



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

**STUDY COMMITTEE D2**  
INFORMATION SYSTEMS AND TELECOMMUNICATION

# Study Committee D2 Annual Report 2007

Mr. Maurizio MONTI – SC D2 Secretary

## STRATEGIC DIRECTION

SC D2 mission is to:

- Facilitate and promote the progress of engineering and the international exchange of information and knowledge in the field of information systems and telecommunications for power systems.
- Add value to this information and knowledge by means of synthesizing state-of-the-art practices and drawing recommendations.

The Strategic Plan (2007-2016) defines the organization of the SC D2 to cope with the following objectives:

- To be more customer oriented;
- To foster the participation in the working bodies;
- To be well balanced between information systems ,telecommunications, telecontrol and automation;
- To draw the interest of the customers for the work done in the SC.

Stress is thus put on the Cigré SC D2 goal to “**be the major technically competent international body for electricity utilities on Information and Telecommunication Systems**”.

SC D2 publications issued in 2007 were as follows:

- One Paper published in Electra:
  - “Study Committee D2 (Information Systems and Telecommunication) Activities done and future prospects”, April 2007.
- Four Technical Brochures:
  - TB 314, “Protocol Conformance Testing”, TFD2.12, February 2007.
  - TB 315, “Communications Technology Fundamentals for the Design of Modern Protection and Control Systems”, WGD2.16, April 2007.
  - TB 317, “Security for Information Systems and Intranets in Electric Power Systems”, JWGD2/B3/C2.01, April 2007.
  - TB 321, “Operational Services using IP Virtual Private Networks”, TFD2.10, June 2007.
- One SC D2 publication on the SC D2 web site:
  - “Study Committee D2 Practices and Guidelines”, October 2007.

The SC D2 2007 Colloquium was held in Lucerne (Switzerland). The preferential subjects of the SC D2 2007 Colloquium were:

- “**Resilient networks for sustained power system and market operation**”: Communication networks providing an essential service for power system and market operations.
- “**Information and IT Security**”: From “islands of automation,” via “open systems,” and now towards more secure power system and IT operations – How?
- “**Use of standard IEC 61850**”: The fast acceptance of IEC 61850 for “Communication in Substations” and the spread out of IEC 61850 in most areas of Electric Power Industry – Impact for networks and applications?

Out of the 39 submitted papers, only 24 papers were selected and presented. More than 100 persons contributed to the success of this Colloquium. The Special Report is available on the SC D2 web site.

## TECHNICAL ACTIVITIES

### INTERNET AND INFORMATION SYSTEMS

#### Current Practices and Experiences

Two Advisory Groups have been created.

- AGD2.01 “Core Business Information Systems”. This Advisory Group is ITS’ users oriented. Its main mission is in particular to monitor the needs and the stakes of the users in their core businesses which are linked with ITS (telecontrol, asset management, customer relationship, etc.);
- AGD2.02: “Techniques and Management”. This Advisory Group focuses on the needs of the ITS specialists (organization, techniques used, implementation, feedback, etc.).

The first objective of these Advisory Group is to recruit members in order to start their activities and in particular the 2010 Preferential Subjects.

#### 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.

The WGD2.18, “Metering, Revenue Protection, Billing and CRM/CIS functions”, issued a Technical Questionnaire in January 2007 and to date only 18 responses were received. In parallel, a bibliographic investigation is being carried out on “Standards and Recommendations, State of the Art, Practices and Trends”.

A Technical Brochure should be drafted for 2009 and intermediate results should be published in Electra.

#### Treatment of Information Security for Electric Power utilities (EPUs)

The scope of work of WGD2.22, “Treatment of Information Security for Electric Power utilities (EPUs)”, is to study the following three items, striving towards a common understanding and terminology for handling of information security:

- Frameworks for EPUs on how to manage information security.
- Risk assessment: Common models and methods for treating vulnerabilities, threats and attacks.
- Security technologies for SCADA/control systems including real time control networks.

A Technical Brochure is to be published by 2009, and intermediate deliveries shall be published as separate papers in Electra.

#### EMS Architectures for the 21<sup>st</sup> Century

The scope of work of WGD2.24, “EMS Architectures for the 21<sup>st</sup> Century”, is to:

- Develop the vision for the architecture of the next generation of Energy Management and Market Management Systems.
- Gain broad adoption by the industry, and in particular to draft a road map for the vendors of SCADA/EMS/MMS.
- Facilitate its implementation as a de facto standard.

In order to achieve these activities, the WGD2.24 is organized into five internal Task Forces. Altogether, nearly 50 persons are involved in this activity.

A “White paper” is to be published beginning of 2008.

### TRANSMISSION MEDIA AND TECHNIQUES

#### Telecommunication Networks, Services and Technology

The mission of Advisory Group, AGD2.03 “Telecommunication Networks, Services and Technology”, is to monitor these technologies and to foresee its possible use and impact on power utilities.

The scope of work is the following one:

- Compile yearly the « issue of concern in the field of telecommunications » from the SC D2 Members and National Committees.

- Carry out coordinated actions and works with other international organizations such as UTC, EUTC, IEEE PES / PSCC, IEC, ...
- Coordinate with other Cigré “communication services user” SCs such as B3, B5, C5 and C6.
- Coordinate with other Advisory Groups of SC D2.
- Elaborate a bi-annual report on “Status Report on Power Utility Telecom Networks, Services and Technology”.
- Review the published Technical Brochures in the field of telecommunication networks, services and technologies to assess the requirements for revision or continued work.

### **Mobile Radio**

The WGD2.13 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 Technical Brochure being drafted will provide an analysis of systems currently being implemented by utility companies and will examine the issues associated with the delivery of working systems.

### **The use of Ethernet Technology in the Power Utility environment**

The WGD2.23, “The use of Ethernet Technology in the Power Utility environment”, has as main objective to explore new opportunities and applications of Ethernet technology as well as in substation environment (LAN) or in control network (WAN).

The Technical Brochure on the concept of Ethernet, both as an access interface and as a network service is to be drafted by the end of 2008.

## **INDUSTRY DEREGULATION**

### **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.

Two questionnaires were issued concerning the PLC technology interest, its use and PLC technology economics. The material received is being use to draft the Technical Brochure to be issued in 2008. However, due to the sensitivity about commercial data, the chapter “Case Studies and Business Model” will not be drafted.

### **Information and Communication Systems in the deregulation of the electricity sector**

The scope of work of WGD2.25, “Information and Communication Systems in the deregulation of the electricity sector”, is to focus on the impact of deregulation on Information and Communication System in all parts of value chain (generation, transmission, distribution and sales), with a special attention to interfaces between actors.

Two main outputs are expected. The first one is a “White paper” on best practices and the second one is an international benchmark on the impact of deregulation on Information and Communication systems.

## ADMINISTRATIVE ACTIVITIES

### IMPROVE STUDY COMMITTEE PRACTICES

To adapt SC D2 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:

- The four existing Advisory Groups have been dismantled:
  - AGD2.01, “Telecommunication Technologies”.
  - AGD2.02, “Information Systems and Internet”.
  - AGD2.03, “Customer Relationships and the Web”.
  - AGD2.04, “Information System and Telecommunications Tutorials”.
- Three new Advisory Groups have been created:
  - AGD2.01, “Core Business Information Systems”.
  - AGD2.02, “Techniques and Management”.
  - AGD2.03, “Telecommunication Networks, Services and Technology”.
- Two WGs and one SCTFs were dismantled:
  - WGD2.17, “Power System Management and Maintenance using Internet Technology and Applications”.
  - WGD2.20, “Enterprise Application Integration (EAI)”.
  - SCTFD2.10, “Operational Service Provision using IP Virtual Private Networks (VPN)”.
- Two new WGs were created:
  - WGD2.24, “EMS Architectures for the 21<sup>st</sup> Century”.
  - WGD2.25, “Information and Communication Systems in the deregulation of the electricity sector”.

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

Subject	AG/WG Convener
Current practices and experiences	AGD2.01 Mr. E. Sandström AGD2.02 Mr. M. Samaan AGD2.03 Mr. M. Mesbah
Mobile Radio	WGD2.13 Mr. P. Moray
Metering, revenue protection, billing and CRM/CIS functions	WGD2.18 Mr. G. Vidrio
Broadband PLC applications	WGD2.21 Mr. J. Aguiar
Treatment of Information security for electric power utilities	WGD2.22 Mr. G. Ericsson
The use of Ethernet technology in the power utility environment	WGD2.23 Mr. C.Samitier
EMS Architectures for the 21st Century	WGD2.24 Mr. A. Steven
Information and Communication Systems in the deregulation of the electricity sector	WGD2.25 Mr. Y. Rousseau

### A2 WIDEN STUDY COMMITTEE INFLUENCE

SCD2 is maintaining **“Relationship with kindred organisations”** and SC D2 Members are active in the following organizations:

- 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”.