

# MicroSCADA

## Tampere Power Utility Chooses Power System Control and Supervision System from ABB

In December 1999, the Tampere Power Utility, Finland, ordered a new MicroSCADA system for the control and supervision of the distribution network. The delivery comprises a redundant control system including communication equipment and software, two workstations with three screens and one workstation with two screens, and a secured SCADA-LAN/WAN. The existing I33/SCS/COM substations are connected to the system.

### Facts about the Tampere Power Utility

Electricity energy procurement	1718 GWh
Maximum demand	302 MVA
Customers	115 000
Stations	11
Switching stations	4
Power plants	
- Naistenlahti 1 and 2	
- Lielahdi	
- 3 hydropower plants of Tammerkoski	
Secondary substations	1300
Transmission network, 110 kV	48 km
Medium voltage network	870 km
Personnel	approx. 595

### Reasons for the investment

The power utility was using a Becos 30 SCADA system, delivered by Brown, Boveri & Cie in the early 1980s.

Main reasons for the modernization:

- renew the control centre equipment
- build a new control room in the new office building
- utilize the advanced features offered by modern protection relays providing added value both for the utility and the customers
- ensure and assure the availability of technical support
- modernize the human-machine interface and integrate network topology into the station pictures
- ensure Y2k compliance
- create an open environment for data exchange by using the Microsoft Windows NT™ operating system.

### Reasons for choosing the MicroSCADA supervision and control system

The MicroSCADA was chosen for the following reasons:

- the system comes from the same company as the BBC Becos system
- the system communicates with existing I33 RTUs
- the system utilizes the features of modern relays
- open system. Connections to other systems and to substations delivered by other suppliers on the market can be carried out if needed
- the system can be easily connected to Tekla's Xpower
- the system can be connected to the existing energy management system
- system redundancy
- the reporting system can adapt to the requirements of the new electricity market legislation
- the system is based on modern software solutions
- the maintenance is easy – the customer can maintain the systems himself
- the person on duty can monitor and control the system from home
- the system can be connected to the office network, where reports and other functions can be distributed
- the system can easily be updated in the future

### System size at delivery stage

I33 stations	13
- I/O points on the field approx.	4000
SCS stations (future COM station)	1
- communicating SPACOM relays	40
COM stations	1
- RED 500 relays	14
- SPACOM relays	10
REC stations	3
Mikroli stations	1
Process pictures, approx.	70
Reports, approx.	250

## Project responsibility

ABB	PU Tampere	
5%	95%	Picture editing
100%	0%	Database conversion tool
0%	100%	Database loading and testing
50%	50%	Installation
50%	50%	Commissioning of the control centre
10%	90%	Commissioning and tests of subst.
10%	90%	Reporting
95%	5%	System specifications and configurat.

## Special characteristics

- Fast project execution, from order to commissioning in 11 months
- Station pictures, databases and reports tested in 4 months
- Conversion of the Becos database into the new system using conversion tool
- Systematic station picture hierarchy with topology feature
- Integration of control room multimedia features into MicroSCADA

## Communication

- Fixed 4-wire connection to the I-33 substations
- Optical connection to COM stations
- Optical LAN/WAN 100/10 Mb/s
- Two radio links
- Telephone connections and a dial-up modems
- RAS connection

Existing I-33 RTUs use the I33 protocol for communication, which is converted in the COM500 or SCS to the standard IEC 60870-5-101 protocol.

The new substations use the IEC 60870-5-104 protocol for communication.

## Equipment

Servers:	4 x 450 P2	2, HSB
Communication servers:	2 x 450 P2	2, HSB
Workstations:	2 x 450 P2	3
Displays:	18" Tft display	10
LAN/WAN:	4 switches in a ring	
Other devices:	See figure	

### Tampere Power Utility

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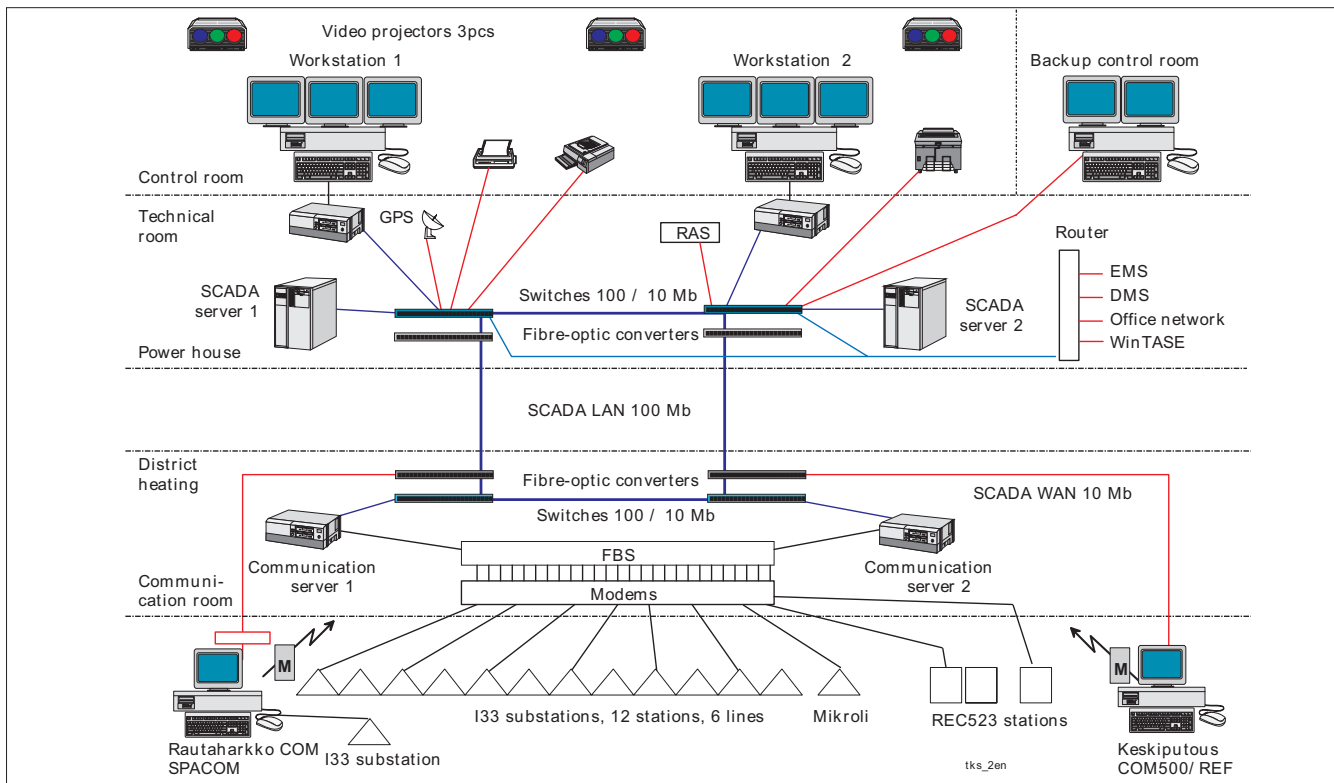


Fig. Remote control system of the power utility of the city of Tampere.

We reserve the right to changes without prior notice



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