Industry Segment Profile
Simple & Combined Cycle Gas Power Generation

Capabilities

Programmable Controllers:
- CompactLogix™ PAC (Bulletin 1769)
- ControlLogix® PAC (1756)

Power Management:
- Powermonitor™ (1403 / 1404)
- Line Synchronization Module™ (1402)
- Combination generator control modules (1407-CGCM)

Data Management:
- FactoryTalk® Historian software (9518)
- FactoryTalk View SE software (9701)
- FactoryTalk AssetCentre software (9515)
- FactoryTalk VantagePoint software (9521)
- PanelView™ Plus operator interface (2711P)

Process Control
- PlantPAx™ Process Automation System

Emissions Monitoring
- Software CEM® predictive emissions monitoring system
- Real-Time Environmental Management application

Power Control
- PowerFlex® low and medium voltage drives (7000, 20/22)
- CENTERLINE® MCCs with IntelliCENTER® Technology (2100 & 2500)

Condition Monitoring:
- XM® vibration monitoring solutions (1440)
- Turbine supervisory instrumentation

Services and Support:
- On-site and remote training and support
- Rockwell Automation distributor network
- Network Services
- Engineering Services

Simple & Combined Cycle Gas Power Generation

Natural gas emits less greenhouse gas than burning oil or coal, and as a result has become a very popular type of fuel for the generation of electricity. This high level of demand warrants increased production goals. However, the significant penalties and fines associated with not meeting those goals means that plant operators simply can’t afford downtime.

Because the typical gas-fired power plant doesn’t employ personnel dedicated to controls engineering and maintenance tasks, any system failure can be costly and time-consuming to get back online. Automation technology can provide a safety net for your business, helping you reliably reach production targets.

By easing the design, engineering, installation, training and maintenance tasks associated with all power production operations, Rockwell Automation helps you minimize risks and maximize uptime. We offer a broad range of integrated control and information solutions that are fully tested and field-proven to meet or exceed industry requirements. In addition, our globally available, on-demand services and support offerings provide a solid foundation for maximum uptime and availability.
1. **Incoming Valve Control:** A **CompactLogix** PAC closely controls the opening of the incoming valve, allowing natural gas to enter the gas turbine generator unit. Valve pressure can be monitored with pre-tested, standards-based metering and instrumentation solutions from Rockwell Automation partner **Endress+Hauser**.

2. **Gas Compressor:** A **ControlLogix** PAC helps attain the ideal combustion ratio by tightly controlling the amount of air and natural gas in the compressor. **FactoryTalk View SE** software gathers information from the control system and **PanelView Plus** human-machine interfaces to provide visibility in to the generation process.

3. **Gas Turbine Generator Unit:** As compressed gas is ignited, causing the turbine blades to spin and create electricity, a **Powermonitor** and **Combination Generator Control module** control the excitation of the generator and provide data to synchronize the turbine generator to the utility grid. **Dynamix Turbine Surveillance** equipment provides vibration diagnostics and protection.

4. **Heat Recovery Steam Generator:** A **Software CEM** predictive emissions monitoring system provides real-time emissions monitoring through correlations with existing instruments already installed in the exhaust stack. The **Pavilion8® Real-time Environmental Management** environmental compliance and reporting application automatically collects, validates and aggregates this data and provides rich, real-time visualization and reporting in a role-based, contextual format with a browser-based user interface.

5. **Steam Turbine:** Rockwell Automation and our solution provider partners can retrofit outdated steam turbine control systems with state-of-the-art coordinated **turbomachinery control systems** that optimize train control, offering increased efficiency and reduced maintenance time and costs.

6. **Cooling Tower:** **PowerFlex** drives help control the speed of the fans used to cool the circulating water. **CENTERLINE motor control centers** with IntelliCENTER technology gather real-time data, while **XM vibration monitoring modules** leverage eMonitor® software to feed data back to the central control system.

**Control Room:** From the control room, plant operators monitor and operate the facility leveraging the **PlantPAx Process Automation System**, a fully integrated control and information platform. **FactoryTalk Historian** software gathers data from the entire plant to a central location, and **FactoryTalk AssetCentre** software helps to securely and centrally manage the production environment by having secured access to the control system. **FactoryTalk VantagePoint** software connects to all manufacturing related data sources to create a single virtual data resource that can access, aggregate, correlate and present role-appropriate information to workers via a simple web browser.

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