



Petrochina, Zhaodong Facility

35kV Subsea Power Cables

Overview:

This offshore facility contains over 110 production wells, each with Electric Submersible Pumps (ESPs). There is also a combined total of 5500kW of Injection Water pumps and approximately 2000kW of heat tracing during the winter months. Although having 4 Solar Taurus 60 Gas Turbine Generators (GTGs), the facility was experiencing production limitations due to the available power.

To meet the additional power demand, two 35kV sub-sea power cables were installed, tying the offshore power generation to the onshore power grid. The sub-sea cables connect to SF6 switchgear on the facility and the voltage transformed to 6.3kV for distribution.

Our Services:

Zest Automation provided commissioning assistance with the new cables and switchgear and interfaced the facility control system to all protection relays and power meters for both control and monitoring purposes.

This project involved a complete re-design of power monitoring and control interface on the platform HMI system. This involved establishing serial communications to over 70 protection and metering devices for real-time information display. Where applicable recorded data is alarmed and trended, with access to over 3 years of history directly available on the site HMI on all analogue values.



A communications interface was also developed to transfer data to the onshore power utility. This involved the utilisation of specific methodology and protocols to ensure the facility control system could

in no way be compromised through this external interface.

The electrical system is also interfaced to the platform shutdown and Fire and Gas systems. Zest Automation was also responsible for the development of the shutdown philosophy and Cause and Effects.