



CONFÉRENCE INTERNATIONALE DES GRANDS RÉSEAUX ÉLECTRIQUES A HAUTE TENSION
INTERNATIONAL CONFERENCE ON LARGE HIGH VOLTAGE ELECTRIC SYSTEMS

STUDY COMMITTEE 35

POWER SYSTEM COMMUNICATIONS AND TELECONTROL

Study Committee 35 Annual Report

by Mr. Maurizio MONTI - SC35 Secretary

STRATEGIC DIRECTION

SC35 mission is to facilitate and to promote the interchange of technical knowledge, information, and experience in the fields of Power System Communications and Telecontrol. In this scope of work, the Strategic Plan (1993-2002) defines the following eight technical areas of activity:

- T1: Transmission Media.
- T2: Transmission Techniques.
- T3: Switching and Network Techniques.
- T4: Operation and Management of Telecommunications Networks.
- T5: Telecontrol Systems.
- T6: Emerging Telecommunications and Telecontrol Technologies.
- T7: Public Telecommunications Deregulation.
- T8: Telecommunication Statistics.

In addition, the Action Plan includes two administrative directions as follows:

- A1: Improve Study Committee Practices.
- A2: Widen Study Committee Influence.

Publications from SC35 issued in 1998 were as follows:

- Two papers on Internet Protocol Technology, one in Electra, February 1998, and one for Paris Group Session.
- One report on SC35 Beijing Colloquium, Electra, April 1998.
- Four internal papers:
 - Two papers on Deregulation of Telecommunications in Power Utilities,
 - One paper on « Issue of Most Concern »,
 - One paper on « WG35.07 White paper – Vision and Scope ».

In addition, three Technical Brochures drafted by WG35.04 have been approved by SC35 Members and are in the publication process:

- TB131, « Wavelength Division Multiplexing for Electricity Utilities ».
- TB132, « Optical Fibre Cable Selection for Electricity Utilities ».
- TB133, « Preventive and Corrective Maintenance for Optical Cables and Overhead Power Lines ».

The two preferential subjects for SC35 Session in Paris were:

- Systems to survive disasters including concepts of back-up control. Two areas were covered by the discussion:
 - Preparing systems for disaster recovery,
 - Specific back-up Control Centre configuration.
- Impact of Internet technology.

As well as the technical activity, significant work was carried out in the administrative directions including, creation of a Study Committee Task Force (SCTF35.05) covering GSM2+, development of relations with kindred organisations, and improvement in communications by the complete revamping of SC35 Web Site.

TECHNICAL ACTIVITIES

T1 TRANSMISSION MEDIA

Fibre Optics

As more and more electric utilities are looking after benefits from telecommunications investments, SC35 is carrying out further studies in the field of Fibre Optics. The status of work is as follows:

- Drafting of a Technical Brochure on « Optical Fibre Cable Selection for Electricity Utilities » ended and the TB132 submitted to SC35 Members was approved. This guide is intended to provide utilities with an insight into the important parameters and limitations for the various optical cabling technologies. It will cover the critical parameters, including motivating factors and key constraints, to assist a utility in making the correct choice for the trouble free lifetime of a cable installation.
- Drafting of a Technical Brochure on « Preventive and Corrective Maintenance for Optical Cables and Overhead Power Lines » ended and the TB133 submitted to SC35 Members was approved. This guide will provide utilities with definitive guidance for effective maintenance and emergency repairs for all the known optical cabling technologies covered in the TB45 « Optical Fibre Planning Guide for Power Utilities ».
- Drafting of a Technical Brochure on « Wavelength Division Multiplexing for Electricity Utilities » ended and the TB131 submitted to SC35 Members was approved. This paper is intended to provide utilities with a status report on recent WDM developments.

Digital Power Line Carrier

Work on systems assessment of present and future use is underway. A study is being carried out to review and to assess Digital PLC technologies, to identify advantages and limitations of them, to draft outlines for general specifications and testing procedures, as well as drafting application guidelines. The issuance of the Technical Brochure is expected for mid 1999.

Mobile Radio

A new Study Committee Task Force was implemented in August 1998, i.e., SCTF35.05. The scope of work is to issue a Report on the overall potential for Power Utilities to use GSM2+ provided in the public area as the sole operational mobile communications system and to assess that service provided in this area corresponds to functionalities/user needs. An intermediate report is expected by September 1999.

T2 TRANSMISSION TECHNIQUES

High Speed Data

Valuable work is being carried out on « ATM » and « Internet Protocol Technology ». The 1997 publications:

- « Internet Protocol Technology: an introduction », Electra, June 1997.
- « Transmission of real-time data with a guaranteed QoS using IP technology », Electra, August 1997.
- « Integration of services on IP networks », Electra, October 1997.

have been completed by a last paper:

- « Implementation of an IP-network for the transmission of utility real-time data », Electra, February 1998.

Further studies are in progress on these two technical fields, and also on the management of these platforms. A Technical Brochure on ATM and IP technology is underway and it is expected to provide utilities with a panorama of these technologies, including Service Descriptions and Requirements, Business models, Network Technologies (SDH, ATM and Network Management), and Implementation of these Services.

Teleprotection

Joint Working Group JWG34/35.11 was formed in March 1997 to study « Teleprotection ». The scope of work is to assess the state of development of advanced protection using inter-site communications. Drafting of a Technical Brochure to complement the existing TB13 is underway. This Technical Brochure is expected to provide utilities with relevant information about recent trends as well as conventional systems, performance and reliability requirements, and typical configurations for different types of protection systems. Publication of a Technical Brochure is expected by mid 1999.

SCADA Data Transmission and Protocols

The Technical Brochure, « Communication concepts for Control Centres », is under approval by SC35 Members. This Technical Brochure is intended to provide data about utility data communication requirements and scenarios implemented by different countries (Austria [EGL], France [EDF], Germany [VEW], Italy [ENEL], the Netherlands, Spain [ENHER], Sweden, United Kingdom [National Grid Co. plc]).

T3 SWITCHING AND NETWORK TECHNIQUES

There is no work currently in progress on this subject.

T4 OPERATION AND MANAGEMENT OF TELECOMMUNICATIONS NETWORKS

SC35 decided that a study was to be carried out on the second level of « **Telecommunications Network Management** » and this will be carried out in association with work under way on High Speed data transport platforms.

As per decision taken in 1998 by SC35 to study « **Telecommunication Management Systems** » separately as an element of work on Business Opportunities, an internal report, « The Role of Business Management Systems in the Development of Commercial Telecommunications », was issued to SC35 Members.

T5 TELECONTROL SYSTEMS

Ongoing studies for issuance of Technical Brochures are dealing with:

- « **Advanced Alarm handling in Control Centre** », i.e., all possible techniques to detect the underlying cause for the large amount of data received in a Control Centre during emergency situations and to reduce stress on the operator (TF35.13.01, Convener, Mr. J. Hamley).
- « **Knowledge Based Systems in SCADA/EMS** », i.e., guidelines about the stages that need to be completed from conception to operation of an intelligent application and the subsequent life time support necessary to maintain its operation (TF35.13.02, Convener, Mr. D. Cooper). The TB is under approval by SC35 Members.
- « **Backup Control Centres and Emergency Dispatch** », i.e., survey of actions typically being taken by utility in regard to backup Control Centre, database access and duplication and costs/benefits evaluation (TF35.13.04, Convener, Mr. A. Marais).

T6 EMERGING TECHNOLOGIES

There is no work currently in progress on this subject.

T7 PUBLIC TELECOMMUNICATIONS DEREGULATION

Opportunities

The following tasks have been carried out:

- Issuance of a questionnaire about « Outsourcing ».
- Drafting of an internal report on « Utility Communications Outsourcing - Response ».

T8 TELECOMMUNICATION STATISTICS

The work for collecting, compiling and drafting the statistics report is being carried out over a four-year cycle as part of our action plan. The next issue of the « **Telecommunications Statistics** » booklet is for year 2000.

SC35 decided in 1997 to carry on a yearly cycle statistics on specific issues, i.e., « **Issue of Most Concern** ». The following « Issue of Most Concern » have been identified for 1998:

- Size, configuration and performance of telecommunications networks in PU's.
- Selling of services.
- Positioning of telecommunications in PU organisations.

A Questionnaire was issued on April 1998, and the results have been provided in an internal report « Telecommunications Issue of Most Concern 1997/98 – Results of Questionnaire » to SC35 Members.

The « **Issue of Most Concern** » identified for 1998/99 is the related issues of « Who is using or planning to use ATM and IP and or Virtual Private Networks? ».

ADMINISTRATIVE ACTIVITIES

A1 IMPROVE STUDY COMMITTEE PRACTICES

To « **Improve Communications** », and thus to increase SC35 efficiency, two « Newsletters » were issued in 1998 to inform SC35 Members about activities, e-mail services are now used to provide primary communications on on-going works. The SC35 Web Site was fully revamped to ease information exchanges between SC35 Members, but also for WG and SCTF Members. The site, password protected, enables to view and/or download all the published SC35 papers as well as for WG and SCTF Members to share information currently related to their activities (draft TB, etc.).

To adapt SC35 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:

- A new Study Committee Task Force, SCTF35.05, was established in August 1998.
- Additional Members join the SCTF35.01 in order to carry out the task on « **Issue of Most Concern** ».
- WG35.08 having achieved its scope of work was dismantled in September 1998.

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

Action Plan	Subject	WG and Convener	Task Force
T1 Transmission Media	Fibre Optics	WG35.04 Mr. J. Martin	
	Digital PLC	WG35.09 Mr. J. Piotrowski	
	Mobile Radio		SCTF35.05 Mr. P. Moray
T2 Transmission Techniques	High Speed data	WG35.07 Mr. C.Samitier	
	ATM	WG35.07 Mr. C.Samitier	
	Internet Protocol Technology	WG35.07 Mr. C.Samitier	
	Teleprotection	JWG34/35.11 Mr. P. Gjerde	
	SCADA Data Transmission and Protocol	WG35.13 Mr. R. Baumann	TF35.13.03
T4 Operation and Management of Telecommunications Network	Telecommunications Network Management	WG35.07 Mr. C.Samitier	
	Business and Telecommunication Management Systems	WG35.08 Mr. H. Nordgard	
T5 Telecontrol Systems	Telecontrol in Power System Control Centres	WG35.13 Mr. R. Baumann	TF35.13.03
	Advanced Alarm handling in Control Centres	WG35.13 Mr. R. Baumann	TF35.13.01
	Knowledge Based Systems in SCADA/EMS	WG35.13 Mr. R. Baumann	TF35.13.02
	Backup Control Centres and Emergency Dispatch	WG35.13 Mr. R. Baumann	TF35.13.04
T7 Public Telecommunications Deregulation	Opportunities	WG35.08 Mr. H. Nordgard	
T8 Telecommunications Statistics	Telecommunications Statistics		SCTF35.01 Mr. E. Jacobsen
	Issue of most concern		SCTF35.01 Mr. E. Jacobsen

The SC35 Chairman held two lectures to new Cigré Members prior to their first meeting at 1998 Paris Cigré Session, « **Members Education** ».

A2 WIDEN STUDY COMMITTEE INFLUENCE

As concerning, « **Relationship with kindred organisations** », SC35 has been highly active:

- UTC Executive Members are active on the SC35 and related WG.
- SC35 Members are active on IEC TC57 WG.
- WG35 Members are active on IEEE Optical Fibre Sub Working Group.
- Invitation to IEC TC57 Chairman to attend SC35 meetings and vice versa.

As concerning, « **Soliciting support from non-represented National Committee** », two Observers Members were appointed to SC35 from National Committees not previously represented.