



Hebei Electric Power Company - SCADA/EMS

Sector of activity :

Energy Control Systems

Client :

Hebei Provincial Electric Power Company

Year of completion :

2001

Financing :

Export Development Corporation

Mandate :

To design, supply, install, and commission a new Energy Management System (SCADA/EMS) for the Hebei Electric Power Company, which operates the provincial power transmission network in Hebei province of China. The scope of work included the delivery of all hardware, software, documentation and training for the new system, as well as all necessary testing, field installation and adaptation services.

Description :

Hebei Electric Power Company maintains and operates the transmission network in Hebei province of China. Hebei province has a total area of 187,700 square kilometres and a population of 63 million. The provincial power network plays an important role in the Northern China Power Network. The main 220 kV transmission network is connected to the Jin-Jing-Tang network over two 220 kV tie lines. The network consists of one 500 kV station and forty-five 220 kV stations.

The SCADA/EMS is installed in Shijiazhuang, capital city of the Hebei province, and is used to monitor and control the Hebei province power transmission network. The system includes Supervisory Control and Data Acquisition (SCADA) applications, Generation Management (GMS)

applications, Network Analysis and Security (NAS) applications, Operations Planning and Scheduling (OPS) applications, and a Dispatcher Training Simulator (DTS). The system also supports Dispatch Evaluation, Reports, Computer Communication, and other user required functions.

The SCADA/EMS is based on a distributed client/server architecture designed to internationally recognized standards. Commercial off-the-shelf equipment is used throughout the system, which provides simplified maintenance and easier system expansion. The system includes redundant HP Alpha servers, HP Alpha workstations, communication equipment, mapboard controllers, and peripheral equipment connected to a redundant local area network. The system is fully redundant to ensure high availability, and provides automatic fail-over features.

The SCADA/EMS 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 system includes redundant serial channels supporting the DNP3 protocol and CDT protocol for communicating with remote terminal units. The system also includes the DL-476-92 protocol and ICCP TASE.2 protocol for communicating with other control centres. The EMS applications are fully integrated with Nexant PCA Powersuite, and the user interface supports Chinese character entry and display capabilities.

The SCADA/EMS provides valuable tools to assist the operators in operating the power system to high performance standards, in particular, network security. Customer training consisted of formal classroom training and on-the-job training (OJT) for operating and maintaining the SCADA/EMS.

Services provided :

A turnkey contract including project management, hardware, software, system integration, acceptance testing, documentation, customer training, and all necessary field installation and adaptation services.



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