Industry Segment Profile
Solar Power Generation

Capabilities

Programmable Controllers:
- CompactLogix™ PAC (Bulletin 1769)
- ControlLogix® PAC (1756)
- MicroLogix™ 1400 PLC (1766)

Process Control:
- PlantPAx™ Process Automation System

Data Management:
- FactoryTalk® Historian software (9518)
- FactoryTalk View SE software (9701)

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

Condition Monitoring:
- Turbine supervisory instrumentation
- XM® vibration monitoring solutions
- Emonitor® Software (9309)

Networks and Communication:
- CIP Sync technology
- Stratix Ethernet Switches (1783)

Safety:
- GuardLogix programmable safety controllers (1756)
- Guard I/O modules (1734, 1791)

Services and Support:
- NERC CIP compliance consulting services
- On-site and remote training and support
- Rockwell Automation distributor network
- Network Services
- Engineering Services

Solar Power Generation

Growing concerns about energy availability have increased consumer and government interest in solar power as a viable alternative to traditional power sources. In fact, large concentrated solar power plants are capable of creating the thermal energy equivalent to conventional fossil fuel power plants.

Due to the high up-front capital investment required for solar energy plants, the levelized cost of electricity (LCOE) is typically higher for solar power than for more traditional forms of power generation like coal and gas. But by working with a trusted automation vendor, solar power developers can begin producing power more quickly, and operate and maintain the site more efficiently, helping to reduce the LCOE and make solar power generation a more cost-effective alternative.

Rockwell Automation offers solar power generators a complete automation solution with lower overall lifecycle costs when compared to traditional DCS offerings. The flexibility, scalability and multidisciplined capabilities of an open control architecture from Rockwell Automation, allow developers to leverage a single-vendor solution from the solar field throughout the entire process of solar electricity generation.

In addition, Rockwell Automation and our network of partners offer best-in-class service and support worldwide. The company is committed to working collaboratively with solar developers to reduce the cost and increase the viability of solar power generation.
1 Solar Field: MicroLogix controllers accurately position the mirrors leveraging code based on the National Renewable Energy Laboratory algorithm. ControlLogix PACs manage the MicroLogix controllers using a fast, efficient EtherNet/IP network solution.

2 Power Plant Control Room: The PlantPAx process automation system controls both thermal storage and power block operations in a single, fully integrated control and information platform. FactoryTalk View SE provides a view into the process while FactoryTalk Historian software gathers process data from the entire plant. Our alliance with Cisco offers solar power generators tighter integration between the control and network infrastructure, resulting in the deployment of high availability architectures with improved system wide visibility.

3 Power Block/Thermal Storage: Plant systems including Balance of Plant (BOP) equipment can utilize pre-engineered application code and faceplates to integrate process instrumentation solutions from Rockwell Automation partner Endress+Hauser. By leveraging a CompactLogix PAC, BOP systems can seamlessly integrate with the PlantPAx system without requiring an OPC server, tag mapping or protocol conversions. CENTERLINE motor control centers with IntelliCENTER technology supplies real-time data to the PlantPAx system and provides quick access to predictive failure information.

4 Pump Skids: PowerFlex drives are used throughout the plant on molten salt pumps, heat transfer fluid pumps, condensate pumps and feed water pumps. Dynamix™ integrated condition monitoring solutions leverage XM Series modules and Emonitor software for real-time measuring and tracking of critical parameters including vibration, temperature and speed.

5 Steam Turbine: A Powermonitor™ and Combination Generator Control module control the excitation of the generator and provide data to synchronize it to the utility grid. In the event of abnormal operations, a turbine shutdown system using GuardLogix controllers and Guard I/O can allow for safer system stoppage.

Global Services and Solutions: Rockwell Automation Network and Security Services can provide services to design, implement and manage industrial control, and information networks. Stratix switches can provide the high performance and high availability required to optimize plant operations. This team also provides security technology – including NERC CIP consulting services – to ensure the system meets power generation standards.

High-volume panel building services help simplify equipment integration processes and ease on-site installation. Engineering resources can provide support and commissioning assistance.

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