Siemens Power Technologies International - Overview

Key Facts:
- founded in 1956
- 30+ offices
- ~400 employees
- ~250 consultants
- 2,000+ customers
- 1,000+ projects p.a.
- across all verticals

Power System Consulting
Grid design, planning, optimization and operational support

Energy Business Advisory
Energy infrastructure strategy and process consulting

Simulation Software
Best-in-class tools for grid planning and simulation
Siemens Power Technologies International – Global Reach

World-wide presence with offices in over 200 countries/regions
The Energy Revolution: Big Picture

From **centralized power** and **unidirectional grid** …

… to **Decentral and Distributed Energy Systems** and **bidirectional balancing**
Two major trends are driving the energy transformation:

**Electrification**
- Storage
- Energy efficiency
- Microgrid
- Renewables and conventional
- e-Mobility

**Digitalization**
- Local resilience
- Distribution platforms
- Analytics
- Cyber security
- Dynamic Line Rating
- Peer-2-peer energy
- New business models

**Key Components**
- Data hubs
- Digital substation
- Engine
- Adaptive protection
- Transactive energy
- Distributed, closed-loop control
- Customer engagement

**Trends**
- Electrification
- Digitalization

**Realizations**
- Storage
- Energy efficiency
- Microgrid
- Renewables and conventional
- e-Mobility
Siemens Digital Grid – End-to-end architecture for a digital energy system

"Manage complexity of decentralized world, productivity through automation and SW, enable new business models and end customer solutions"
Click image to view PSS® Portfolio overview video (04:23)
Siemens PTI
PSS® Portfolio

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**PSS® Portfolio**

- Software for power system
  - Simulation & analysis
  - Digital model & data management
- Spanning all types of networks
  - Transmission
  - Distribution
  - Generation & renewables
  - Industrial
  - Rail
- Leading (>40%) global market share
- #1 in the world: PSS®E
- Trusted partner since 1960’s
70% of the world’s electricity consumption flows through infrastructure planned or analyzed by the PSS® Portfolio.
PSS® Portfolio for Transmission Planning

Use cases:
• Power system simulation & analysis
• Infrastructure expansion planning
• Generation interconnection studies
• Integrated T&D planning

Benefits to the customer:
• Cost-effective long-term network planning
• Trusted results from “gold standard” tool for utilities
• Supports regulatory compliance
• Consistent generation interconnection evaluation

Relevant Products:

Typical customers:
• TSOs – Transmission Planning
• IPPs – Planning Engineers
• Consultants
• Universities / Researchers

"PSS® software helps engineers design & maintain the backbone of the entire energy grid"
Use cases:
• Automatic case creation for operations planning studies
• Simulation & analysis for next-day studies
• For Europe: ENTSO-E CGMES regulation compliance

Benefits to the customer:
• Reduce time required to build forecast cases & perform studies
• Improved accuracy in case creation
• Easy to integrate data from other systems (outage schedules, load profiles, dispatch, topology, etc.)
• Regulatory support (e.g. CGMES (EU), NERC-TOP-002 (NA)

Relevant Products:

PSS®E  PSS®SINCAL  PSS®MUST  PSS®ODMS

Typical customers:
• TSOs – Transmission Operations Planning Department

“The PSS® Portfolio helps engineers plan for next-day operations”
PSS® Portfolio for Transmission Operations

Use cases:
- Situational awareness in the control room
- Stability cockpit

Benefits to the customer:
- Predict problems and determine best course of action in real-time
- Increase situational awareness at a fraction of the cost & complexity of a full EMS
- Works alongside existing SCADA (vendor-neutral)
- Lightweight & easy to deploy

Relevant Products:
- PSS®SINCAL
- SIGUARD®DSA
- PSS®ODMS

Typical customers:
- TSO – Transmission Operations Department

“The PSS® Portfolio helps system operators with decision making”
Use cases:
• Power system protection analysis / audits
• Protection setting calculation
• Protection setting database & data exchange

Benefits to the customer:
• Reveal weak spots and hidden errors of protection system
• Time savings through automatic simulation and assessment
• Prevent blackouts
• Establish a process for continuous protection system improvement

Relevant Products:
- PSS®SINCAL
- SIGUARD®PSA

Typical customers:
• TSOs – Protection Department
• DSOs
• Consultants

“All the functions needed to manage and assess protection systems are at your fingertips”
Use cases:
• Distribution network planning
• Integrated T&D planning
• Renewable interconnection studies

Benefits to the customer:
• Design grids that accommodate renewable & distributed energy resources in an economical way, without sacrificing reliability
• Maximize utilization of existing infrastructure
• High visibility, efficiency, and agility in distribution planning & operation

Relevant Products:
PSS®SINCAL

“Siemens software helps engineers design, maintain, and operate power distribution networks”

Typical customers:
• DSOs – medium and large size
• Consultants
• Universities / Researchers
Use cases:

- Planning, design, and operation of industrial power networks

Benefits to the customer:

- Plan & operate reliable networks for power-intensive industries
- Achieve safe working environment
- Avoid process interruption & downtime

Relevant Products:

PSS®SINCAL

Typical customers:

- Industrial facility operators & designers
- Refineries, chemical plants, oil platforms, mining, manufacturing, etc.

“By simulating industrial power networks, we help achieve a safe working environment, avoid process interruption, and downtime”
**Benefits to the customer:**
- Improved business process efficiency (data maintenance, automation, labor)
- IT integration cost reduction
- Eliminate duplicate modeling effort
- Improve model accuracy / reduce modeling errors

**Use cases:**
- Management of the data/models that are used as input for studies across the utility IT landscape (e.g. for planning, operation, protection, etc.)
- Central “single source of truth” database for utility grid models
- Exchange network model data within own company & across other utilities

**Relevant Products:**
- PSS®MOD
- PSS®ODMS

**“With real and virtual worlds tightly aligned, utilities get a single source of truth for managing, validating, and exchanging network models across their entire IT landscape”**

**Typical customers:**
- TSO/RTO*/ISO* – Network Modeling, Planning, Operations, IT
The PSS® Portfolio – More than the sum of its parts

- Transmission operations & planning
- Industry standard for transmission simulation & analysis
- All-in-one simulation tool for the modeling, analysis, planning, and design of all types of power networks
- Dynamic security assessment of the impact of contingencies in actual and future system states
- Protection security assessment of the selectivity, sensitivity and speed of the overall system – including generator protection
- Enterprise data management and exchange for PSS®E data
- CIM-based transmission network modeling & analysis
Resources

- Email: pti-software-sales.ptd@siemens.com
- YouTube: siemens.com/pss-videos
- Website: siemens.com/pss-portfolio
- Store: siemens.com/pss-store
- License Activation: siemens.com/pss-licenses
- LinkedIn: linkedin.com/groups/8513462
- Ideas Portal: siemens.com/pss-ideas
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