



Electricidad de Caracas - SCADA/DMS

**Sector of activity :**

Energy Control Systems

**Client :**

C.A. La Electricidad de Caracas

**Year of completion :**

1994

**Financing :**

Client

**Mandate :**

To design, supply, install, and commission a new SCADA/DMS for Electricidad de Caracas, which operates and maintains the power distribution network in Caracas, Venezuela. The scope of work included the delivery of all hardware, software, documentation and training for the new system, as well as all necessary testing, field installation and adaptation services.

**Description :**

Electricidad de Caracas (EDC), a branch of AES Corporation, is a private company devoted to providing the best electric service for its customers, with the objective of improving the quality of life of Venezuelans. Its power transmission system operates at 230 kV, and includes a 69 kV and 30 kV sub-transmission distribution network. Their primary role is to provide a secure and reliable network to transport high-voltage electricity from generators to its electricity distribution networks.

Electricidad de Caracas is a repeat customer for SNC-Lavalin Energy Control Systems, having also purchased a GEN-3 SCADA/EMS to monitor and control its transmission network in Caracas, Venezuela.

The SCADA/DMS is installed in Caracas, Venezuela. The system is

used to monitor and control the power distribution network in EDC's service territory with the objective of improving the quality and reliability of service; this is achieved primarily by the distribution management applications developed by SNC-Lavalin Energy Control Systems. These applications provide a means to effectively manage the operation of the distribution system in real-time, and provide planning tools that identify ways to optimize the use of the utility's resources.

The SCADA/DMS 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, and peripheral equipment connected to a redundant local area network. The SCADA/DMS is fully redundant for high availability, and provides automatic fail-over features.

The SCADA/DMS software is based on the GEN-3 product developed by SNC-Lavalin Energy Control Systems. The distribution network model is maintained in an Sybase RDBMS stored on RAID-1 storage arrays, and is complemented by

a set of memory-resident real-time databases that are replicated to all of the servers and workstations on the local area network for optimal performance. 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 HS-7024 protocol for communicating with remote terminal units, including Honeywell and Vessing RTUs. The system also includes ICCP TASE.2 protocol for communicating with other control centres.

The SCADA/DMS includes sophisticated distribution management applications, including connectivity analysis, three-phase unbalanced distribution power flow, load forecasting, demand allocation, loss minimization, load balancing, load shedding, and feeder voltage control. The distribution network model and geographic displays were imported from the corporate GIS.

**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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