



Reykjavik Electricity - SCADA/DMS

Sector of activity :

Energy Control Systems

Client :

Reykjavík Energy

Year of completion :

1997

Financing :

Client

Mandate :

To design, supply, install, and commission a new SCADA/DMS for Reykjavík Electricity, which operates and maintains the transmission and distribution network in Reykjavík, Iceland. The scope of supply included all hardware, software, documentation, and training for the SCADA/DMS, as well as the supply and installation of eleven substation and six distribution RTUs supporting the DNP3 protocol.

Description :

Reykjavík Energy is an independent service company that distributes electricity in twelve municipalities in an area of approximately 194 square kilometres. More than half of Iceland's population resides in its service territory. Reykjavík Energy produces and distributes environmentally friendly energy in the most efficient manner and in harmony with the environment; more than 66% of Iceland's electricity and heating comes from hydroelectric power and the geothermal water reserves tapped from the hot rock layers lying just beneath the surface.

The SCADA/DMS is installed in Reykjavík, the capital city of Iceland, and is used to monitor and control the power distribution network in Reykjavík Electricity's service territory. The objective of the system is to improve the

quality and reliability of service; this is achieved primarily by the distribution management applications developed by SNC-Lavalin Energy Control Systems. These applications provide a means to effectively manage the operation of the distribution system in real-time, and provide planning tools that identify ways to optimize the use of the utility's resources.

Eleven substation RTUs (CAE MRTU) including cabinet, I/O boards, power supply, relays, modem, and all other peripheral equipment were supplied. In addition, six distribution pole/pad-mount RTUs (CAE PRTU) were supplied for the project; the PRTU is a compact integrated remote terminal unit especially designed for use in distribution automation. All RTUs communicate with the master station using the DNP3 protocol.

The SCADA/DMS system design is based on a distributed client/server architecture designed to internationally recognized standards. Commercial off-the-shelf equipment is used throughout the system, and includes redundant HP Alpha servers, HP Alpha workstations, communication equipment, and peripheral equipment connected to a redundant local area network. The system includes redundant components to ensure high availability, and provides

automatic fail-over features to survive any single hardware device failure.

The SCADA/DMS software is based on the GEN-3 product developed by SNC-Lavalin Energy Control Systems. The distribution network model is maintained in an Sybase 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 SCADA/DMS includes sophisticated distribution management applications, including connectivity analysis, distribution power flow, fault level analysis, loss minimization, and dispatcher training simulator. The distribution network model and geographic displays were imported from the corporate GIS system.

Services provided :

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



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