Power and Energy Management Solutions

Capability Overview

Competition in the industry has never been greater. Now more than ever, it’s imperative that you achieve your business objectives both on time and within budget. Rockwell Automation Power and Energy Management Solutions can help you by focusing on:

- Improving energy utilization per unit of production output
- Lowering manufacturing risk
- Speeding time to market
- Reducing costs of quality and compliance

To accomplish these goals, it’s vital that you work with a partner that has experience executing projects and programs for applications in your industry – a partner that can serve as a solution provider, and has the domain expertise and technology you need to stay ahead of your competition.

When you partner with Rockwell Automation for Power and Energy Management solutions, you get a team of diverse professionals with an average of 13 years of industry experience, who are PMI certified project managers and certified energy managers and can leverage our reusable modules to ensure consistent applications are deployed for global and multi-site rollouts.

Benefits
- Reduce energy consumption
- Develop awareness of Water, Air, Gas, Electric & Steam (WAGES) usage
- Improve uptime and reliability of industrial utilities
- Regulatory compliance of production environment
- Participate in utility demand incentive programs
- Greenhouse gas tracking (GHG)

Solutions
- Industrial Heating, Ventilating & Air Conditioning (IHVAC)
- Central Utilities Management & Control
- Electrical Load Management
- Measurement & Visualization of WAGES and Sustainability Reporting

Differentiation
- Leverage your investment in Rockwell Automation® Integrated Architecture™
- Our energy domain expertise enables us to help you manage energy usage as a strategic resource
- Reusable modules to ensure consistent applications are deployed for global and multi-site rollouts
Complete Solutions

Results-Oriented Engineering

When you work with Rockwell Automation, you get a common project management methodology based on the PMI PMBOK that ensures you receive reliable project management for every project, delivered by certified project managers. In short, you receive unparalleled expertise for your project and its unique system requirements.

Your engineering team understands the inherent challenges in controlling energy usage. Using our domain expertise, our industry and application professionals will help streamline your processes to increase productivity, lower manufacturing risk, speed time to market and reduce costs of quality and compliance.

Why Manage Your Energy Usage?

Energy costs impact your company’s bottom line and managing your energy as a strategic resource requires active energy management. As an informed energy consumer, you 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 Awareness

Measurement & Verification Solutions allow you to monitor, manage and optimize 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.

Measurement & Verification 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
- Measurement, verification and justification of energy conservation measures
- 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 response and control
- Verify utility bills

Measurement & Verification Feature Offerings:

- **Load Profiling** measures and visualizes 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, you 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 you 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.

- **Energy Dashboards** monitor, key performance indexes relative to energy usage and production.

- **Energy Utilization** correlated.
**Electrical Load Management**

Our Electrical Load Management Solutions are designed to gain advanced control and minimize cost. They include applications to help reduce downtime, reduce energy costs, support capacity planning, improve efficiency and provide a view into the system as a whole.

**Electrical Load Management Solutions Can Help You:**
- Avoid excess demand charges by reducing peak demand
- Lessen the impact of utility power outages
- Reduce 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
- Control an industrial electrical distribution system with minimal staff

**Electrical Load Management 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 and Control** senses, displays, records, trends and alarms on 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.
- **Load Shedding Systems** preserve 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 and 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, cogeneration, peak shaving and emergency standby generation applications over a variety of prime mover types such as steam, gas, micro turbines and reciprocating engines (diesel). The system integrates generator operation with transfer switchgear, switchgear and protective relaying to help improve generator operations startup and shutdown, enable tighter power, voltage and frequency regulation and provide quicker indication of abnormal conditions.

**Critical Environmental Control and Building Management Solutions**

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

**IHVAC Solutions Can Help You:**
- Maintain specific temperature and humidity levels to ensure product quality
- Control static pressure to prevent contamination
- Reduce energy costs associated with large air handlers and chillers
- Implement and easily maintain a validated system to help with regulatory requirements
- Move to an open system from a proprietary system
- Automate record collection and data storage
IHVAC Offerings:

- **Qualified Building Automation System (QBAS)** solution, otherwise referred to as **Qualified Building Management Solutions (QBMS)**, 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 and particulate to comply with 21CFR Part 11.
- **Control upgrades and application expertise** solutions provide an interface between facility systems and industrial processes. A lower total cost of ownership and the option to maintain HVAC Control in-house can help you control your spend, while the expandable solution allows you to customize projects to meet your specific process and facilities needs.

**Central Utilities Plant Control Solutions**

The Central Utilities Plant Solutions offer applications to help optimize energy systems for a variety of utility equipment, such as air compressors, chillers, cooling towers, generators, heat recovery and pumping systems. Solutions can include installation services and third party equipment.

**Central Utilities Plant Solutions Can Help You:**

- Reduce energy costs associated with the 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
- Determine optimal usage of cogeneration steam

Central Utilities Plant Performance Feature Offerings:

- **Chiller Control** solutions involve an interface to chillers and associated equipment such as cooling towers and pumps to optimize performance. Reduced energy consumption, reduced power demand and improved overall efficiency are the key benefits. This solution improves efficiency by identifying and reducing wasted energy during periods of lower energy cost.
- **Cogeneration Control** solutions involve an interface to generators and associated equipment such as gas skids and emissions control equipment to integrate plant operations on one system. Optimal dispatch of waste heat to augment electric chilling, or supplement heating reduces energy consumption, and improves overall system efficiency.

Available Services

The Rockwell Automation Power and Energy Management Solutions Team has a track record of successful projects ranging from energy accountability to complete plant performance control systems. 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.

Global Solutions Scope of Services

- Full scope capability from concept to support
- Front End Engineering and Design (FEED)
- Turnkey Engineering, Procurement and Construction (EPC)
- Consortium management
- Main Automation Contractor (MAC) Main Automation Vendor (MAV)
- Installation, commissioning and support