Success story

Taking control of information management
Cockburn combined-cycle power plant in Western Australia

ABB PGIM provides complete and flexible data reporting and diagnostic capabilities for power generation. An advanced ABB information management solution at a midsized power plant in Western Australia delivers fully flexible data reporting and diagnostics functionality that is completely compatible with any installed system or future system installations.

Owned by Synergy, the leading electricity producer in the state of Western Australia, the 240 megawatt (MW) Cockburn combined cycle power generating station supplies power to the southwest portion of the state and the Perth metropolitan area (pop. 1.9 million). Built in 2003, Cockburn was the first combined cycle gas turbine plant in the state. It captures exhaust heat from an Alstom GT13E2 gas turbine, which is used to drive a steam turbine and generate additional electricity.

In 2010, Synergy asked ABB to expand the functionality of the plant’s existing information management system (Advant IMS), with special focus on providing sophisticated, user-friendly historical data and diagnostic tools. Specific requirements existed also for the interfaces the new system needed to deliver, as plant information is not only provided on classical control buses but also, for example, via ASCII files and FTP access (see layout drawing).

In response, ABB installed a Power Generation Information Manager (PGIM) system as the new central information management, data acquisition and reporting solution for the plant. The scope of supply included redundant PGIM DB servers, a PGIM application and web server, including a report system with automatic report generation and the ability to generate special customer reports, PGIM SW counters, automatic mailing of generated reports, and PGIM graphics with special customer displays and trends.

Synergy gained a state-of-the-art information management system with very high data base availability and capability, which accelerated and improved the plant’s reporting and trending capacity.
While the standardized, well-tested solution for the Advant Master platform based on ABB’s System 800xA certainly ensured Synergy made the right platform choice, the added incentives like high-speed data collection via 250 ms-cycled ModBus, bi-directional interfaces to any existing plant system and full enterprise integration really appealed to them.

The existing IMS system is still operational, but now only supplies historical trends to the Advant OS500 operator stations. The PGIM system has completely taken over as the plant’s primary reporting tool, for historical data diagnostics (process data as well as events), for data presentation and operation disturbance analysis, etc. Both historians are directly connected to the plant’s main MB300 control network without any interference.

Last November, a PGIM gateway server was installed for enterprise-wide data visibility, including a PGIM OPC DA server for continuous process data collection, a PGIM HDA server for historical data collection on demand and extracting existing data collected in the system.

The gateway is connected to a corporate OSIsoft PI data management system at Synergy headquarters in Perth, and also provides the option of integrating other Synergy power plants, such as the nearby Kwinana coal-fired power plant. In addition, the high-speed Modbus interfaces were modified to enable direct timestamp transfer from the controllers via the Modbus interface.

The Extended Automation System 800xA is currently only installed to provide data acquisition connectivity to the Advant AC450 controllers. But the platform could easily be expanded any time in the future to seamlessly replace the old Advant OS500 operator stations and provide full operation of the plant. The specific Advant Power extensions for System 800xA provide a complete set of compatible graphics that enable a smooth transition with the lowest training requirements for the existing plant personnel, minimizing the time needed to prepare and commission such a complete HMI upgrade project.

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