DIgSILENT Pacific Christmas Seminar
Technical seminar presented by DIgSILENT Pacific
28th November 2012, Brisbane

DIgSILENT Pacific

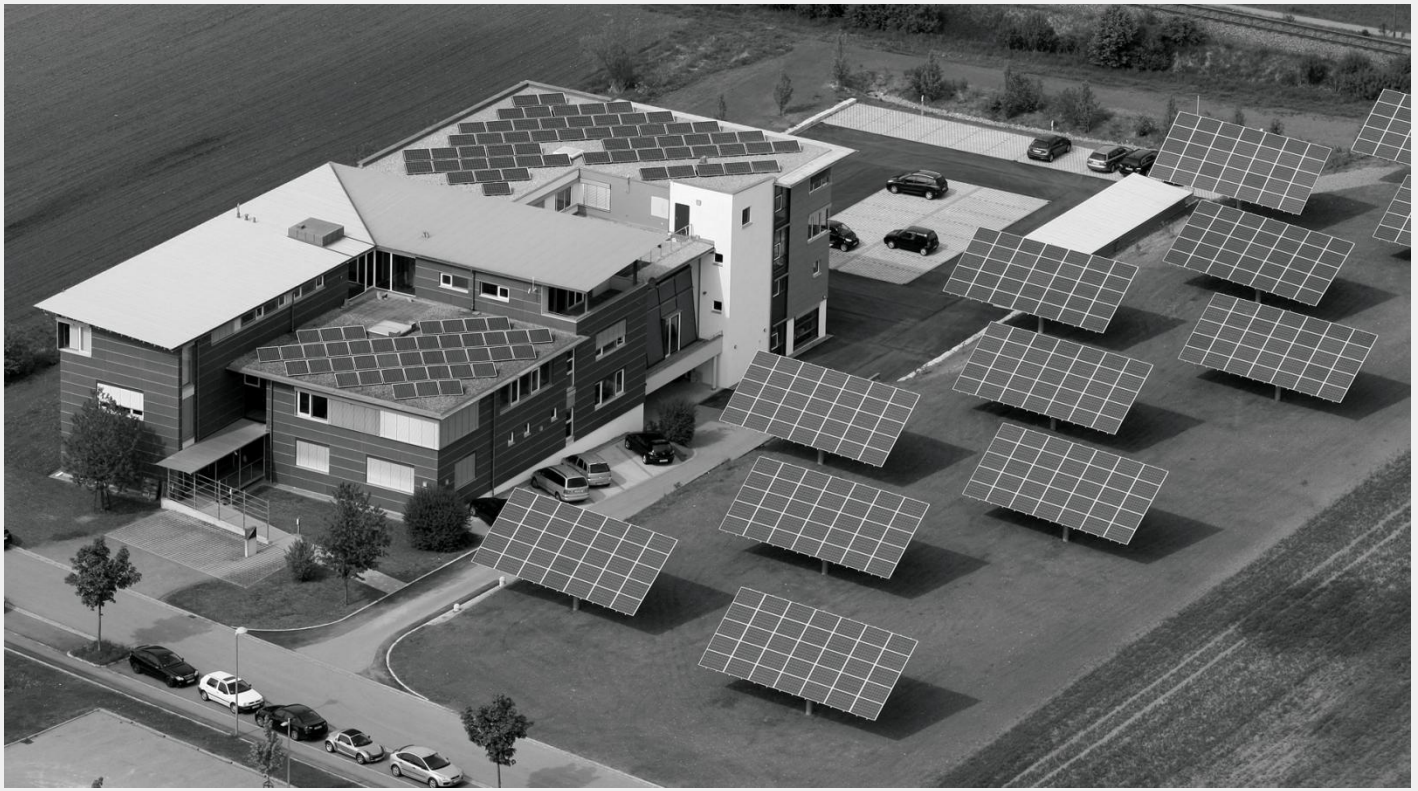
Company Overview

Consulting & research
- System studies
- System tests
- Training / seminars

Software
PowerFactory – *power system analysis*
StationWare – *protection settings database software*

Hardware
PowerFactory Monitor – real time 32 channel data acquisition unit

DIgSILENT Worldwide Headquarters - Germany



DIgSILENT Head Office at Gomaringen near Stuttgart

The DIgSILENT Group
>70 experts in 6 countries

DIgSILENT Worldwide Headquarters - Germany

DIgSILENT Group of Companies

- DIgSILENT GmbH, Germany
- DIgSILENT-STREL SRL, Italy
- DIgSILENT Buyisa (Pty) Ltd, South Africa
- **DIgSILENT Pacific Pty Ltd., Australia**
- DIgSILENT (Chile) Ltda.
- DIgSILENT Ibérica, S.L. (Spain)
- DIgSILENT France

- DIgSILENT also has other representatives across North and South America, Asia and the Middle East.
- DIgSILENT Pacific has offices in Melbourne and Perth, Brisbane as of 1 May 2012 (total staff of 23 in Australia).

DIgSILENT Pacific main activities

- Focus on PowerFactory software support and sales
- Consulting work mainly network studies
- Protection studies
- Power quality studies
- Stability studies
- Generator testing

DIgSILENT Pacific – Local Presence

PowerFactory Support:

- Training, regularly scheduled

- Technical support

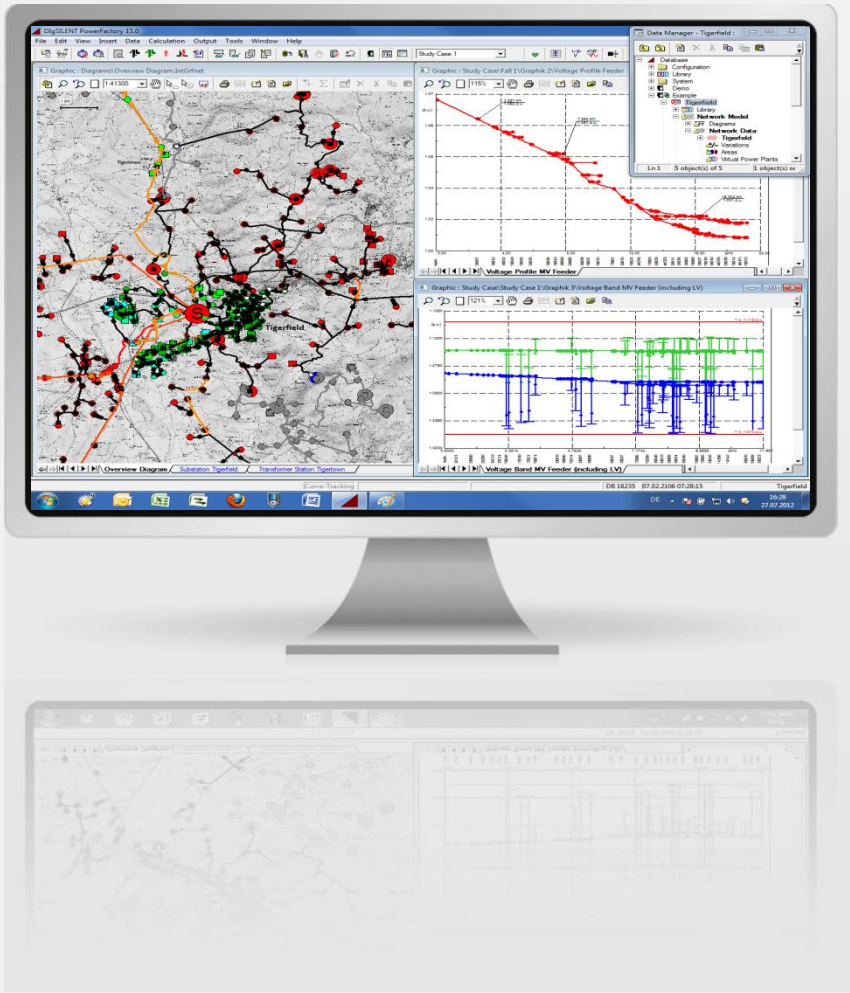
- Modelling services

- DPL script writing

PowerFactory Version 15

PowerFactory Highlights

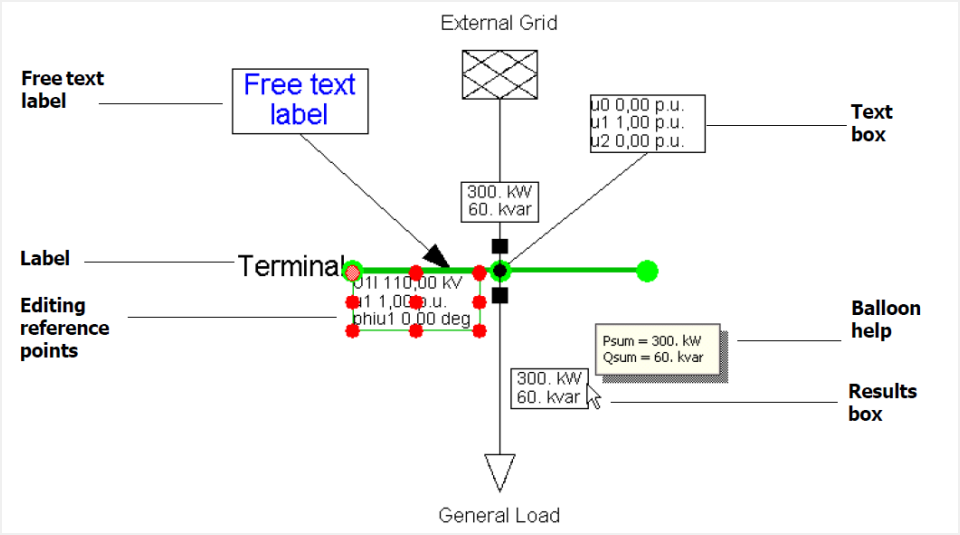
- Geographic diagrams and enhanced visualisation of topological network structures.
- Optimal power supply restoration functions.
- Enhanced reliability analysis for balanced/unbalanced radial networks.
- Voltage profile optimisation for bi-directional power flows.
- Arc Flash calculation (IEEE1584, NFPA 70E) incl. label printing.
- Automatic cable sizing (IEC 60364-5-52, NF C15-100, NF C13-200, BS 7671, etc.).
- New models such as single-phase static generator, MV load model, transformer stations.
- Database offline mode with local caching and re-synchronisation, automatic rule-based database housekeeping.
- Techno-Economical evaluation of grid expansion strategies.

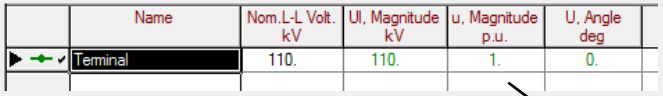


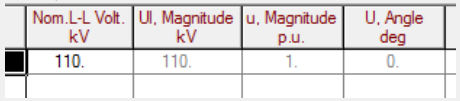
Network Graphics

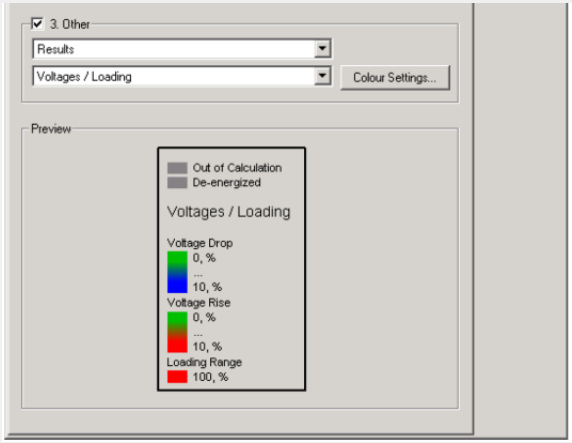
Network Graphics

- Geographic diagrams and enhanced visualisation of topological network structures.
- Invalidation of calculation results.
- Free-form selection of network elements
- Definition of free text labels.
- Additional colouring modes for Primary Equipment.
- New Feeder Radiality Check alarm colouring mode.
- Continuous colouring modes for interpolation between selected colours.
- Consolidation of menu commands, with several functions moved from the *File* menu to the new *Insert* menu.





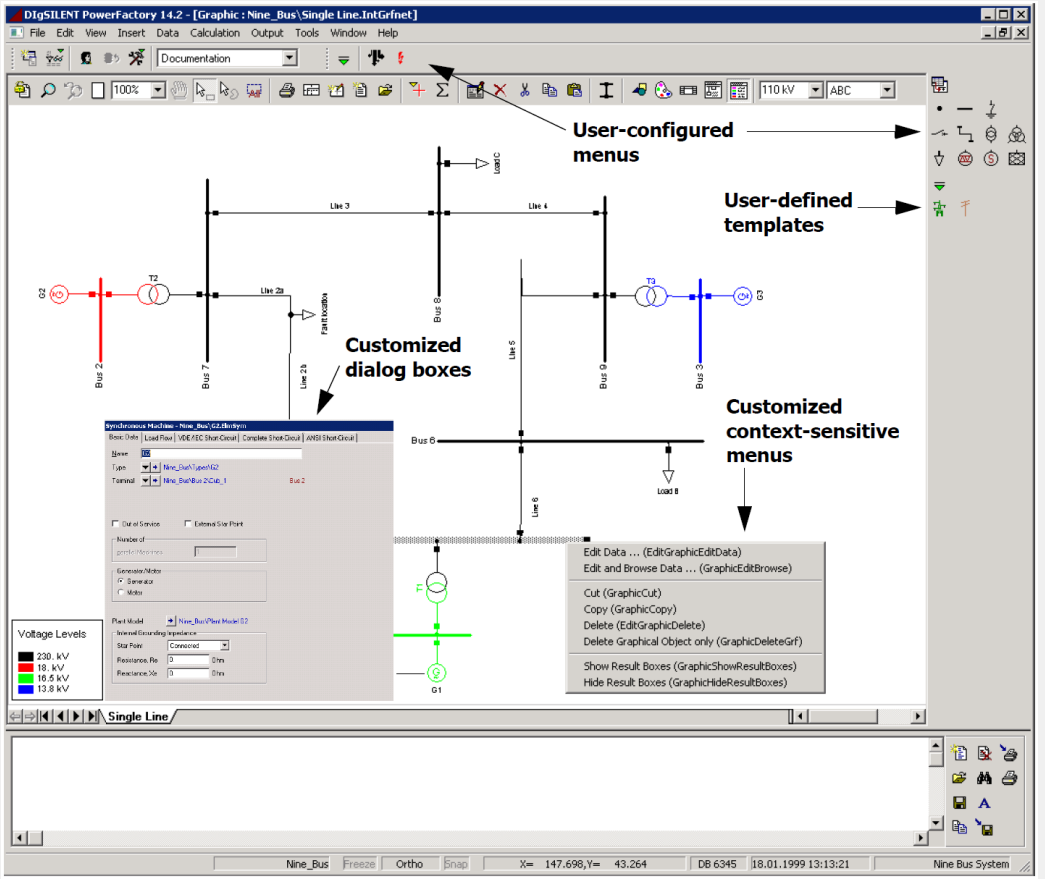




User Profiles

User Profiles

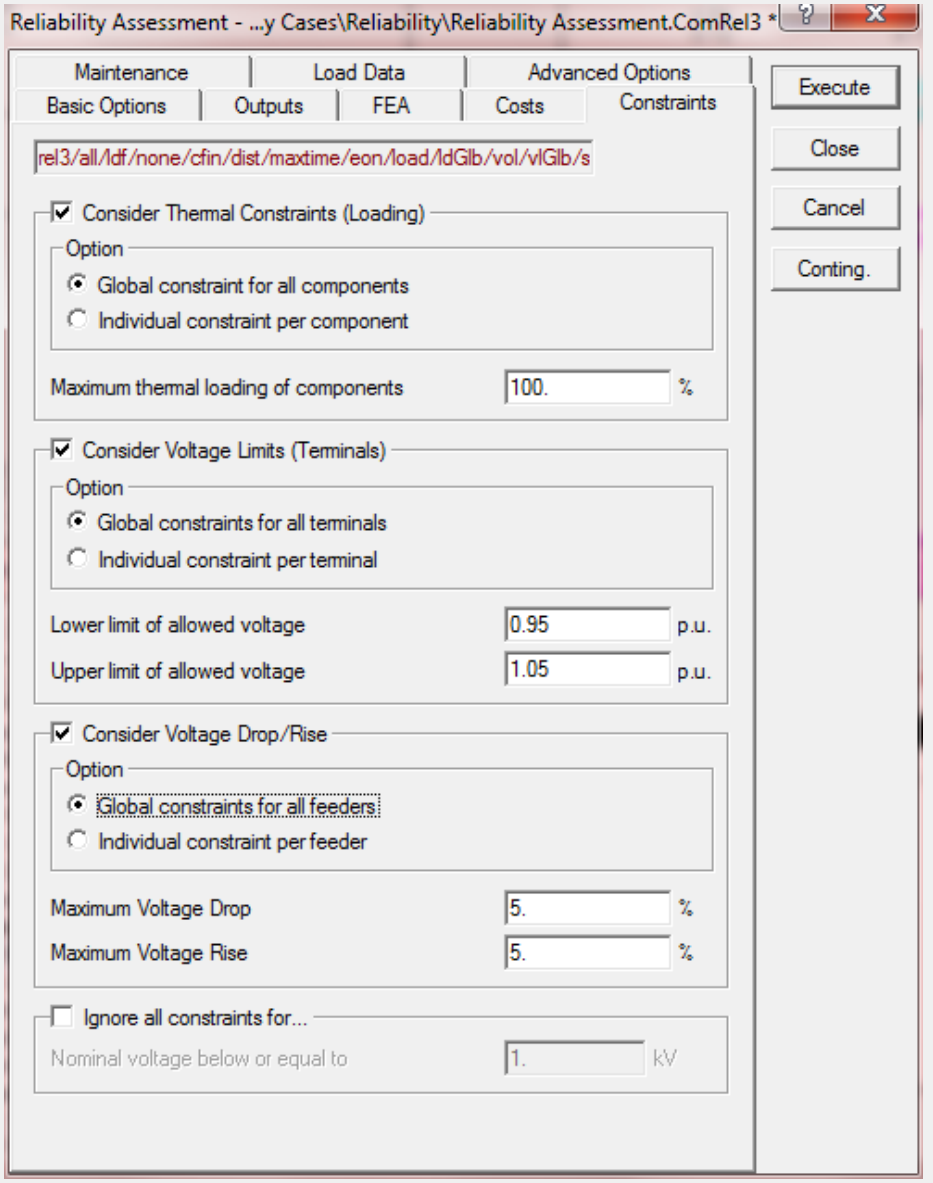
- Definition of custom user profiles and user access restrictions.
- Customization of Main Toolbar and Drawing Toolbar menus, including definition of custom DPL commands and Templates with user-defined icons.
- Customization of displayed element dialogue pages.
- Customization of element parameters by hiding/disabling parameters.
- Customization of Main Menu, Data Manager, and context-sensitive menu commands.
- New “Beginner” profile with reduced program options and calculation functions for new users.



Reliability

Reliability

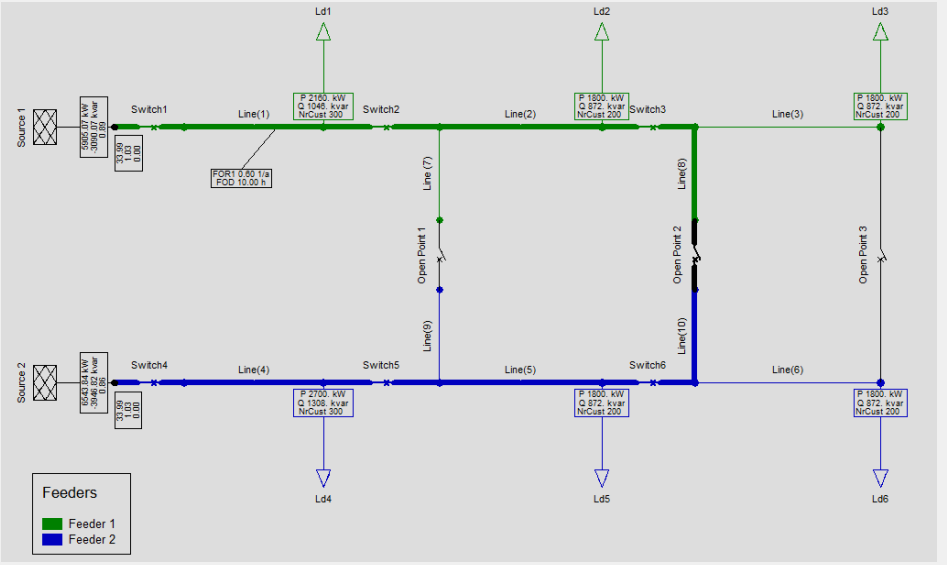
- Reliability Assessment calculations for single elements.
- Optimal power supply restoration calculation for single elements, including restoration tracing.
- Consideration of feeder voltage drop/rise constraints in reliability calculations.
- Reliability Assessment for unbalanced networks.

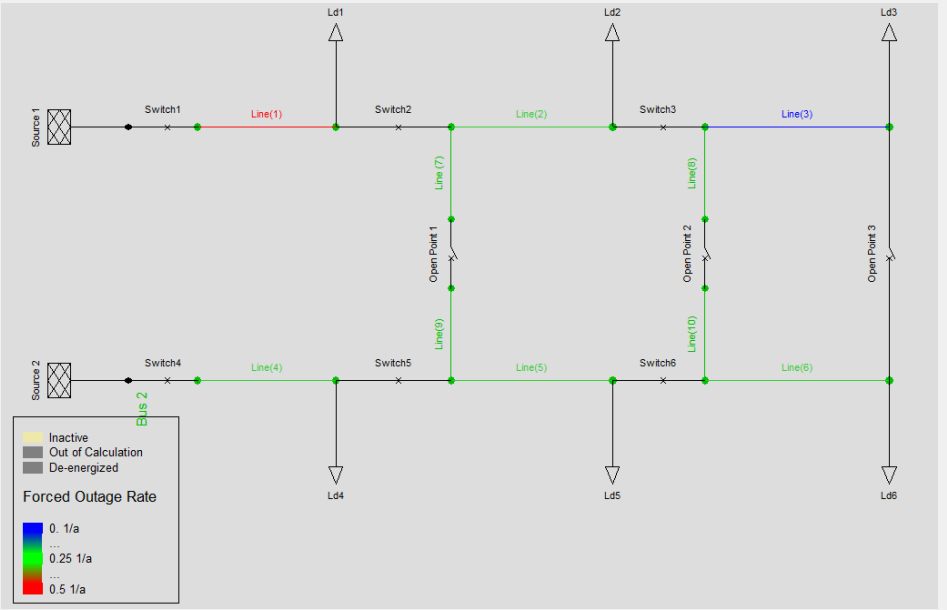


Distribution Network Tools

Distribution Network Tools

- Optimisation of tie open points in meshed networks, with consideration to losses and reliability impacts.
- Cable Reinforcement Analysis for networks with no line/cable types previously defined
- Voltage profile optimisation for bi-directional power flows.
- Determination and visualization of main connections between meshed feeders.
- Optimisation of remote control switch placement.

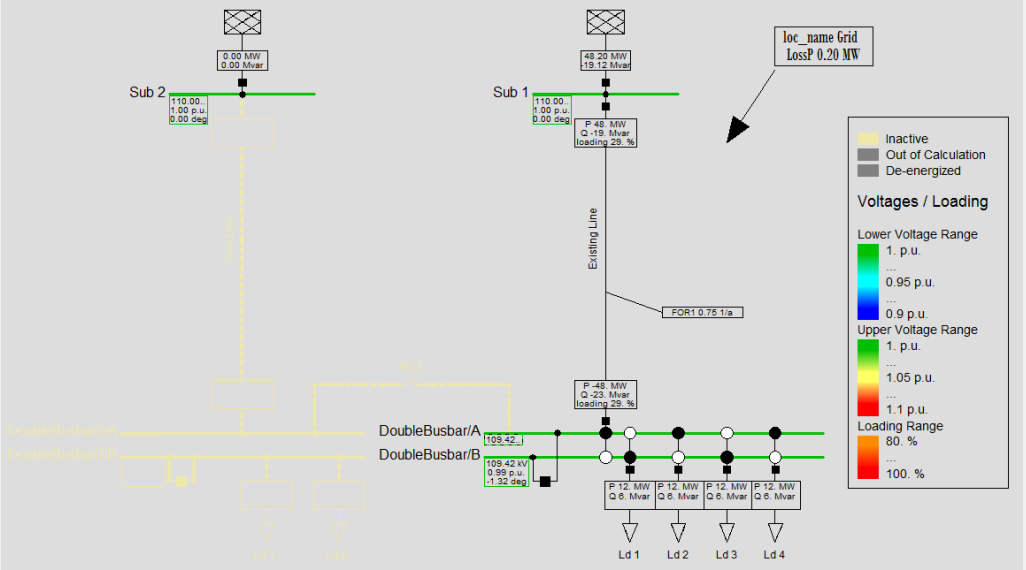




Techno-Economical Calculation

Techno-Economical Calculation

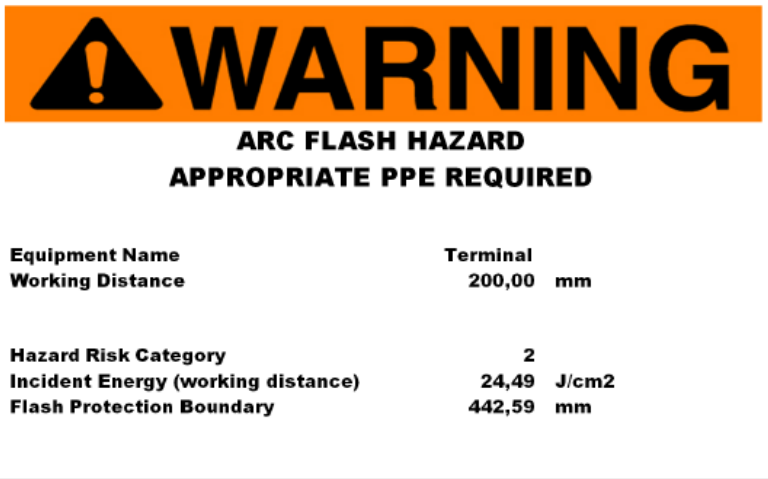
- Evaluation of grid expansion strategy Net Present Values with consideration of:
  - The cost of electrical losses.
  - The economic impact of failure rates.
  - Investment costs.
  - Project timing.
  - Optimal network open points at each calculation interval.



Arc-flash Hazard Analysis

Arc-flash Hazard Analysis

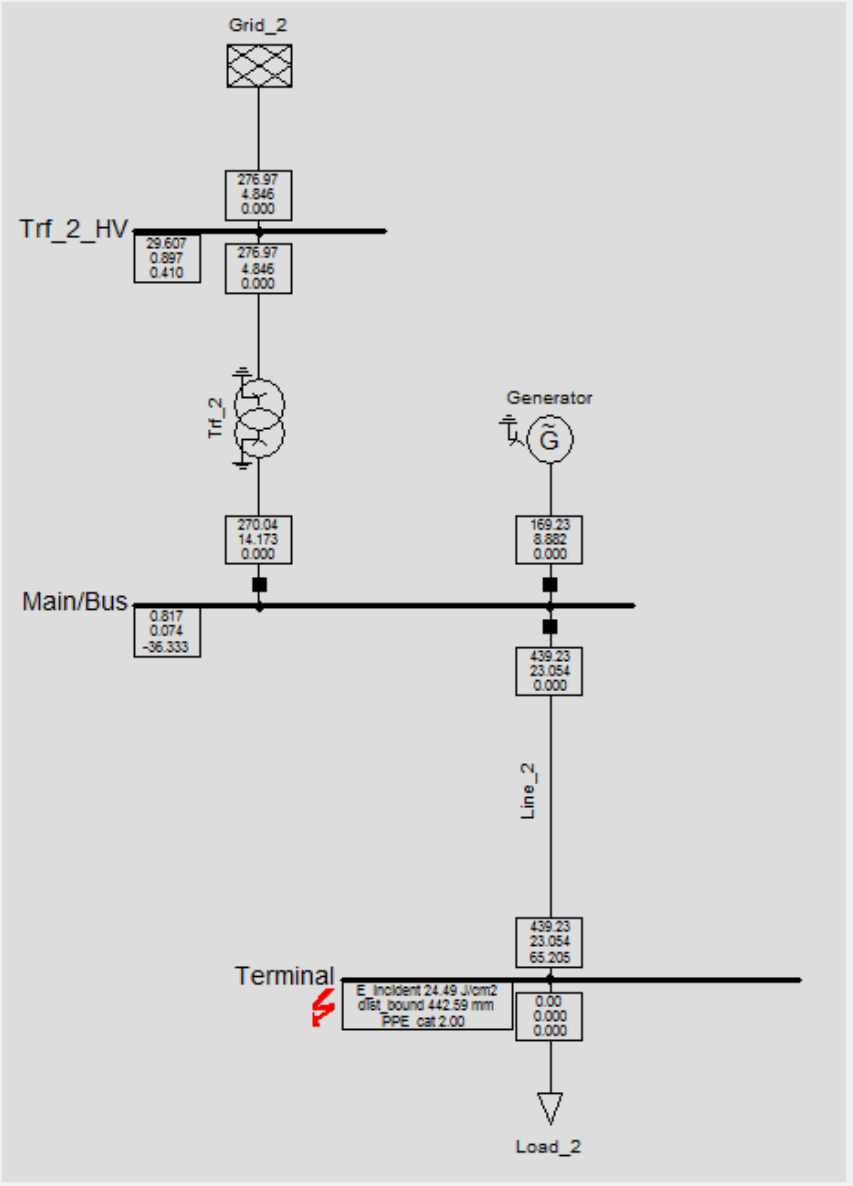
- Arc Flash calculations in accordance with IEEE1584 and NFPA 70E standards.
- Calculations based on the global definition, individual definition, or actual device protection clearing times.
- Automatic generation of Arc-flash warning labels.



WARNING

ARC FLASH HAZARD
APPROPRIATE PPE REQUIRED

Equipment Name	**Terminal**	
Working Distance	**200,00**	**mm**
Hazard Risk Category	**2**	
Incident Energy (working distance)	**24,49**	**J/cm2**
Flash Protection Boundary	**442,59**	**mm**



Other Enhancements

Other Enhancements

- Definition of substation load distribution states for reliability calculations.
- Definition of time and energy tariffs provide enhanced flexibility to define interruption costs for Reliability Assessment and Optimal Remote Control Switch Placement calculations.
- In addition to PowerFactory manual updates for Version 15, several chapters have been reviewed – the PowerFactory Overview chapter is considered a must-read for new users.