

**Industry: Electricity /// Process**

**Products Used: Modular PLCs /// SCADA /// Networks  
/// IEC61131-3 Software**

# Scottish Power specifies Mitsubishi for Longannet

ScottishPower has placed orders with Mitsubishi Electric for a number of Q Series control systems and A Series PLCs for use at Longannet, one of the largest coal fired power stations in Western Europe.



Mitsubishi's Q Series is designed to bridge the gap between Programmable Logic Controllers (PLCs) and Distributed Control Systems (DCS). It combines the advantages of processing discrete I/O with ladder logic type controllers and superior handling of analogue I/O and closed-loop control - but without the high costs of traditional DCS solutions.

The Mitsubishi Q4ARCPU dual redundant processor specified for this project enables control of vital processes to continue even if a critical fault develops. For the fastest changeover, two identical systems are housed within a single rack, connected by a high speed local processor bus. One processor is used for control and is shadowed by a standby Q4ARCPU processor containing an exact copy of the program. All other modules used in the control system are duplicated in the standby system. If the supervising System Control Module (SCM) detects an error, control is instantly passed to the standby system by switching the faulty system out and activating the duplicate.

Ensuring that the standby processor always contains current data, up to 48 K words are copied from the hot unit to the standby unit during each scan, a process called Data Trucking. Thus, when the standby is switched in, it picks up at exactly the point where the hot processor left off. If the program in the hot system is updated while it is online, the update is automatically copied to the standby processor.

The networked processors and remote input/output units are connected by a Mitsubishi Electric MELSECNET10 dual redundant 10Mb/s optical network, and communicate with the SCADA supervisory software via dual redundant fibre-optic Ethernet links. In total the systems, which feature hot-swap dual redundant processors, involve over 1000 I/O channels at 6 locations around the power station.

First of the new systems controls will be the mill output dampers, then the secondary air dampers, burners and monitoring of meagre temperatures and burner diagnostics for unit 1 at the 2400MW coal fired station. All will be programmed using The Mitsubishi Electric's MM+ system configuration tools which are IEC11313 compliant, saving time and reducing errors during configuration by using a common European standard programming methodology.

*Application story first released January 1998 by Mitsubishi Electric UK*