



Petrochina

Turbine Control System, Upgrades and Power Management

Overview:

This offshore oil and gas facility has approximately 16MW generation capacity through four Solar Taurus 60 Gas Turbine Generators (GTGs). Continued expansion of the facility, such as over 110 wells with Electric Submersible Pumps (ESP) has resulted in insufficient generation capacity. Increased capacity was obtained through the installation of two 35kV sub-sea power cables, supplementing their offshore generation.

Enabling the paralleling of the offshore generation network and power from the onshore utility grid required upgrading of the Turbine control systems and installation of a dedicated Power Management System (PMS) from Solar Turbines.

Our Services:

Zest Automation provided assistance to the facility operator with the design and development of the Solar Turbotronics and PMS interface. Close liaison with the equipment vendor ensured all new and upgraded systems seamlessly interfaced to the facility's control and shutdown systems. It was necessary for Solar Turbines to upgrade two of the Turbotronics™ control systems on the facility's GTGs for their Power Management System interface. Zest Automation completely redeveloped the interface from the Turbotronics™ controllers to the platform HMI system. This enabled highly detailed diagnostics and analysis of the turbine operation via the platform control system, containing features such as:

- Web access for remote monitoring.
- Over 3 years of trend history directly accessible from within the HMI.
 - 3 months of trend data viewable in just 3 mouse clicks.
- Detailed views of all turbine shutdown initiators and interlocks.
- Detailed monitoring of turbine start-up and shutdown sequences.
- Independent alarming and shutdown logging.
- Water Wash monitoring, recording and reminding.

The Power Management System role is to monitor and control the electrical power imported by the facility. This facilitates the minimisation of electricity costs through maximising the generation capacity of the platform.

Zest Automation is presently involved with the design philosophy such as:

- Identification of load shed initiators.
- Selection and monitoring of loads to be shed.
- Interfacing to field equipment and facility control system.