



CONSEIL INTERNATIONAL DES GRANDS RÉSEAUX ÉLECTRIQUES
INTERNATIONAL COUNCIL ON LARGE ELECTRIC SYSTEMS

STUDY COMMITTEE D2
INFORMATION SYSTEMS AND TELECOMMUNICATION

Study Committee D2 Annual Report 2006

Mr. Maurizio MONTI – SCD2 Secretary

STRATEGIC DIRECTION

SCD2 mission is to facilitate and promote the interchange of technical knowledge, information and experience between all countries in the fields of Power Telecommunication, Information and Telecontrol Systems.

In this scope of work, the Strategic Plan (2003-2012) and Action Plan (2004-2006) define the following technical areas of activity:

- **T1: Internet and Information Systems:** Studying and considering the impact that new internetworking technologies, like Internet would have on all aspects of power utilities activities: from consideration of the functional requirements and typical provision of networks for market operations to specification of data bases, compatible for all internal users (technical) inside the utility, taken in special consideration the security related aspects.
- **T2: Transmission Media and Techniques:** Monitoring and development of new media, functions, technology and applications for its use as a transmission facility, including the networking.
- **T3: Telecontrol Systems:** Including investigation on common scheme for data modelling, security aspects, backup control centres and emergency dispatch, advanced system for the handling of alarms in Control Centres, in particular in the case of emergencies and the possibility of using AI (artificial intelligence) or ES (expert systems) to facilitate the presentation of information to human operators.
- **T4: Industry Deregulation:** Considering the effects on power utilities of deregulation of public telecommunication with special focus on the effect on telecommunications services of electricity industry deregulation.

In addition, two administrative directions are defined as follows:

- **A1: Improve Study Committee Practices:** Creating a clear communication policy between the members, documenting the rules and practices inside the SC. Adapting the organisation to the requirements of our customers.
- **A2: Widen Study Committee Influence:** Soliciting support from non-represented National Committees, increasing (and formalising when needed) the relationships with kindred organisations and with the other Study Committees and in particular, improving the Web page as a tool to effectively communicate with customers. Deploying communication and marketing plans.

SCD2 publications issued in 2006 were as follows:

- Three Papers published in Electra:
 - “Cyber risk assessment in the electric power industry”, JWGD2/B3/C2.01 – February 2006.
 - “Some guidelines for developing a framework for managing cyber security for an electric power utility”, JWGD2/B3/C2.01 – October 2006.
 - “Technical considerations for building secure Substation Automation systems”, accepted for publication, JWGD2/B3/C2.01 - December 2006.
- One Technical Brochure:
 - TB302, “Digital Power Line Carrier equipment – Present use and future applications”, SCTFD2.08 - August 2006.
- Four Technical Brochures approved by the SCD2 and to be published:
 - “Security for Information Systems and Intranets in Electric Power Systems”, JWGD2/B3/C2.01.
 - “Protocol Conformance Testing”, SCTFD2.12.
 - “Communications Technology Fundamentals for the Design of Modern Protection and Control Systems”, WGD2.16.
 - “Operational Services using IP Virtual Private Networks”, SCTFD2.10.

The preferential subjects of the SCD2 2006 Paris Session were:

- “New developments of Geographical Information and asset management Overhead Lines Systems” (PS1 – Common Session SCB2/SCD2).
- “Behaviour of the Information Systems and its Associated Telecommunication Infrastructure used for Operation of the Electricity Network during Adverse Circumstances” (PS2).
- “Development Strategies to deal with the Increasing Use of IT in the Electricity Business” (PS3).

TECHNICAL ACTIVITIES

T1 INTERNET AND INFORMATION SYSTEMS

Current Practices and Experiences

The mission of Advisory Group, AGD2.02 “Information Systems and Internet”, is to provide strategic and operational support to the SCD2 Chairman. The following activities were carried out:

- Survey with the assistance of the Royal Institute of Technology of Stockholm to identify and address the CIOs in the EPI.
- Cyber security issues and the “Evergreen Control System” concepts were analyzed to assess the interest of creating new SCD2 WG.

Security for Information Systems and Intranet in Electric Power Systems

JWGD2/C2/B3.01 issued several papers in Electra on this subject:

- “Managing Information Security in an Electric Utility”, Electra, October 2004.
- “Cyber security considerations in Power System Operations”, Electra, February 2005.
- “Cyber Risk Assessment in the Electric Power Industry”, Electra, February 2006.
- “Some Guidelines for Developing a Framework for Managing Cyber Security for an Electric Power Utility”, Electra, October 2006.
- “Technical considerations for building secure Substation Automation systems”, Electra, December 2006.

The JWG finalised its scope of work by publishing a Technical Brochure “Security for Information Systems and Intranets in Electric Power Systems”.

A new WG was formed to deal with the “Treatment of Information security for electric power utilities”.

Metering, Revenue Protection, Billing and CRM/CIS functions

Metering, Billing and CRM are important functions in the liberalized electricity market process. Metering and billing were already basic functions for the electricity supply chain before the liberalization, while CRM in his complete functionality entered in this sector since the market opening.

New Terms of Reference were issued and a WG was formed in February 2006. The WG started its activity by drafting a technical questionnaire on metering and revenue protection.

Enterprise Application Integration (EAI)

Since the work done to issue papers for the 2005 SCD2 Colloquium, no significant work was carried out on this subject.

T2 TRANSMISSION MEDIA AND TECHNIQUES

Telecommunication Technologies

The mission of Advisory Group, AGD2.01 “Telecommunication Technologies”, is to monitor these technologies and to foresee its possible use and impact on power utilities. An updated version of the “Telecommunication Technologies and Services” document is under way.

Mobile Radio

The SCTFD2.13 scope of work is to consider and report on the issues involved in implementing new mobile services and systems. This was carried out by a comprehensive questionnaire within the utility and emergency services sectors to identify real mobile projects that have been implemented in the last two years. The work will provide an analysis of systems currently being implemented by utility companies and will examine the issues associated with the delivery of working systems.

IP Networking Issue

Two main items are being dealt with by SCD2:

- “Power System Management and Maintenance using Internet Technology and Applications”, WGD2.17. A new Technical Brochure has been drafted focusing on the concept of Integrated

Management, which includes not only the management of the communication devices but also the management of every asset with communication capabilities.

- “Operation Services Provision using IP VPN”, SCTFD2.10. A survey was carried out on the use of VPN technologies in the Power Utility environment. 23 answers were received and the result will be published as a technical Brochure. The final report is based on the answers received to this survey and complemented with technological information and references in order to form a comprehensive document that combine real experiences with technical information to form a practical guide on the deployment of VPN in the Power Utility environment.

T3 TELECONTROL SYSTEMS

New architectures

WGD2.16, “Impact of IEC 60850, Model on Telecontrol Systems” finalized its scope of work by issuing a Technical Brochure, “Communications Technology Fundamentals for the Design of Modern Protection and Control Systems”. This TB is a guide enabling to select among existing protocol standards and technologies the most suitable for different types of applications.

Control Centres in a liberalized market

No significant work was carried out on this subject.

Conformance testing

SCTFD2.12, “Conformance Testing”, drafted a report based on different examples from the practice what Conformance Testing includes and how it is done for different applications. Different ways of testing possibilities are reviewed. The Technical Brochure shows which experiences and results exist and how the conformity is confirmed.

T4 INDUSTRY DEREGULATION

Web-based Utility Applications

No significant work was carried out on this subject.

It was decided at the last SCD2 Regular Meeting to renew the WGD2.19, “Web-based Utility Applications”, and SCTFD2.11, “Control Centres in a Liberalized Market” and to define new Terms of Reference.

Broadband PLC Applications

The WGD2.21, “Broadband PLC Applications”, has the task to study energy-related services based on Broadband PLC, such as Automatic Meter Reading (AMR) and Management, Telecontrol, Tele-surveillance, etc.

A questionnaire was issued concerning the PLC technology interest and its use. The material received is the base for the Technical Brochure being drafted.

ADMINISTRATIVE ACTIVITIES

A1 IMPROVE STUDY COMMITTEE PRACTICES

The SCD2 Chairman is drafting the 2007 – 2016 Strategic Plan and the corresponding Action Plan. Stress is put on the Cigré SCD2 goal to “**be the major technically competent international body for electricity utilities on Information and Telecommunication Systems**”.

To “**Revitalise the Organisation and Practices of SCD2**”, the Advisory Group, AGD2.03 “Customer Relationships and the Web”, has:

- drafted a template to be used for the SCD2 Members Annual Report;
- issued a quality survey on the 2005 Cuernavaca Tutorials.

To adapt SCD2 structure to on-going activities and where necessary “**Restructure Working Groups**” and “**Use of Ad-hoc Groups for Special Tasks**”, the following decisions have been implemented:

- Two WGs and two SCTFs were dismantled:

- WGD2.16, “Broadband Power Line Communications”.
- JWGD2/B3/C2.01, “Security for Information Systems and Intranets in Electric Power Systems”.
- SCTFD2.11, “Control Centres in a Liberalized Market”.
- SCTFD2.12, “Conformance Testing”.
- Three new WGs were created:
 - WGD2.18, “Metering, Revenue Protection, Billing and CRM/CIS functions”.
 - WGD2.22, “Treatment of Information security for electric power utilities”.
 - WGD2.23, “The use of Ethernet technology in the power utility environment”.

Two additional WGs, if approved by the Cigré Technical Committee, will start their activities in 2007:

- WGD2.24, “EMS architectures for the 21st century”.
- WGD2.25, “Deregulation of the electric sector and the information and telecommunication systems”.

In addition and to cope with Cigré Policy, fair warning letters were issued to one SCD2 Member and to three Observer Members asking them to attend the SCD2 Regular Meetings as well as contributing actively in AG/WG/TF or SCD2 or to provide members for these activities.

The following table provides for each technical area the Working Body in charge of carrying out the task.

Action Plan	Subject	AG/WG/TF and Convener
T1 Internet and Information Systems	Current practices and experiences	AGD2.02 Mr. E. Sandström
	Metering, revenue protection, billing and CRM/CIS functions	WGD2.18 Mr. G. Vidrio
	Enterprise Application Integration (EAI)	WGD2.20 Mr. E. Sandström
	Treatment of Information security for electric power utilities	WGD2.22 Mr. G. Ericsson
T2 Transmission Media and Techniques	Telecommunication Technologies	AGD2.01 Mr. H. Spiess
	Mobile Radio	SCTFD2.13 Mr. P. Moray
	Power System Management and Maintenance using Internet Technology and Applications	WGD2.17 Mr. C.Samitier
	The use of Ethernet technology in the power utility environment	WGD2.23 Mr. C.Samitier
	Operation Services Provision using IP VPN	SCTFD2.10 Mr. C.Samitier
T3 Telecontrol Systems	No new activity	
T4 Industry Deregulation	Web-based Utility Applications	WGD2.19 Mr. H Riis
	Broadband PLC applications	WGD2.21 Mr. J. Aguiar
A2 Widen Study Committee Influence	Identification of Customers	AGD2.03 Mr. P. Cristaudo
	Tutorial and Web Master	AGD2.04 Dr. J. Luque

A2 WIDEN STUDY COMMITTEE INFLUENCE

In 2006, two Members were appointed to SCD2 from National Committees not previously represented as well as two Observer Members, “**Soliciting support from non-represented National Committees**”.

As concerning, “**Relationship with kindred organisations**”, SCD2 Members are active on:

- IEC TC57, “Power System Management and Associated Information Exchange”,
- IEEE Power Engineering Society, “Power System Communication Committee” (PSCC),
- IETF, “Internet Engineering Task Force”,
- EUTC, “European UTC”.