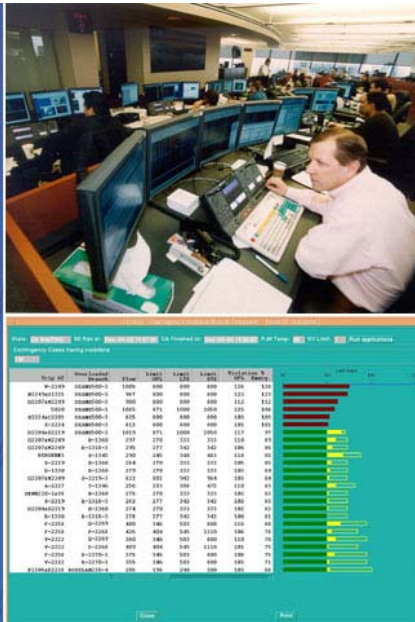




PSE&G SCADA/EMS



**Sector of activity :**  
Energy Control Systems

**Client :**  
Public Service Electric and Gas

**Year of completion :**  
2001

**Financing :**  
Client

**Mandate :**

To design, supply, install, and commission a new SCADA/EMS for Public Service Electric & Gas (PSE&G), which operates and maintains the transmission network in the state of New Jersey, USA. The scope of work included the delivery of all hardware, software, documentation, and training for the main control system and disaster recovery system.

**Description :**

PSE&G is a regulated utility delivering gas and electric safely and reliably to about 75% of New Jersey's population, and is New Jersey's oldest and largest publicly owned utility. In fact, PSE&G is one of the largest combined electric and gas companies in the United States. PSE&G serves approximately 2 million electricity customers with a peak demand of 10,000 MW, in an area of approximately 14,700 square miles. The PSE&G electric power system lies in the corridor between New York City and Philadelphia. The territory is populated densely with a diverse mixture of residential, commercial, and industrial customers. High voltage transmission lines operate nominally at 500 KV, 345 KV, 230 KV, and 138 KV. The 345 KV lines are ties to the New York Power Pool.

The SCADA/EMS is based on a distributed client/server architecture designed to internationally recognized standards. Commercial off-the-shelf equipment is used throughout the system, which provides simplified maintenance and easier system expansion. The system includes redundant HP Alpha servers, HP Alpha workstations, communication equipment, mapboard, large screen display, and peripheral equipment connected to a redundant local area network. The SCADA/EMS is fully redundant for high availability, and provides automatic fail-over features.

The SCADA/EMS software is based on the GEN-3 product developed by SNC-Lavalin Energy Control Systems. The power network model is maintained in an Oracle RDBMS stored on RAID-1 storage arrays. All database edits can be performed online without the need to failover any servers or workstations to bring the changes online. The system includes redundant serial channels supporting the CADE, DNP3 serial, DNP3 IP, GETAC, and CAED protocols for communicating with remote terminal units. The system includes the ICCP TASE.2 protocol for communicating with other control centres and the power pool. The system also provides an interface to the corporate PI Historian.

The EMS applications are fully integrated with Nexant PCA Powersuite, and include the Network Topology Processor, Bus Load Scheduler, State Estimator, Dispatcher Power Flow, Transmission Loss Penalty Factor Calculation, Reserve Monitor, Contingency Analysis, Contingency Remedial Action, Optimal Power Flow, and Fault Level Calculation. A built-in Application Sequence Controller coordinates the execution of these applications.

The SCADA/EMS is flexible, expandable, and provides the system operators with valuable tools to assist in operating the electric power system to high performance standards, in particular, network security. Since installing this system, PSE&G has twice received the prestigious ReliabilityOne award for superior electric system reliability in the mid-Atlantic region.

**Services provided :**

A turnkey contract including project management, hardware, software, system integration, acceptance testing, documentation, customer training, and all necessary field installation and adaptation services.



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**SNC-LAVALIN ENERGY CONTROL SYSTEMS INC.** SNC-Lavalin is Canada's largest engineering and construction firm. SNC-Lavalin Energy Control Systems has nearly 40 years experience, with systems installed on six continents. Our SCADA, Distribution Management System (DMS), Energy Management System (EMS) and Generation Management System (GMS) products are being used by some of the world's largest utilities. We also offer SCADA systems to monitor and control water distribution networks and natural gas distribution systems.