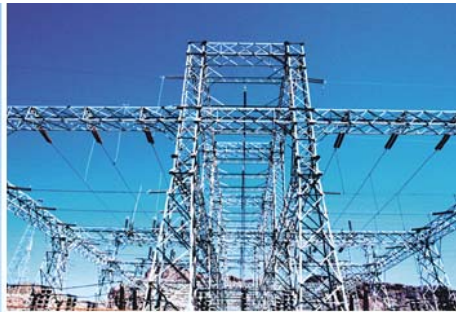




Taiwan Power Company - HDCS Project



Sector of activity :

Energy Control Systems

Client :

Taiwan Power Company

Year of completion :

2003

Financing :

Client

Mandate :

To design, supply, install, and commission a distributed Hierarchical Dispatch and Control System (HDCS) for the Taiwan Power Company, which included 4 Area Dispatch and Control Systems (ADCS) and 12 Distribution Dispatch and Control Systems (DDCS). The scope of work included the delivery of all hardware, software, documentation and training for the new systems, as well as all necessary testing, field installation and adaptation services.

Description :

Taiwan Power Company (TPC) is the sole power utility in Taiwan, supplying power to more than 20 million people. The TPC power network includes 20 high voltage substations, 45 primary substations, 84 primary distribution substations, 324 secondary substations, and over 14,000 km of transmission lines with circuits operating at 345 kV, 161 kV, 69 kV, 22 kV, and 11 kV.

The four ADCS Systems are installed in the cities of Tai-Chung, Hsin-Ying, Hsin-Chu and Kee-Lung, and the twelve DDCS systems are installed at satellite control centres. These systems are used to monitor and control the power transmission network in Taiwan in order to improve the quality and reliability of service. The system includes

Supervisory Control and Data Acquisition (SCADA) applications, Load Shedding and Restoration function, and Reactive Power Device Control applications.

SNC-Lavalin Energy Control Systems was responsible for the overall system design, as well as the design, supply and installation of the system software. SNC-Lavalin Energy Control Systems partnered with a local company for the supply of the system hardware, mapboards, modems, installation, commissioning, and hardware maintenance.

The design of each system is based on a distributed client/server architecture designed to internationally recognized standards. Commercial off-the-shelf equipment is used throughout, and includes redundant HP Alpha servers, HP Alpha workstations, Cisco communication equipment, mapboards, and peripheral equipment connected to a redundant local area network.

The SCADA software is based on the GEN-3 product developed by SNC-Lavalin Energy Control Systems. The database is maintained in an Oracle RDBMS stored on RAID-1 storage arrays, and is complemented by a set of memory-resident real-time databases that are replicated to all of the servers

and workstations on the local area network for optimal performance. All database edits can be performed online without the need to failover any servers or workstations to bring the changes online. The user interface supports Chinese character entry and display capabilities.

Each ADCS system includes an average of 140 redundant serial channels supporting the CDC Type II protocol and DNP3 serial protocol for communicating with remote terminal units. Each system also includes the ICCP TASE.2 protocol for communicating with other control centres. Each system is fully redundant to ensure high availability, and provides automatic fail-over features to survive all single hardware device failures.

Customer training consisted of formal classroom training and on-the-job training (OJT) to ensure the customer was prepared to operate and maintain the system.

Services provided :

Turn-key system including hardware and software design, code, integration, test, installation, commissioning, training and documentation.



SNC • LAVALIN

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SNC-LAVALIN ENERGY CONTROL SYSTEMS INC. SNC-Lavalin is Canada's largest engineering and construction firm. SNC-Lavalin Energy Control Systems has nearly 40 years experience, with systems installed on six continents. Our SCADA, Distribution Management System (DMS), Energy Management System (EMS) and Generation Management System (GMS) products are being used by some of the world's largest utilities. We also offer SCADA systems to monitor and control water distribution networks and natural gas distribution systems.