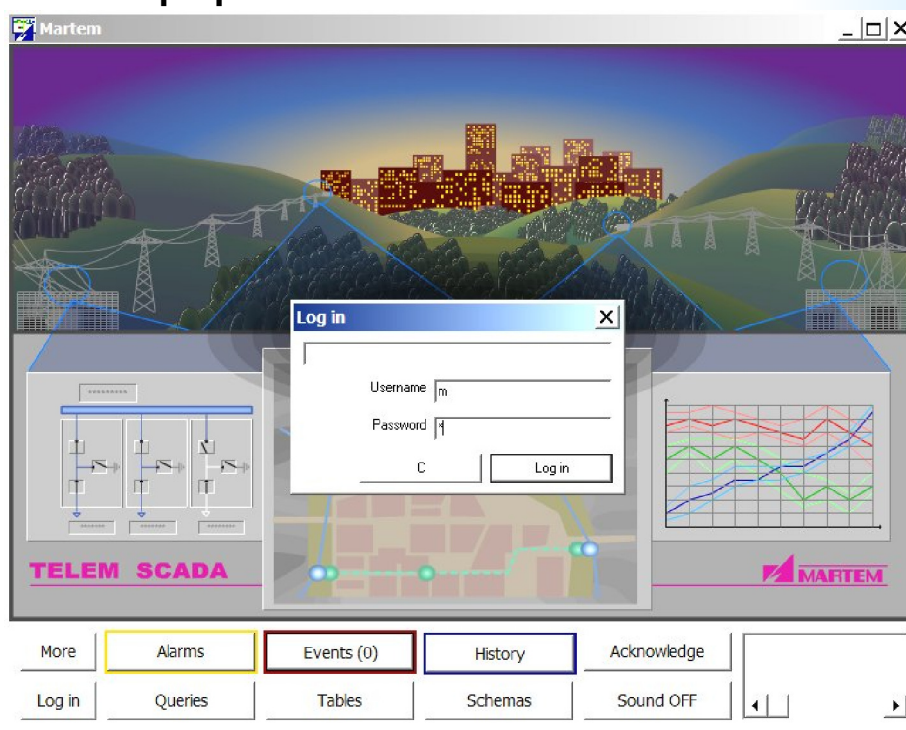


About Telem SCADA features

SCADA demo:
<http://phobos.martem.ee/shr/SCADA/>



Martem AS
Tallinn 2017

Content

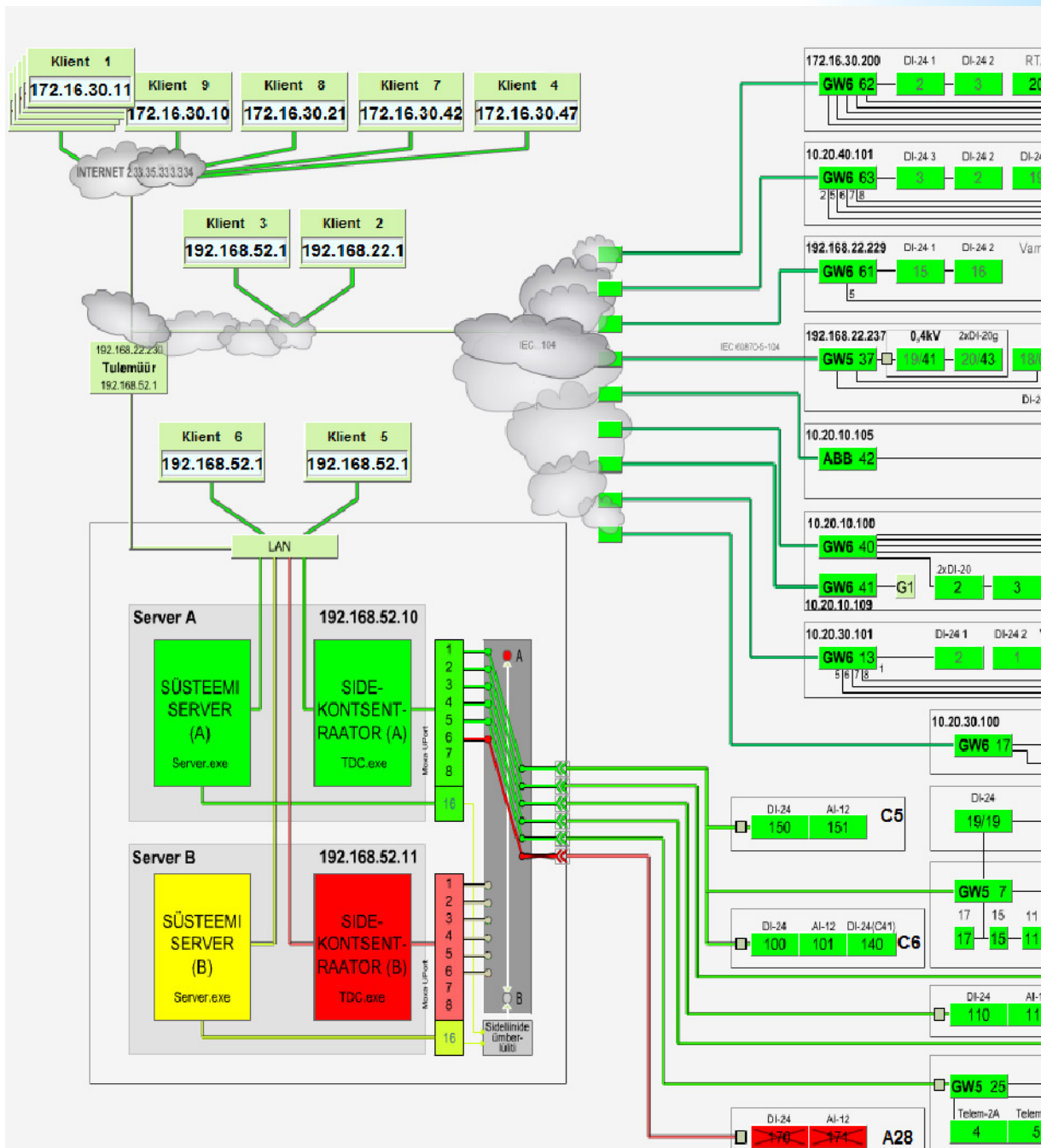
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1. Telem SCADA workstation

Any windows PC could be used as Telem SCADA workstation. To this PC must be installed Martem's SCADA client.exe program and Adobe flash player. The count of client workstations is not limited and they may be placed anywhere, in the local network or wherever the Internet goes

Example :

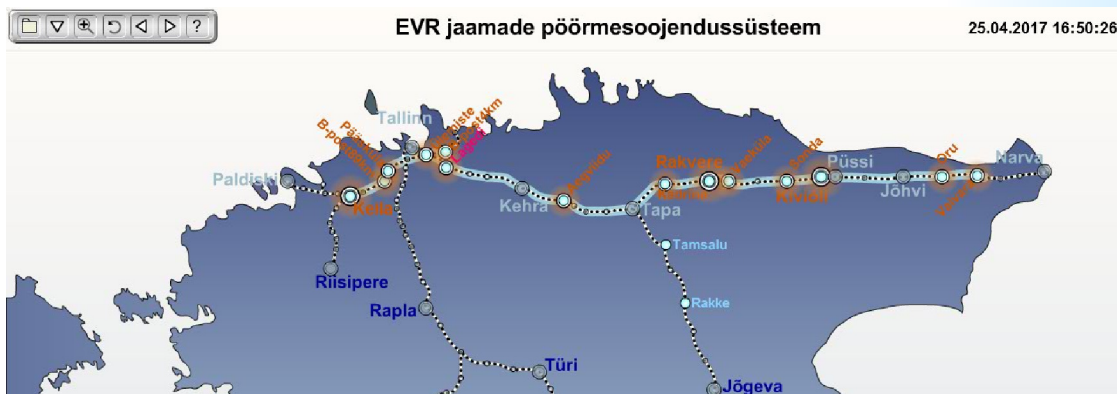
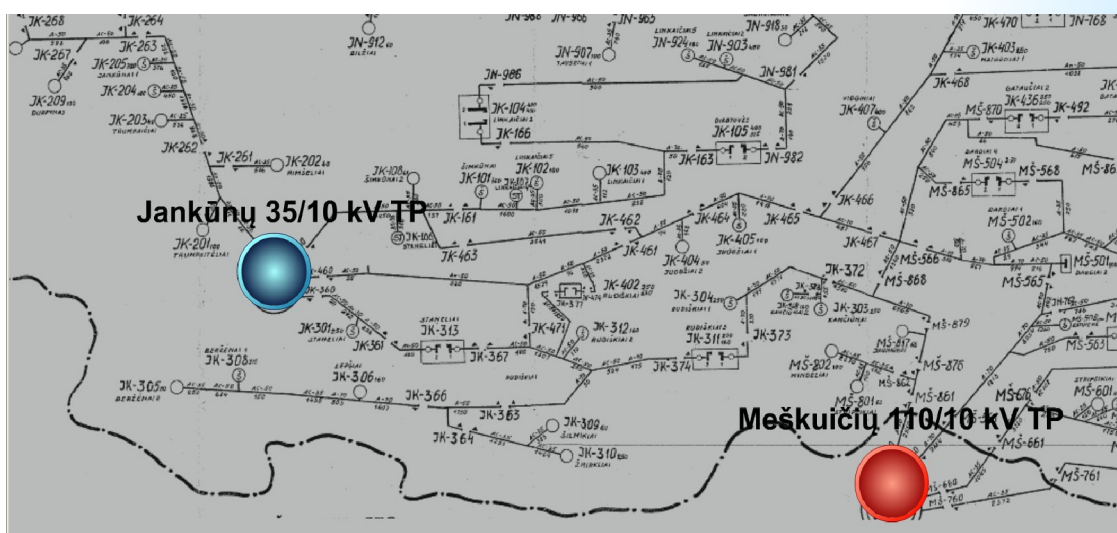
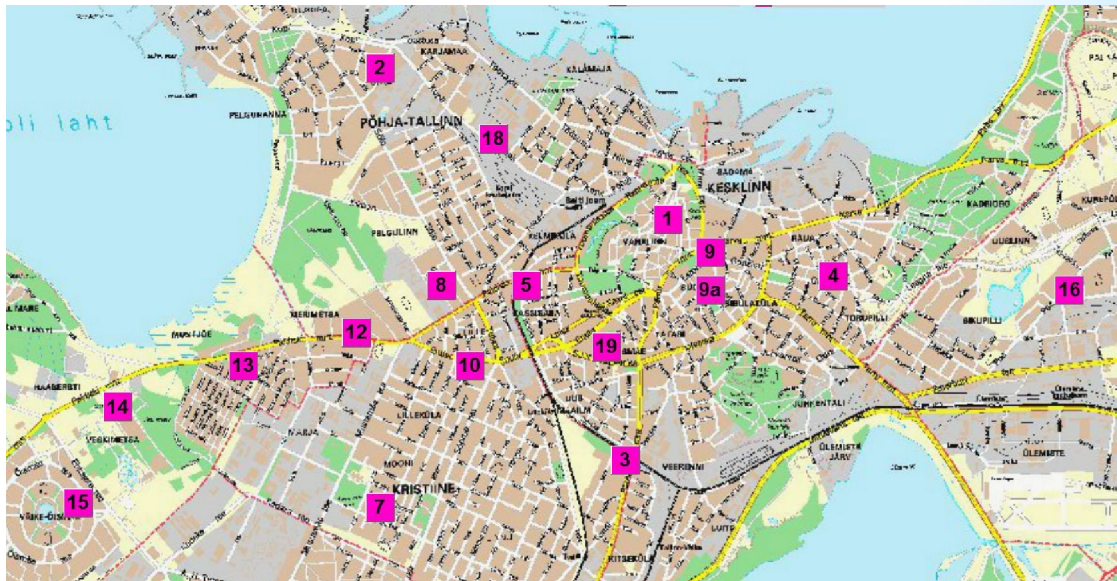
Systems status schema displaying clients (workstations), SCADA servers, communication lines and RTUs



2. Adding substations to map

The SCADA System's usually starts with a diagram that presents substation on the map. The symbols of substation could be freely designed and are used as links to substation diagrams (schemas). The maps format could be png or jpg.

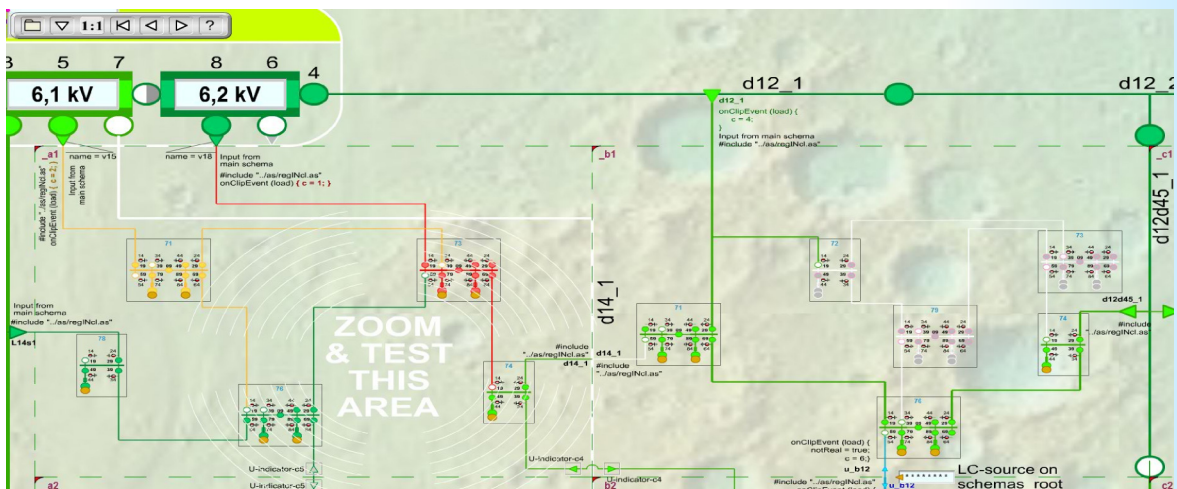
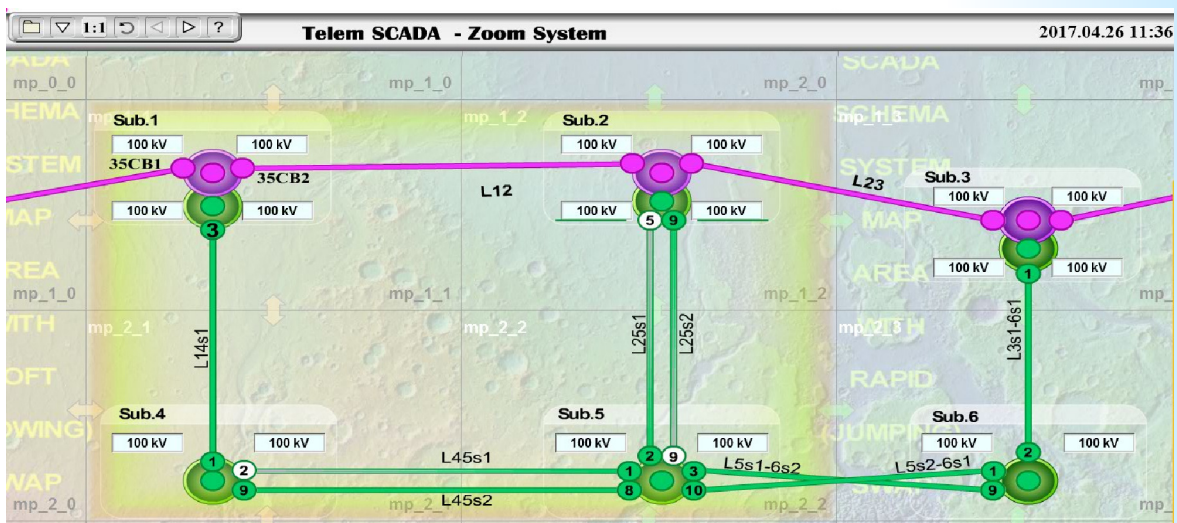
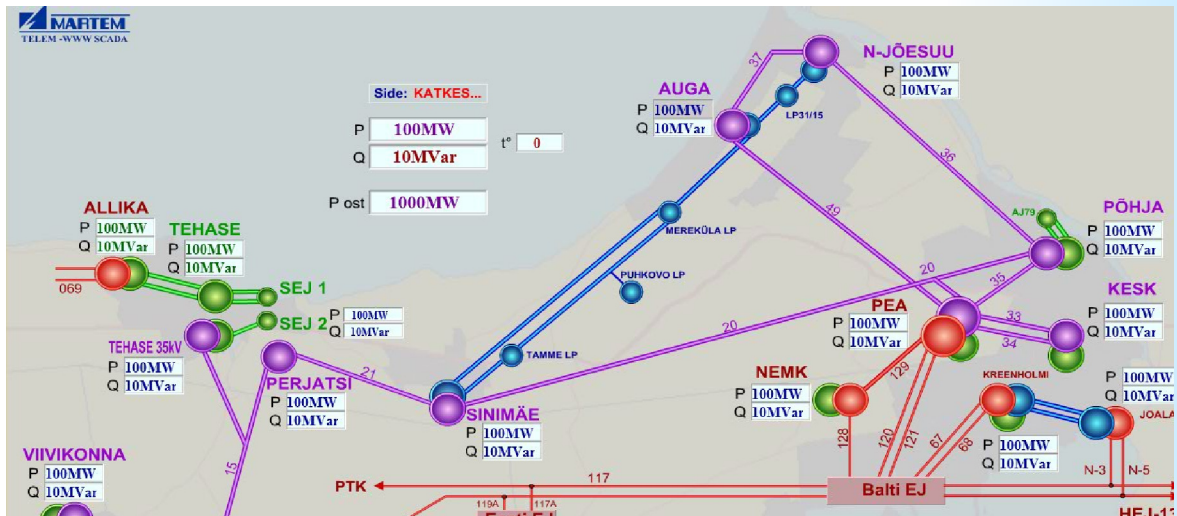
Examples:



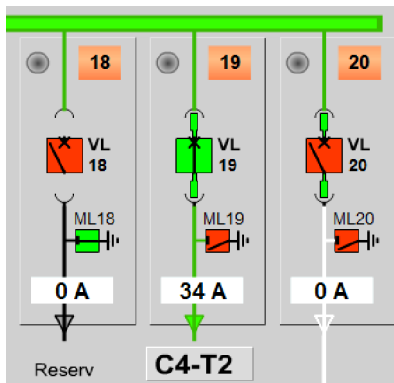
3. Power grid diagram

Any schema (diagram, drawing) could be designed freely, using any Adobe Flash feature. Schemas symbols can be taken from symbols library, other schemas or design by user, if needed.

Examples:



Telem SCADA Schema system includes line coloring system for changing color of schema lines and other symbols to display voltage status of electric circuit.

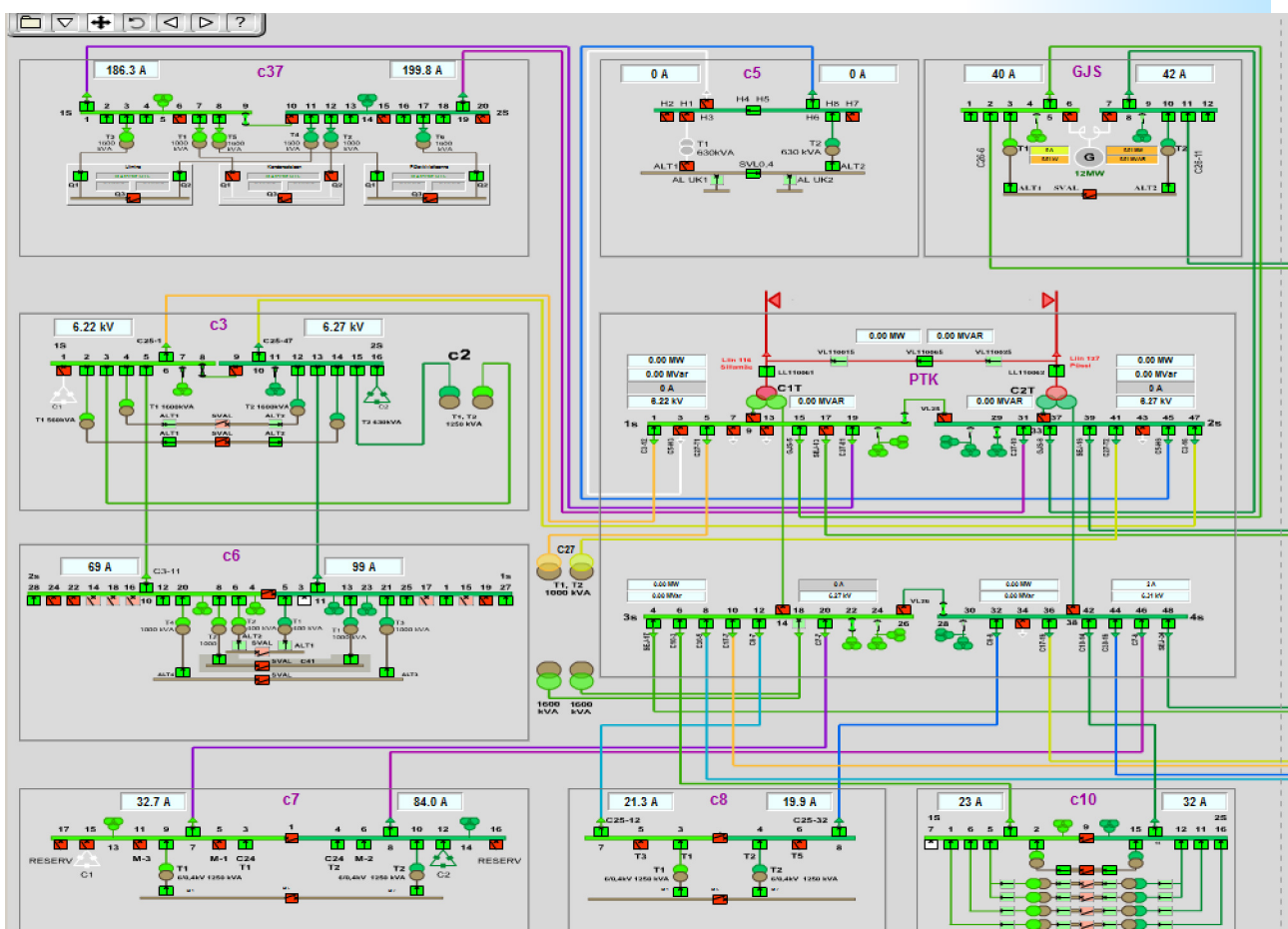


Example 1:

1. Feeder 18 status - GROUNDED
2. Feeder 19 status - NORMAL VOLTAGE
3. Feeder 20 status - UNDEFINED (DISCONNECTED)

Example 2:

Using line coloring for lines between substations.
Permit an overview of the whole system's situation

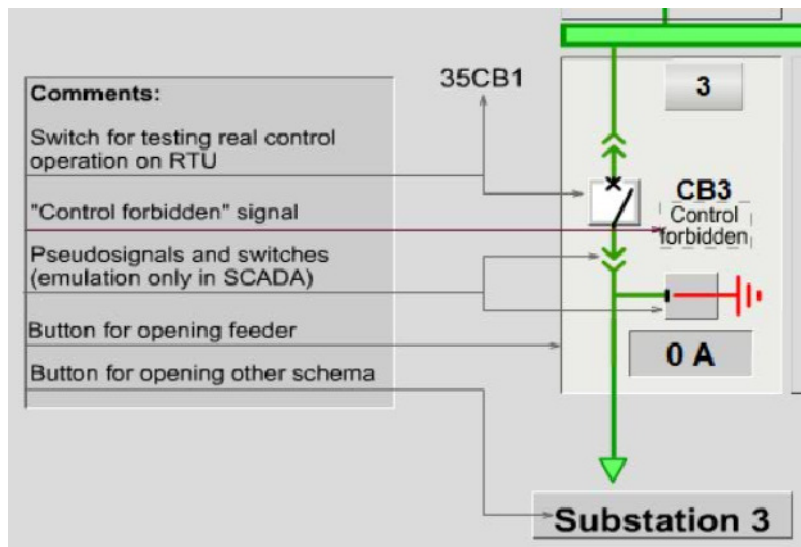


5. Blocking of control operations

Telem SCADA allows to set up rules (formulas) for blocking of control operations. For blocking control operation user can create logical formula from any signals of system

Example:

if the earth switch is on (on this schema or in the other end of line) the control operations of any switches could be blocked.



6. Alarms

Alarms							
Priority	Group	Unit	Type	Alarms 11		Delete	Del.all normal
4 ...	All	All	All	<input type="checkbox"/> Auto delete normal		Export	Show obj. history
All	All	All	All				
Priority	Spring up	Substatio	Voltage C	Bay	Name	Value	Disappear
****	28.04.17 10:34:15.872	substatio35kV			35Uab IIs	33.2 kV	28.04.17 *10:36:57
*****	28.04.17 10:20:52.430	powerPla6kV	36		CB 36 (G-4)	OFF	
*****	28.04.17 09:48:06.525	powerPla6kV	6		CB 6	OFF	
*****	27.04.17 *14:06:59	powerPla6kV	27		CB 27 (T1T)	OFF	
*****	27.04.17 *14:06:59	powerPla6kV	33		CB 33	OFF	
*****	27.04.17 *14:06:59	powerPla6kV	12		CB 12	OFF	
*****	27.04.17 *14:06:59	powerPla6kV	35		CB 35 (G-3)	OFF	
*****	27.04.17 *14:06:59	powerPla6kV	11		CB 11	OFF	
*****		powerPla6kV	27		KLL-L14	ON	
*****		powerPla6kV	26		KLL-L15	ON	
****		substatio10kV		U-Tr. 1	Uab 1	8.6 kV	

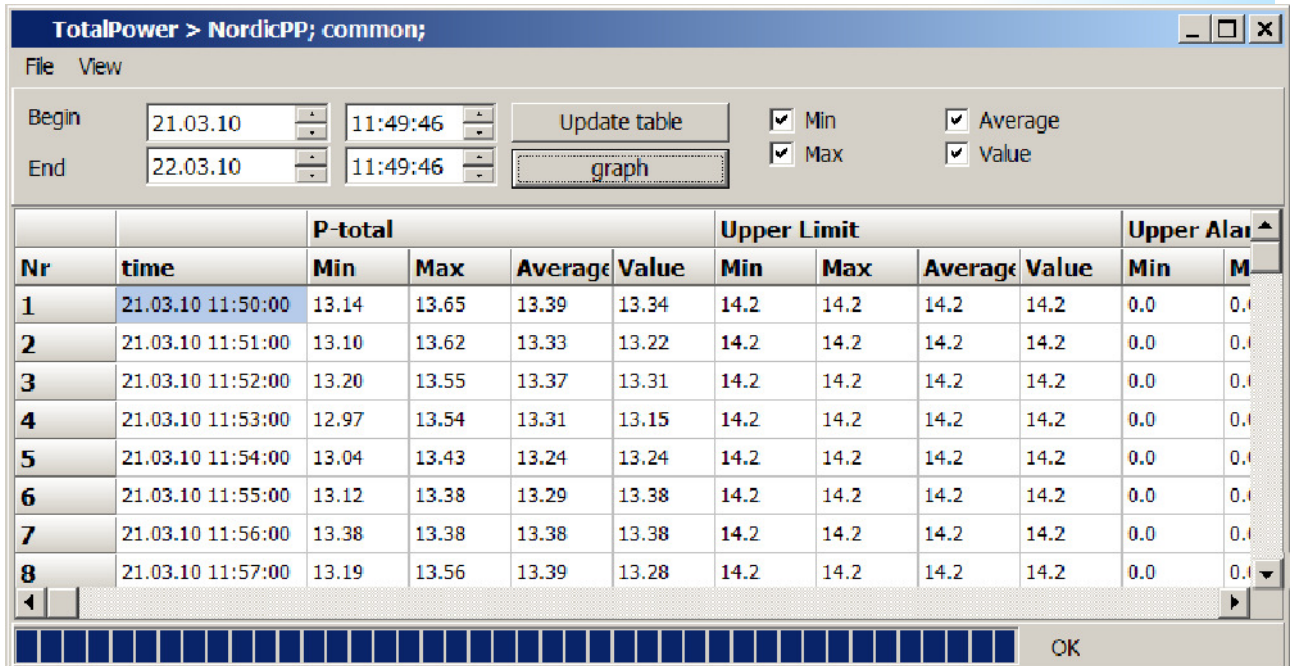
7. Events

Events							
<input type="checkbox"/> Priority	Events 157	Substation	Group	Ackn. priority	Sound OFF		
4 ...	Sort	ID	Sub2	Disp	Acknowledge		Export
Prior	time	Substation	Name	Status	Value	Ackn. time	
	14:10:09.171	01.04.04 Sub2	CB 3	OFF			
	14:06:29.884	01.04.04 Sub2	CB 2	ON			
	*14:06:09	01.04.04 Sub2	35Uab Is	<- Hi	36.83		
	*14:06:01	01.04.04 Sub2	35Uab Is	<- HiHi	39.04		
	13:22:28.699	01.04.04 Sub2	CB 2	OFF			
-	13:08:15.609	01.04.04 Sub2	P-total	<- Lo	1419.33		

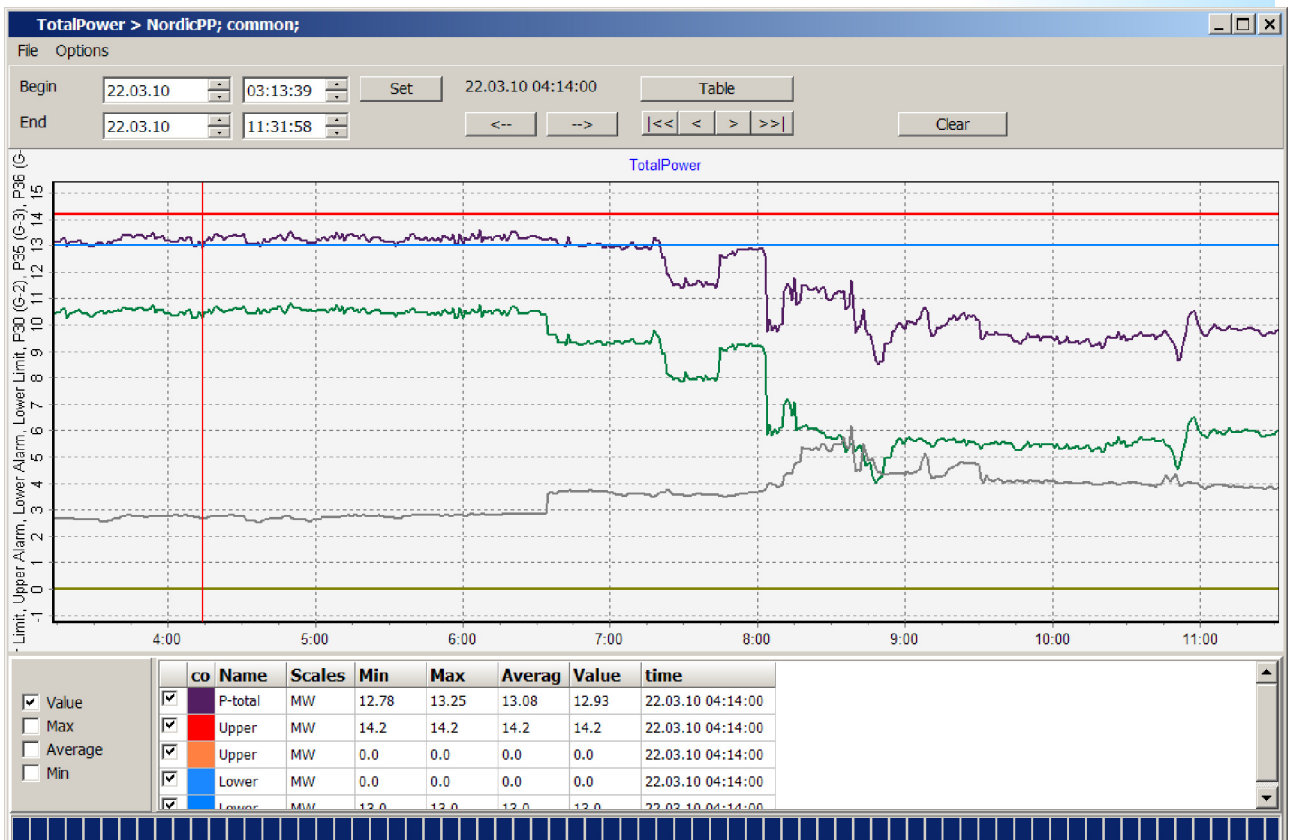
8. History

History									
Begin: 00:00:00 01.04.04		Set		End: 15:00:00 01.04.04		Set		Send query	
<input type="checkbox"/> Priority	Events 99	Substation	Group	Ackn. priority	<input type="checkbox"/> otse ajaluki		Pause		
4 ...	Sort	ID	All	All	Acknowledge		Export		
Prior	time	Substation	Name	Status	Value	Ackn. time			
-	*14:09:51	01.04.04 Sub2	Earth 2	ON		14:09:51 01.04.04			
-	*14:09:51	01.04.04 Sub2	Earth 2	CE ON		14:09:51 01.04.04			
	14:06:29.884	01.04.04 Sub2	CB 2	ON					
	*14:06:29	01.04.04 Sub2	CB 2	CE ON		14:06:29 01.04.04			
	*14:06:09	01.04.04 Sub2	35Uab Is	<- Hi	36.83				
	*14:06:01	01.04.04 Sub2	35Uab Is	<- HiHi	39.04				
	*13:22:59	01.04.04 Sub2	CB 4	CE OFF		13:22:59 01.04.04			
	13:22:28.699	01.04.04 Sub2	CB 2	OFF					
	*13:22:28	01.04.04 Sub2	CB 2	CE OFF		13:22:28 01.04.04			
-	13:08:15.609	01.04.04 Sub2	P-total	<- Lo	1419.33				

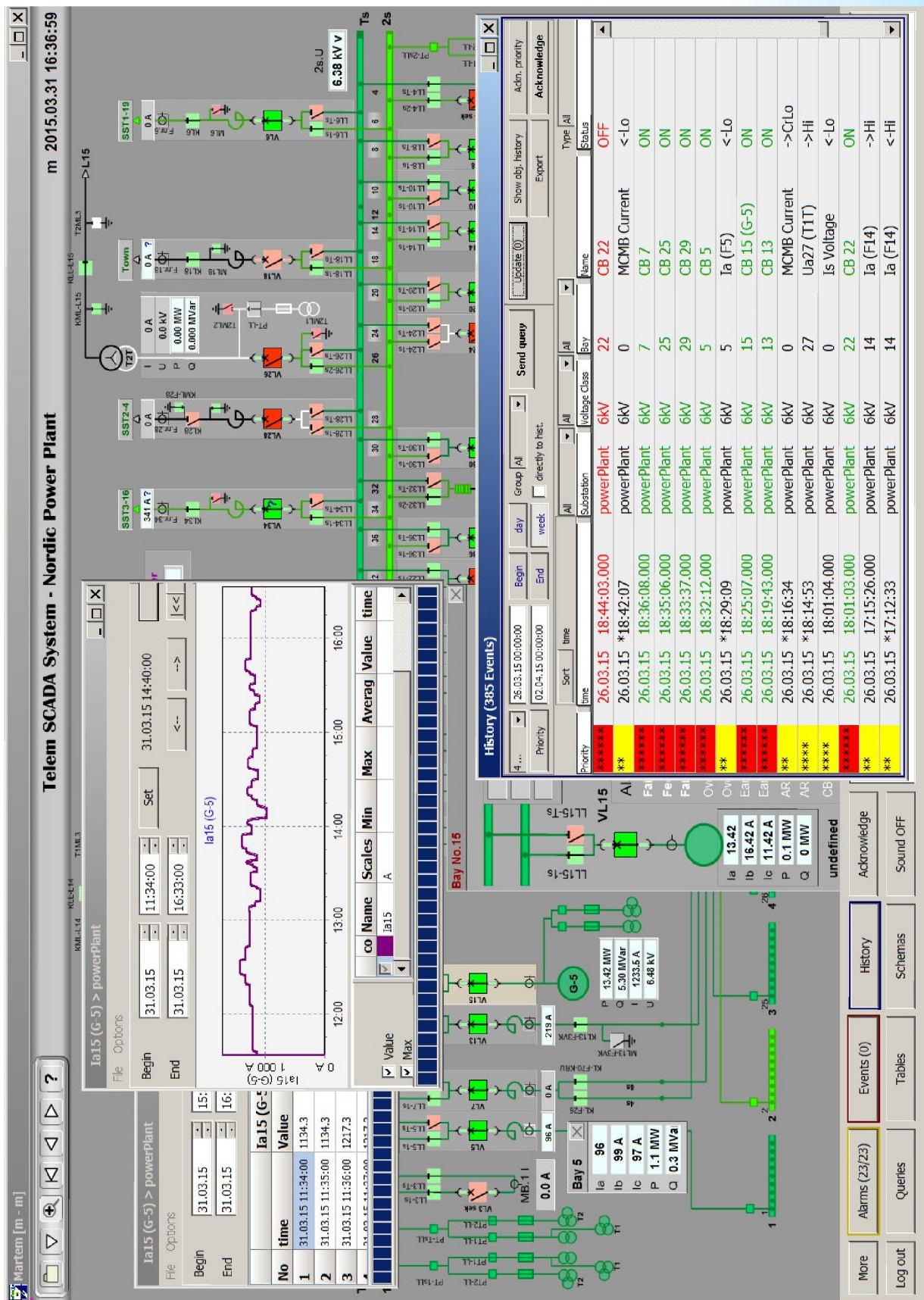
9. Tables



10. Trends



About SCADA



12. Reference

TELEM-SCADA CENTER

Port of Tallinn

Iru Powerstation

Estonian Railway
substations

Estonian Railway
Switchboard Heating

Tallinna tramm-troll

Fortum
(Läänemaa & Viimsi)

VKG (K.-Järve)

VKG (Narva Electricity
Network)

Veskimetsa
Substation (Tallinn)

Papiniidu
Substation (Pärnu)

Limestone careers

Ziemeļu Elektriskie Tīkli
LatvEnergo (ZET)

Valmieras ETR

Cesu ETR

Limbazi ETR

Smiltene ETR

Piebalga ETR

Siauliai Electricity
Network

Mazeikiai Electricity
Network

Joniskis Electricity
Network

Klaipeda
Heating Station

LOCATION OF TELEM SCADA SYSTEMS

