

# Wivenhoe Power Station

## High Speed Data Logging for Sequence of Events



### Application Note 05

#### Application

- Power Plant Control & Monitoring

#### Technology Applied

- Specialised RTU Hardware,
- Leading HMI Software,
- Multi-Platform & Multi-Path Communications
- High Speed Historian
- Web Reporting Tools

#### Engineered Solution

- Sequence of Events
- Remote Plant Control
- Diagnostics & Performance Detection

#### Project Summary

- Client / Supplier Partnering Contract
- Joint Development of IO Server & Communication Drivers
- Total Installation including Fibre Communications, IO Wiring (2000+ points) and distributed data gathering units

#### The Client

Wivenhoe Power Station is situated on the Eastern Side of Wivenhoe Dam, North-west of Brisbane. It was Queensland's first pumped storage hydroelectric plant.

The Power Station is fed by Splityard Creek Dam with a capacity of 28700 mega litres, which is enough capacity for 10 hours of generation at full load. Essentially water is pumped into storage during off-peak times, ready for later use either automatically or on demand.

#### Remote Controlling the Plant

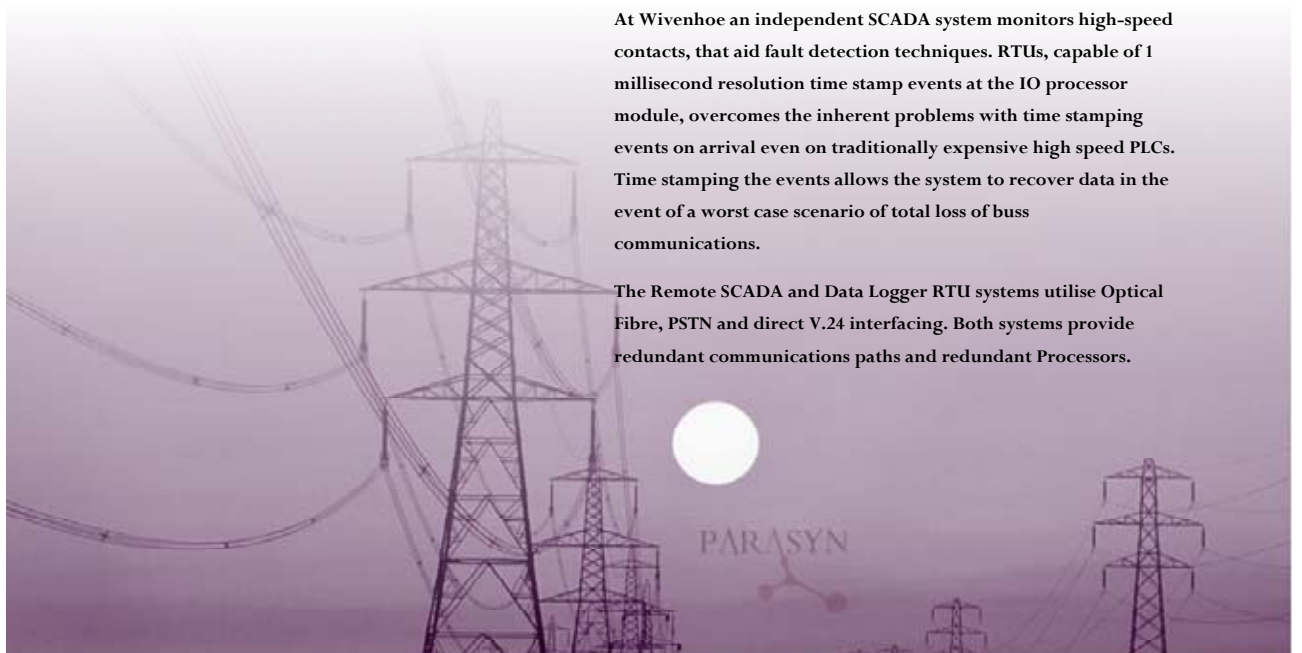
Wivenhoe Power Station is virtually unmanned. Although maintenance and engineering staff service the station every business day and as required 24/7, it is virtually controlled remotely from the Tarong Power Station operators. The SCADA system located at the Tarong Power Station allows the monitoring of specific process information on mechanical, hydraulic and electrical plant. Tarong Power Station is a 24/7 facility and the SCADA system provides the portal for remote management.

#### Local Diagnostics and Performance Detection

The accurate detection of component failure & the sequence in which they fail is critical to identifying the causes of plant faults. Power station staff are able to isolate possible causes of faults by reviewing sequence of events (SOE) logs generated 24/7.

At Wivenhoe an independent SCADA system monitors high-speed contacts, that aid fault detection techniques. RTUs, capable of 1 millisecond resolution time stamp events at the IO processor module, overcomes the inherent problems with time stamping events on arrival even on traditionally expensive high speed PLCs. Time stamping the events allows the system to recover data in the event of a worst case scenario of total loss of bus communications.

The Remote SCADA and Data Logger RTU systems utilise Optical Fibre, PSTN and direct V.24 interfacing. Both systems provide redundant communications paths and redundant Processors.



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Designed with growth in mind: Wivenhoe staff are constantly adding process plant interfacing and transducer devices to measure more of their operationally critical plant.

Custom operational reports allow personnel to recover vital data from the Historian database.

The present system in summary provides;

- High speed data acquisition and storage
- Client server technology for the local workstations
- Database structure and infrastructure design that allows growth of the acquisition and logging systems
- Information systems that support specific operational requirements.

### Parasyn - Process Information & Intelligence

Quality Design is required to implement complex communications and control systems. To understand further how this system design could be used to control and monitor your plant, including the application of interactive voice response systems, historian databases and web access tools, call Parasyn Controls.

