Your project leader also coordinates the activities of your project team, and interacts with our centralized purchasing, panel assembly and quality control departments all working toward timely completion of your project. Under the direction of your project leader, the team is capable of providing a broad range of services to meet your ever-changing needs.

Your engineering team understands the inherent challenges in controlling energy usage. Using our product knowledge, experience and application expertise, the engineers assigned to your project will help you with the proper technology, products and system architecture to help meet your automation needs.

WHY MANAGE YOUR ENERGY USAGE?

Energy costs are constantly increasing. Energy costs impact your company's bottom line and getting the most from your energy dollars requires active energy management. As an informed energy consumer, you'll want to know how much electricity you're using, what your major loads are, and which ones contribute to demand charges. You also want to measure the power quality in your plants and correct problems that shorten equipment life and drive down company profits.

ENERGY ACCOUNTABILITY

Energy Accountability Solutions allow you to monitor, analyze, and control energy usage, reducing overall energy costs. These solutions transform energy data into valuable information that can be used to analyze and understand how your energy dollars are utilized.

Energy Accountability Solutions can help you:

- Understand energy usage and load profiles to support procurement and rate negotiations
- Identify and justify operational and/or capital investment projects to reduce energy costs
- Estimate savings and maintain sustainability of energy management programs
- Start an energy management program using information and/or a list of quick hit projects
- Identify opportunities for demand control
- Verify utility bills

Energy Accountability feature offerings:

- **Load Profiling** measures and records energy usage for every demand interval from distributed power monitors and other energy meters, and stores the data in a centralized database. Thus, you can immediately determine the load factor, identify peak demand period(s), and correlate consumption with facility activities. By tracking energy consumption patterns over time, a facility can use the historical data to verify electric bills, negotiate better rates and identify opportunities for automatic demand management.
- **Cost Allocation** adds the functionality that allows a user to allocate energy costs to a department, process or facility. The system can also generate reports needed to analyze and verify energy bills and tariffs for multiple utilities, including water, compressed air, gas, electricity, and steam.

ELECTRIC POWER

Our Electric Power Solutions are designed to gain advanced control and minimize cost. It includes applications to help reduce downtime, reduce energy costs, support capacity planning, improve efficiency, and provide a view into the system as a whole.

Electric Power Solutions can help you:

- Avoid excess demand charges by reducing peak demand
- Lessen the impact of utility power outages
- Reduced power factor penalties from the utility company
- Reduce the negative effects of poor power factor or high harmonic content
- Automatically control on-site generation and secondary systems
- Centrally control an industrial electrical distribution system with minimal staff

Electric Power feature offerings:

- **Power Quality Monitoring** measures, displays, records, trends, and alarms on power quality parameters such as harmonics, voltage excursions, and distribution system events. Furthermore, it identifies power system anomalies.
- **Electrical Distribution System Monitoring** senses, displays, records, trends, and alarms on information like energy flow, system topology, and equipment status. Distribution system monitoring provides the operator and engineers with a centralized view of the entire facility's power distribution system.
- **Demand Management and Load Curtailment Systems** automatically project future demand to assure the peak limit is not exceeded. The system controls demand by shedding loads or shifting them to less costly time periods. Loads are prioritized to allow the user to configure the order in which loads should be shed and restored.
- **Emergency Load Shedding System** preserves system stability during sudden loss of a power source. It quickly reduces the total plant load to keep key processes operating on the remaining capacity in the event of utility or generator loss. The system monitors designated field loads, power sources and builds a "load shed table" based on the steady state conditions, the instantaneous electrical system topology, and priority table designated by the user.



In the event of a loss of source, the system quickly trips breakers to maintain electrical system stability – within a few power line cycles of recognition of source loss.

- **Power Factor Control** automatically controls distribution system apparatus through power factor correction capacitors, harmonic filters, and excitation on synchronous machines (generator/condensers). This solution improves power factor and reduces power factor penalties. Furthermore, it also improves voltage regulation and reduces sags.
- **Generator Control System** deploys distributed generation, co-generation, peak shaving, emergency standby generation applications over a variety of prime movers types such as steam turbines, gas turbines, micro turbines, reciprocating engines (diesel). The system integrates generator operation with transfer switchgear, switchgear and protective relaying to help improve generator operations startup & shutdown, tighter power, voltage & frequency regulation and quicker indication of abnormal conditions.

HEATING & VENTILATING AIR CONDITIONING & REFRIGERATION

The Heating Ventilating & Air Conditioning and Refrigeration (HVACR) Solutions provide advanced control of HVACR systems to allow greater flexibility and lower total cost of ownership. Solutions are ideally suited for industrial users where HVAC control is process critical. Tighter control of parameters is for stringent process requirements. Controls can be developed for air handlers, fume hoods, central plants, and centralized scheduling and monitoring.

HVACR solutions can help you:

- Maintain specific temperature and humidity levels to insure product quality
- Control static pressure to prevent contamination
- Reduce energy costs associated with large air handlers and chillers
- Implement and easily maintain validated system to help with government requirements
- Move to an open system from a proprietary system
- Automatic record collection and data storage

HVACR feature offerings:

- Rockwell Automation offers the Qualified Building Automation System (QBAS) solution, otherwise referred to as **Qualified Building Management Solutions (QBMS)**, which is a validated version of the air handlers, fume hoods, central plants, and centralized scheduling and monitoring.
- **Environmental Monitoring System (EMS)** is used for life sciences or other regulatory systems to monitor and alarm temperature, pressure, door status, particulate, and 21CFR Part 11.
- **Control upgrades and application expertise** are other features that Rockwell Automation provides you with for a convenient change. The solution is an interface between facility systems and industrial processes. The cost of ownership is lower and competitively priced. The HVAC Control can be maintained by in-house staff and there is no need for maintenance contracts for simple changes.
- This solution is easily expandable to include other advanced control algorithms specific to the client's process and facilities needs.



PLANT PERFORMANCE

The Plant Performance Solutions are methods and algorithms to optimize energy systems. This solution offers applications for a variety of utility equipment, such as air compressors, chillers, cooling towers and boilers. Turn-key projects that include installation services and third party equipment are common.

Plant Performance solutions help you:

- Reduce energy costs associated with production of hot water, chilled water, steam, compressed air, and/or refrigeration
- Upgrade and improve existing automatic or manual controls
- Improve consistency of utilities delivered to manufacturing
- Track performance of central plant equipment for maintenance planning

Plant Performance solution offerings include:

- **Compressor and Chiller Control** solutions involve an interface to chillers and associated equipment such as cooling towers and pumps to optimize performance. Reduced energy consumption, reduce power demand, and improve overall efficiency are the key benefits. This solution improves efficiency by identifying and reducing wasted energy during periods of lower energy cost.
- **Burner Management & Combustion Control** solutions are typically responsible for safe startup, operation, and shutdown of the combustion processes for boilers, ovens, kilns, melters, furnaces, dryers, process and heaters, single or multiple burner(s), and single or multiple fuel(s). These solutions are the safety and control systems associated with the combustion process.



AVAILABLE SERVICES

With one phone call to the Rockwell Automation Power & Energy Management Solutions Team, you can be in touch with a team that has a track record of successful projects ranging from energy accountability to complete plant performance control systems. Furthermore, you can be confident your system will be built to your specifications, optimized for measurable performance, and managed by results-oriented engineering professionals – people dedicated to completing your project on time and on budget.

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