Eesti Energia Jaotusvõrk OÜ chose Supervision and Control System from ABB

In May 2001, the Eesti Energia Jaotusvõrk OÜ (Distribution Network) ordered a new SCADA system for the supervision and control of the distribution network, including a main system in Tallinn, regional systems in Tartu, Pärnu and Kuressaare, and local systems in Tsirguliina, Võru, Viljandi, Rapla and Paide. The system is based on ABB MicroSCADA technology. The order was preceded by a Government Procurement Competition.

Eesti Energia Jaotusvõrk OÜ

Jaotusvõrk OÜ distributes electric power and provides related services to consumers. It operates a low and medium voltage network, the voltage of which does not exceed 110 kV. The network serves an area of approximately 40 900 km².

- Power transmission: 4 800 GWh
- Peak power: 1 200 MVA
- Number of customers: 570 000
  - number of corporate customers: 17 000
- Distribution network: 59 000 km
- Capacity of transformers installed: 5 223 MVA
- Substations: 16 000
- Personnel approximately: 950

Main reasons for the SCADA investment

Jaotusvõrk OÜ is using two separate systems: ABB MicroSCADA and Telem SCADA (delivered by Martem AS).

Reasons for the procurement were to:
- create a SCADA covering the whole Jaotusvõrk OÜ service area, including regional control possibilities
- obtain uniform operation and maintenance principles at all locations
- reduce the maintenance costs of the electric network
- utilize the advanced features offered by modern relay protection and automation devices in both new and upgraded substations
- improve the service level for the customers
- create the prerequisites required for adapting to a deregulated electricity market
- minimize quantity and integrate Control Centres
- assure automatic real-time data exchange with existing GIS Tekla X-Power and Transmission Network SCADA GE Harris XA/2

Reasons for selecting the MicroSCADA

- the price–functionality relation was superior to that of other systems offered
- the system is delivered by the same company as the existing systems
- existing MicroSCADA systems are compatible with the new one
- the personnel are already familiar with MicroSCADA engineering
- savings in training of operators and system engineers
- the system incorporates such features as scalability, hierarchical configuration and openness at all levels
- the existing process database can be used, which saves implementation time
- the supplier has previous experience of connecting GIS Tekla X-Power
- a standard WEB browser can be used for maintenance and data supervision
- guaranteed system lifetime support
- the system can be updated in the future
- all expert support is close
- successful co-operation between Eesti Energia Jaotusvõrk OÜ and ABB has already been established.

Size of the system

Control centres: 11
- 1 main, 3 regional, 7 local centres
(2 existing MicroSCADA systems)

I/O data points: 100 000
Substations to be controlled: 250
Distribution terminals to be controlled: 150
Process pictures, approximately: 400
Reports, approximately: 1 200
Project responsibility

ABB Eesti Energia Jaotusvõrk OÜ

- 2 % 98 % Picture editing
- 2 % 98 % Database fill in and testing
- 2 % 98 % Installation
- 50 % 50 % Commissioning of the system
- 0 % 100 % Commissioning of the RTUs
- 5 % 95 % Report specifications
- 98 % 2 % System specifications

Equipment

- System and ELCOM servers 15
- Communication servers 7
- Workstations (1 to 3 monitors) 41
- Large screen projection systems 9
- Mimic board 1
- LAN/WAN equipment (router, switch) 24
- Printers (event, hardcopy) 33

Communication

- WAN between control centres
- LAN 100 / 10 MB in office network
- ELCOM connection to DMS (X-Power) and to Transmission Network SCADA (Harris)

Communication with substations directly over IEC 60780-5-101 protocol or via protocol converter TELEM-2000 using dedicated or dial-up connections (over GSM).

Special characteristics of the project

- Automatic process database mirroring between control centres
- WEB browser used for supervision and operation
- Authorization management
- Database import/export function
- Language converter function

Figure: Supervision and control system of Eesti Energia Jaotusvõrk OÜ

ABB Oy Substation Automation Systems
P.O.Box 699, FI-65101 VAASA, FINLAND
Phone: +358 10 22 11, Fax: +358 10 22 47133
http://www.abb.com/substationautomation

Eesti Energia Jaotusvõrk OÜ
Heikki Kolk Kadaka tee 63, 12915 Tallinn, Estonia
e-mail: heikki.kolk@energia.ee