Siemens presents protection devices and network monitoring tools at Cigré

In the exhibition section of this year’s Cigré (International Council on Large Electric Systems) in Paris (August 26 to 31), Siemens Infrastructure & Cities will present the protection device range Siprotec 5. Thanks to their modular-structure hardware and diverse communication capabilities, these numerical protection devices are developed specifically for protection, automation, measuring and monitoring in power supply grids. Siemens will also feature from its Siguard software family for network monitoring and blackout prevention two new tools: Siguard PDP for online detection of power swings and Siguard DSA for assessing dynamic network security. A further highlight will be one of the world's most modern grid management systems, which Siemens has put into operation jointly with the US transmission network operator PJM Interconnection. This grid management system is controlling North America's largest power supply network.

Siemens will exhibit in Paris its new Siprotec 5 protection device range, which, with its modular-structure hardware, is developed specifically for protection, automation, measurement and monitoring of power supply grids. The major innovations in numerical protection devices include uniform engineering, individual configurability and safety mechanisms in all links of the security chain. Intelligent network automation functions and communication as key elements of the system architecture are likewise featured, reflecting Edition 2 of the international communication standard IEC 61850 for energy automation.

Also on show will be the two software tools Siguard PDP and Siguard DSA. Siguard PDP (Phasor Data Processor) is a system for Wide Area Monitoring, that, as its measured variables, uses synchrophasors from phasor measurement units serving as sensors. It helps with quick recognition of the current network situation and indicates both power swings and transient phenomena, transparently as well as instantly. Replication of the respective network topology is not required.
The tool supports control center personnel in assessing critical grid situations and contributes to the taking of suitable action. As all measured results are stored, power system disturbances can be promptly analyzed.

Siguard DSA is for Dynamic Security Assessment. This software can be used in strategic system planning, in day-to-day analysis, and online in the control room. The tool utilizes the regular "snapshots" provided by the control center to judge the current steady-state conditions in the grid. This way Siguard DSA proactively and at high speed simulates and analyzes possible scenarios, in order to uphold grid stability. Likewise important are anticipated system states based on trading data and forecasts of wind and load. If the software tool rates failure scenarios as dynamically critical, it proposes possible countermeasures to the control center. Such tools enable dynamically difficult circumstances to be recognized at an early stage, and conceivable blackouts can be avoided. Transmission networks can be operated more flexibly, and in the event of a fault taken to the limits of their stability.

The spotlight at Cigré will also be on a presentation (by Siemens and the US transmission network operator PJM Interconnection) of one of the world's most modern grid management systems, by means of which the largest power transmission network in North America is being controlled. Siemens commissioned the grid management system jointly with PJM in late 2011. This system is the result of PJM's Advanced Control Center program (AC2). It is based on a Shared-Architecture integration platform developed by Siemens and PJM, via which the Siemens Spectrum Power energy management system was integrated into control of the grid. Shared Architecture is a standardized integration platform for applications that differ in terms of their technology, such as energy management, market management and distribution network management systems. The open architecture allows the integration of conventional applications in new Smart Grid applications.

The Siemens energy management system of PJM is operated at two locations. The control centers at both sites are each fully functional, but also in a position to operate the grid independently or jointly as one single virtual control center. PJM is the only network operator in North America, and one of the few companies worldwide, to have two main grid control centers. This not only enhances network reliability, but also ensures practically uninterrupted power supplies and grid management, if one of the control centers should suffer a malfunction.

Energy-efficient, eco-friendly solutions for setting up intelligent power supply networks (Smart Grids) are part of Siemens' Environmental Portfolio. In fiscal 2011, revenue from the portfolio
totalled nearly EUR30 billion, making Siemens one of the world’s largest suppliers of eco-friendly technologies. In the same period, the company’s products and solutions enabled customers to reduce their carbon dioxide (CO₂) emissions by nearly 320 million tons, an amount equal to the total annual CO₂ emissions of Berlin, Delhi, Hong Kong, Istanbul, London, New York, Singapore and Tokyo.


Caption:
The exhibitions at this year's Cigré (International Council on Large Electric Systems) will include the Siemens Infrastructure & Cities Siprotec 5 range of protection devices. Thanks to their modular-structure hardware and diverse communication capabilities, these numerical protection devices are developed specifically for protection, automation, measuring and monitoring in power supply grids.
Also on show at Cigré will be the two Siemens software tools Siguard PDP and Siguard DSA. Siguard PDP was developed for online detection of power swings, with a view to providing more security in grid operation. Siguard DSA is software for assessing dynamic network security. It can be used in strategic system planning, in day-to-day analysis, and online in the control room.

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The **Siemens Infrastructure & Cities Sector** (Munich, Germany), with approximately 87,000 employees, offers sustainable technologies for metropolitan areas and their infrastructures. Its offerings include integrated mobility solutions, building and security technology, power distribution, smart grid applications, and low- and medium-voltage products. The Sector comprises the Divisions Rail Systems, Mobility and Logistics, Low and Medium Voltage, Smart Grid, and Building Technologies. For more information, visit [http://www.siemens.com/infrastructure-cities](http://www.siemens.com/infrastructure-cities)

The **Siemens Smart Grid Division** (Nuremberg, Germany) supplies power providers and network operators, industrial enterprises, infrastructure elements and cities with products and solutions for intelligent and flexible network infrastructures. To meet growing energy needs, the networks of today and tomorrow must integrate more and more renewable energy sources and ensure bi-directional energy and communication flows. Smart Grids help make it possible to generate and use power efficiently and on demand. For more information, visit [http://www.siemens.com/smartgrid](http://www.siemens.com/smartgrid)