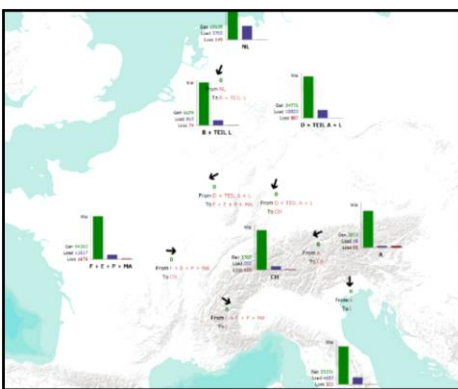


Load Flow

This module performs Load Flow studies for 3-, 2- and 1-phase AC and DC systems for meshed, looped and radial networks from HV to LV. It includes disperse generation models such as wind power, photovoltaic, small hydro, geothermic, etc. and provides a wide variety of calculation options to address specific applications.

Characteristics

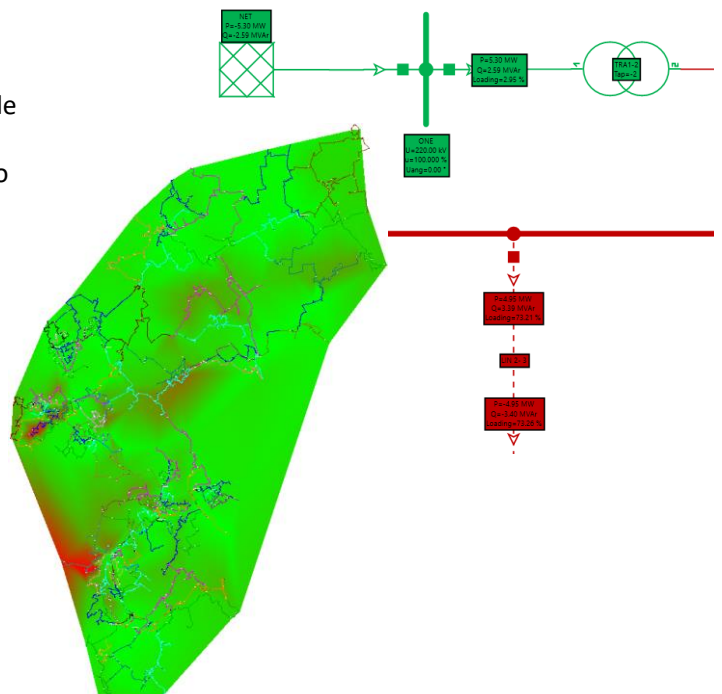
- Computation methods: Current Iteration, Newton Raphson, Extended Newton Raphson, Voltage Drop (per-phase), DC load flow
- Voltage and flow control with phase-shifting transformers
- HVDC, PWM and FACTS devices, like SVC, STATCOM, TCSC, UPFC
- DC-Batteries, DC-Fuel cells, DC-Voltage source, DC-Photovoltaic panels
- Node types: slack, PQ, PV, PC, SC, PI, IC with intuitive assignment. More than one slack node possible
- Power interchange between area / zones (area interchange control) and distributed slack node
- Predefined and user defined scaling factors for fast load and generation variations
- Measurement data import and load balancing
- Calculation of loss sensitivities (PDTF-factors)
- Powerful convergence control with initialization file input / output
- Limit check and appropriate automatic conversion of the node type



Results

Upon calculation results are automatically displayed on the single line diagram while their content and graphical information can be customized. Result evaluation and processing is easier due to visualization functions:

- Overloaded elements or nodes with voltages outside predefined limits are highlighted
- Line thickness corresponds to element loading
- Table output: for the whole network, individually for each area / zone. Listing of power flows between areas/zones, overloaded elements, sorting function, selective output
- Results can be saved in a text file (ASCII)
- Table interface with MS-Excel



Contingency Analysis

All elements and nodes can be disconnected during the contingency analysis. In single mode outage nodes or elements are disconnected one by one and the load flow is calculated. In common mode outages several nodes and/or elements can be disconnected at the same time.

Results demonstrate the outaged elements, the value of the variable violating limits and the divergence of this value from the base case. The outages are listed in order of decreasing number of voltage and current violations.