

Goal

Minimization of MW losses and improve voltage levels with the following optimization criteria (all optional):

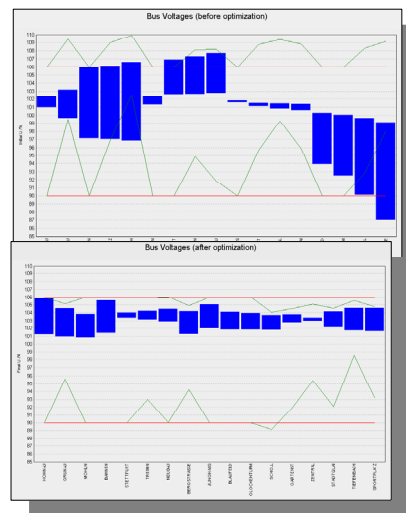
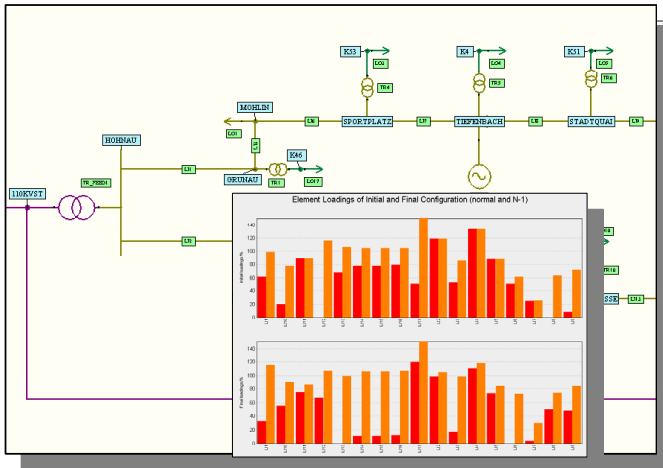
- Optimal separation points (least loss switch configuration)
- Optimal compounding for transformers
- Optimal power factors of disperse generators
- Optimal set voltage for on-load transformers
- Optimal LV/MV-transformer tap setting
- For normal operation and N-1 operation

Limits

- Voltage limits at MV and LV-side (user-defined)
- Thermal limits of the cables and transformers

Load situation

- Load range defined by a maximum and minimum with scaling factors and load data import
- User defines loads and disperse generators to be scaled



before

after

Optimal Capacitor Placement

Identifies key locations in radial primary feeders, where the placement of shunt capacitors minimizes the MW losses.

Results are:

- the bus of the primary feeder, where a shunt capacitor would be located,
- the MVAR size of the capacitor,
- the additional reduction in MW losses (in %).

Load factor	Bus ID	Bus Name	Size kVar	Losses MW	Additional Loss reduction %
0.6	6783	B6	1210	0.0379	29
	6820	B3	940	0.0358	3.74
1	6783	B6	2130	0.1085	30.6
	6820	B3	1690	0.102	4.12

