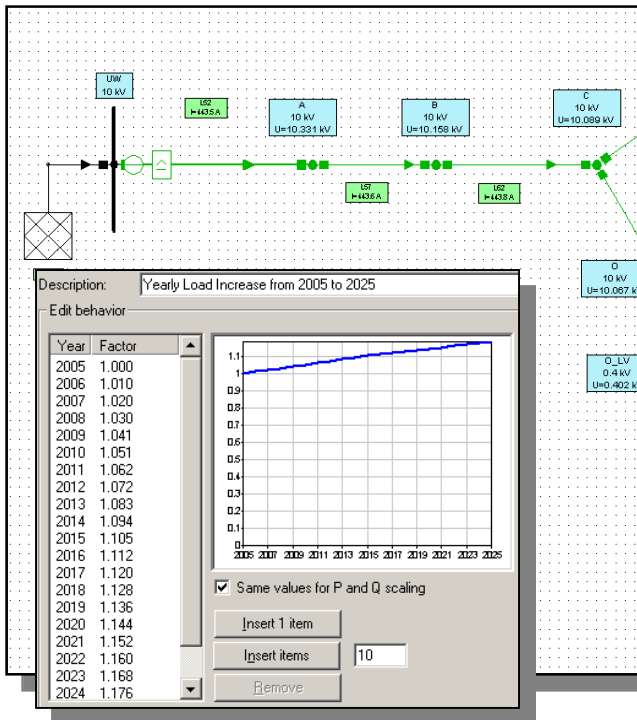


## Economic cable dimensioning

- Selection of most economic cable cross section from a predefined cable library over a given planning period and load states in distribution networks
- Conditions are cable overloads and over-/under-voltages
- Optimization in respect of losses or voltage drop
- Load condition given as load profiles or load state after planning period
- Load utilization time is calculated or given as input value
- Library with cable material costs
- Five different types for installation costs
- Reinforcement can be done for all feeders or feeder-wise



**Feeder Reinforcement Parameter**

Parameter

Feeder Reinforcement according to:

- Cable Sizing with Load flow (LF Parameter...)
- Cable Sizing with yearly load increase (profiles)
- Thermal Analysis (Short Circuit) (SC Parameter...)

Thermal Analysis:

- DIN VDE 100 Part 640
- ANSI
- DIN VDE 0103 = IEC 865-1:1993
- With Feeder Selection

Cable Sizing:

- Make Sizing for given period
- Base Year: 2005, Period .. years: 20
- Pay back period .. years: 20
- Interest rate .. %: 4.5, Un .. kV: 10
- Energy costs .. Units/kWh: 0.48,  Consider loads at low voltage
- Currency Units: Kr,  Calculate utilization time
- Load utilization time .. h/a: 3000
- Cable cost file (\*.txt): C:\Program Files\Neplan5\Examples\Elec\Cabl...
- NEPLAN Library: C:\Program Files\Neplan5\Lib\Demo-Lib-Elec-Elementer

Cable installation costs per meter in Currency Units:

- Type 1: 100, Type 3: 200, Type 5: 300
- Type 2: 150, Type 4: 250

Load state after PayBack Period for Loadflow (without yearly load increase)

Loading file (\*.ndb): D:\Winnep\Daten\Neplan\TestDaten\50\Feedk...

Buttons: OK, Cancel, Apply, Help

## Results

No.	Year	Line to be Replaced	From	To	Caused by Line Overload	Total Line Length	Cable Material Costs	Installation Costs	Total Cable Costs	Losses before Replacement	Losses after Replacement	Loss Reduction	Selection Criteria	Best Cross Section (Voltage opt.)	Most economical Cross Section	Minimum Length
						m	Kr	Kr	Kr	kW	kW	Kr	Kr/Volt	mm2	mm2	m
1	2005	L57	A	B	<input type="checkbox"/>	1000.0	320000.0	0.0	320000.0	122.9	74.7	668639.1	-2841.7	240	240	1000.0
2	2008	L62	B	C	<input type="checkbox"/>	400.0	128000.0	0.0	128000.0	54.5	33.3	280300.7	-5863.3	240	240	400.0
3	2013	L52	UW	A	<input type="checkbox"/>	400.0	128000.0	0.0	128000.0	65.8	40.2	310922.1	-3266.3	240	240	400.0
4	2017	L82	C	O	<input type="checkbox"/>	300.0	96000.0	0.0	96000.0	12.9	7.9	79692.3	1495.7	240	240	300.0
5	2018	L67	C	M	<input type="checkbox"/>	500.0	160000.0	0.0	160000.0	39.6	15.7	200443.5	-852.5	240	240	500.0
6	2019	L92	T	L	<input type="checkbox"/>	600.0	192000.0	0.0	192000.0	15.8	9.7	94623.0	5676.8	240	240	600.0
7	2021	L87	O	T	<input type="checkbox"/>	500.0	160000.0	0.0	160000.0	14.2	8.7	82179.9	5261.5	240	240	500.0
8	2024	L102	X	I	<input type="checkbox"/>	500.0	160000.0	0.0	160000.0	2.8	1.1	23521.5	10706.5	240	150	174.0