

SIEMENS

# Proactive

Proactive

initiate change rather  
reacting to events  
acting in advance  
taking preemptor

Siemens Power Technologies International

## Network Applications Solutions

[www.usa.siemens.com/energy/pti-software](http://www.usa.siemens.com/energy/pti-software)

# A flexible and open approach to network analysis.

Increased situational awareness of your network, fewer network disruptions, and reduced recovery time to better serve your customers.

The Siemens PTI Network Applications solution provides analytical modules to evaluate system operating conditions in real-time, anticipating issues before they occur and determining the best course of action in response to potential operational problems. By deploying this solution, you have the ability to assess and mitigate operational issues, resolve reliability concerns, and perform system analyses. The real-time network analysis modules enable you to evaluate model convergence prior to sharing the complete model with other applications or entities. It is a low-cost alternative to an energy management system (EMS), and because it offers vendor neutral compatibility the Network Application solution can be used with your existing SCADA system.

## Situational Awareness

The Network Applications solution uses contingency analysis to identify and rank outage cases with the highest impact and predict network conditions if those outages occur. Network Applications also has the ability to view and analyze real-time network conditions in the event of a SCADA interruption.

## Vendor Neutral

Network Applications is an independent solution that sits alongside the SCADA and ties into the existing ICCC data. The network model is stored in a common information model (CIM) format, which allows users to update and exchange models with third party vendors.

## Analytical Modules

The Network Applications solution includes several analytical modules.

### ■ Power Flow

Power flow provides a variety of modeling tools that adjust the network model to match conditions in the existing power system or establish a realistic operating schedule for planning purposes. Since these tools can be used with real-time SCADA data or a historical snapshot, they provide users with a powerful facility for studying operating strategies.

### ■ Contingency Analysis

Contingency analysis performs the dual process of outage cases with the highest probability of occurrence using real-time ranking triggers. It identifies the most severe single-branch or generator outages that might trigger multiple outages. Contingency analysis additionally supports modeling of special protection schemes (or manual corrective actions) via Python scripting and presents the cumulative results. Visualization of results includes full integration with alarm displays and one-line diagrams.

### ■ State Estimator

The state estimator processes telemetered and calculated SCADA to obtain an estimate of the magnitudes and phase angles of bus voltages across the power system for buses that are not measured. The state estimator can be used in real-time mode or simulation mode. The state estimator algorithm identifies critical measurements and bad measurements and provides switch status correction. A convenient state estimator tuning graphical interface is provided to quickly pinpoint and resolve common problems.

### ■ Topology Processor

The topology processor converts the node-breaker (operations) model to bus-branch (planning) model based on real-time, historical or "normal" system state. PSS®E-specific identifying information is preserved, and the user can produce a model that mimics the network model.

This module identifies electrical buses in the network based upon the actual statuses and identifies the various electrical islands in the network. After it has identified the individual electrical buses and islands, the topology processor builds a model of the power system in terms of the usual bus-branch representation needed to conduct a load flow.

In a bus-branch format, applications can import real-time data to PSS®E for event analysis to exchange information with neighboring entities.

# PSS®ODMS Platform

The Network Applications solution is derived from PSS®ODMS – a scalable and extensible software platform designed for easy integration with SCADA/EMS. A flexible software product, PSS®ODMS combines a comprehensive network modeling and analysis solution with an open, standards-based architecture that facilitates easy integration with transmission operations and planning data as well as software and business processes.

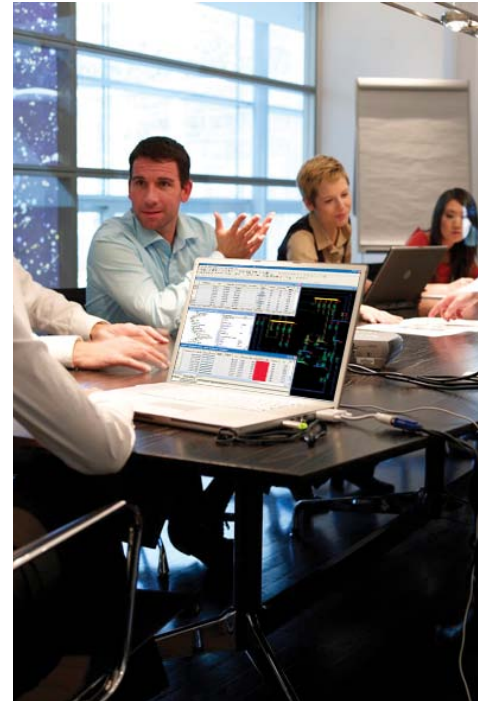
PSS®ODMS offers a broad range of features designed to increase power system security, reliability, network modeling accuracy and productivity. The network modeling and analysis functions support past, present and future network states (including alternative future scenarios).

For further details or to request a demonstration of our Network Applications solution, contact Siemens PTI at [pti-software-solutions.ptd@siemens.com](mailto:pti-software-solutions.ptd@siemens.com).

## Why choose us?

Siemens is a world leader supplying innovative products, solutions and services for the utmost efficiency and productivity along the entire energy conversion chain. Specifically, Siemens Power Technologies International (Siemens PTI) offers network consulting services, system planning software and professional training on all aspects of transmission and distribution. Siemens PTI provides the knowledge and expertise to combine the individual equipment components to form a complete electricity supply system that meets your technical and economical requirements.

Siemens PTI brings a comprehensive understanding and ability to analyze any type of electricity network – whether it is low-voltage or medium-voltage distribution systems for industrial or public electricity supply to the highest voltage levels for transmission systems. Our internationally renowned experts, software portfolio and education curriculum, along with our long-standing expertise, are a sound basis for developing state-of-the-art solutions of the highest reliability and efficiency for your network.



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