



Provincial Electricity Authority - SCADA/EMS/DMS

Sector of activity :

Energy Control Systems

Client :

Provincial Electricity Authority of Thailand

Year of completion :

2005

Financing :

World Bank

Mandate :

To design, supply, install, and commission six new SCADA/EMS/DMS systems for the Provincial Electricity Authority (PEA), which operates and maintains the sub-transmission and medium-voltage network in Thailand. The scope of work included the delivery of all master station hardware, software, documentation and training for the new systems, as well as all necessary testing, field installation and adaptation services.

Description :

The PEA power system serves more than 10.9 million customers in Thailand. The peak load is 9,900 MW and is increasing by more than 5.9% per annum. The system covers 510,000 square kilometres, approximately 99% of Thailand's total area.

SNC-Lavalin Energy Control Systems delivered six SCADA/EMS/DMS systems arranged in a hierarchical configuration. The System Management Centre (SMC) is linked via TASE.2 ICCP links to five Area Distribution Dispatch Centres (ADDC), which in turn communicate with over 2,300 remote terminal units and Substation Automation Systems. The RTUs communicate with each ADDC using the DNP3 protocol over a combination of digital microwave, TDMA, telephone

lines and UHF radio links. The SMC supervises the entire power system operations from PEA headquarters in Bangkok, whereas the ADDCs perform their power system operations within their own service territories.

The scope of work included all master station hardware & software, remote terminal units, communication equipment, control centre building construction, and other peripheral equipment for the new centres. The master station hardware and software was provided by SNC-Lavalin Energy Control Systems, while its sister division, SNC-Lavalin Power, constructed the buildings and installed the remote terminal units and radio communication systems.

Each SCADA/EMS/DMS is based on a distributed client/server architecture. Commercial off-the-shelf equipment is used throughout the system, which provides simplified maintenance and easier system expansion. Each system includes HP Alpha servers, HP Alpha workstations, communication equipment, large screen display, and peripheral equipment connected to a local area network. Each SCADA/DMS is fully redundant for high availability, and provides automatic fail-over features.

The SCADA/EMS/DMS software is based on the GEN-3 product developed by SNC-Lavalin Energy Control Systems. The DMS/EMS applications are fully integrated with the SCADA applications, and include the distribution network model, connectivity analysis, power flow, fault isolation and system restoration, trouble call management, and volt/var control functions. The distribution network and graphical displays were imported from the corporate GIS using the GIS-Gateway product developed by SNC-Lavalin Energy Control Systems.

These systems allow PEA to manage the operation of the distribution system in real-time, and provide tools that identify ways to optimize the network and improve the quality and reliability of service. Customer training consisted of extensive classroom training and on-the-job training (OJT) to ensure PEA was able to operate and maintain the system.

Services provided :

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



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