SIEMENS

PSS®SINCAL

Plan reliable distribution networks with precision and speed

The dynamic electricity landscape is changing the very fundamentals of distribution grid planning, design, and operation. For example, the integration of renewable energy resources, charging stations, and batteries requires planners to consider new factors such as reverse power flow, fluctuations, and integrations. Many companies are using outdated tools or home-grown solutions which may no longer meet the industry needs or that require manual efforts for data maintenance – affecting grid reliability. With the growing pressure to maximize grid utilization, expand the network and integrate alternative energy resources, distribution planners require a tool to streamline modeling and analysis of the continuously changing power grid.

For over 30 years, the PSS®SINCAL Platform has enabled engineers to tackle different challenges of the changing distribution grids including maintaining high reliability of supply and efficiently integrating Distributed Energy Resources. PSS®SINCAL provides distribution engineers with the simulation tools they need for the planning, design, and operation of power distribution networks. It can be used in balanced, unbalanced, radial and meshed networks – from low to high voltage.

With the modular platform of PSS®SINCAL, power system planning and operation engineers are supported with their entire workflow from the initial data import and network modeling (considering past, current and future conditions), to basic and extended calculations, all the way to extensive protection simulations and analysis as well as other methods in time and frequency domains.

70% of the world's electricity consumption flows through infrastructure planned or analyzed by the PSS® Portfolio.

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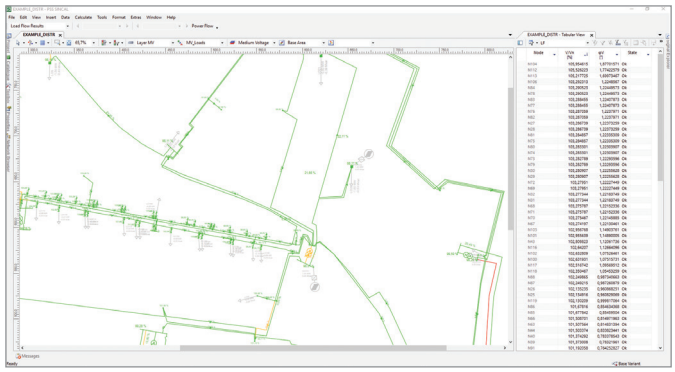
Highlighted use cases:

Reliable planning of new networks, grid expansions, and adaptions

With PSS®SINCAL, distribution planners can start with the classical approach for network design and extension. This includes:

- Fast and robust methods for calculating the steady state focused on network utilization and voltage profile (Power Flow/Load Flow and Short Circuit).
- Easy comparison of different scenarios to prove expansions and adaptions are technically and economically are optimal.
- Ability to achieve maximum utilization of assets with consideration for time-series behavior of loads and renewable generation.
- Considering automatic outtake scenarios in estimating your grid reliability.

PSS®SINCAL supports you even further by providing a wide range of standard network components (for example line and cable libraries) and catalogs. The shape of a mechanical damage curve is determined by the maximum through-fault current and the transformer capability.

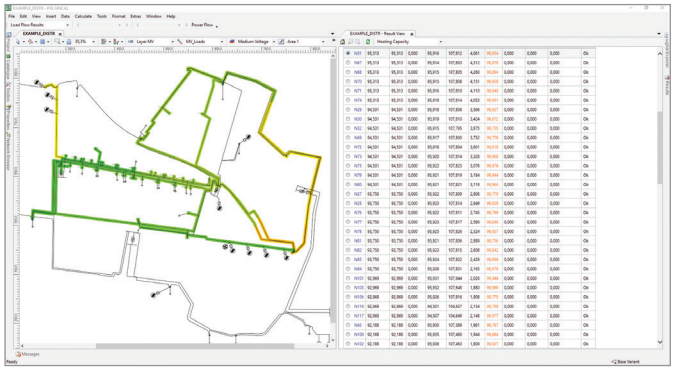


A Slovakia DSO experienced a 20% increase in planning team efficiency.

Integration and assessment of renewable energy resources

Conduct fast assessment of available renewable integration capacity and detailed analysis for grid connection requests.

Due to the proliferating deployment of DER on-distribution networks, planners need to perform an increasing number of grid interconnection studies. Utilities and DER investors need tools that can help them automatically assess the viability of various interconnection proposals. The Maximum Hosting Capacity (ICA) module within PSS®SINCAL automates different calculation functions (such as load flow, short circuit analysis, protection checks with network adoptions, voltage fluctuations due to DER coming online and offline, etc.). Additional PSS®SINCAL features for DER integration include time series load flow with grid controllers (voltage, power), short circuit with defined contributions of generators and converters, harmonic distortion limits according to standards, unbalanced RMS grid current and Electromagnetic Transients (EMT) simulation.

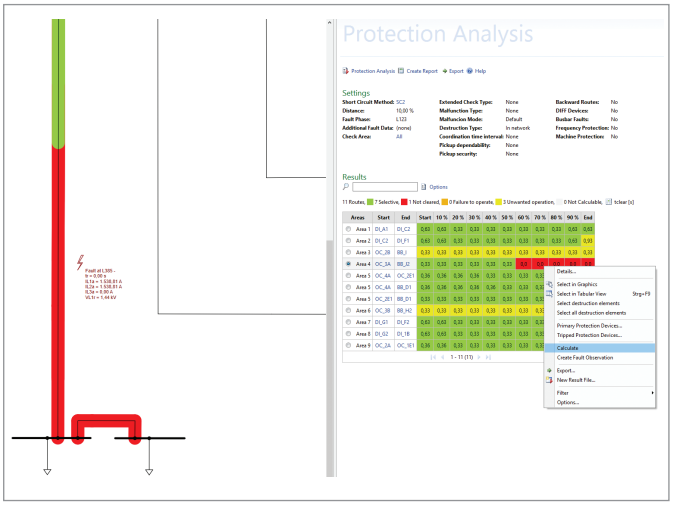


Power system protection

System operators, planners and protection engineers face an ever-increasing landscape of challenges around power system protection due to the integration of variable energy resources. With PSS®SINCAL, protection engineers can master these challenges by:

- Monitoring and studying the management of protection devices and their settings
- Providing interactive protection coordination with graphical documentation
- Verifying settings directly within the network model
- Facilitating protection performance assessments, including stepped-event fault clearance analysis, as well as dynamic fault sequence simulation

In addition, the Protection Security Assessment module allows for an automated system-wide protection study, as well as the identification and mitigation of critical fault scenarios.



Design your network model

Distribution planners can intuitively design their network model in PSS®SINCAL, either by drawing it within GUI or automatically through interfaces with other systems.

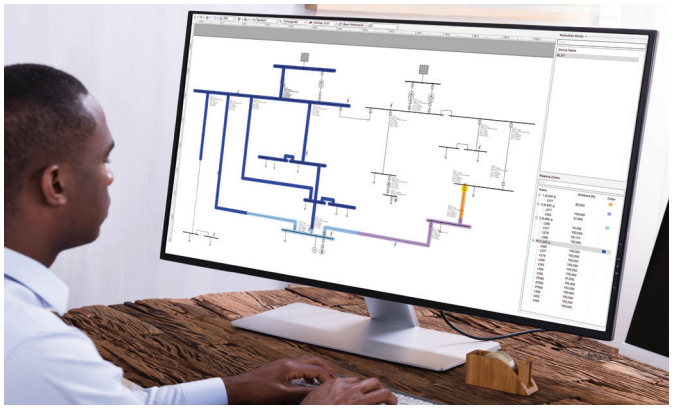
Multidimensional networks can be visualized in schematic, geographic, or multilayer diagrams. The visual representations are interactive and network elements can be auto populated, created, edited, and formatted directly within the network graphic.

To build up or strengthen your network model, data can be easily imported, through various standard interfaces and adapters for data formats of other network calculation programs (for example, PSS®E), for standardized data formats (for example, CIM), for data sets using the supplied standard Excel import, and PSS®SINCAL specific datasets. Network models can also be generated by an external interface from the data set of a network calculation software, a geographic information system (GIS) or the network model management of a control system.

Get Started: Join the Trial Program

The PSS®SINCAL team invites you to join the trial program to evaluate the capabilities. After receiving the trial, you will get exclusive access to two training webinars including how to get started and how to design your network model.

Visit ***siemens.com/pss-sincal-africa*** to request your trial today.



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