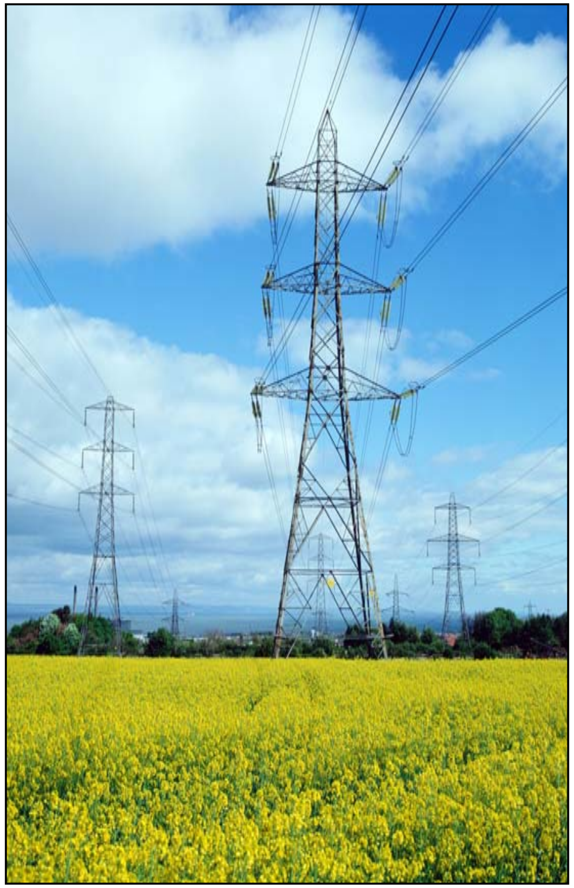
MAVIR ZRt.

CIGRE tevékenysége (SC A2 és SC D1)



CSÉPES GUSZTÁV

(csepes@mavir.hu)

“VIII. Szigetelésdiagnosztikai Konferencia, Egerszalók, 2008 április 23-25.

MAVIR

CIGRE: Conseil International des Grands Réseaux Electrques

http://www.cigre.org

- Állandó, nem kormányzati, világszervezet, amely műszaki, gazdasági, környezetvédelmi és szabályozási tématerületeken érinti a villamos energia rendszert.
- Alapítva: Franciaország, 1921, Párizs
- 80 ország, cég, egyetem, akadémia, kutatóintézet, stb.
- CIGRÉ célja: Megkönnyíteni és elősegíteni a műszaki tudás és információ áramlást az összes állam között a villamos energia termelés és a nagyfeszültségű átvitel területén (lásd az alábbiakban)
- Struktúra (lásd lentebb)
- NC = National Committee (Nemzeti Bizottság)
- SC= Study Committee (Tanulmányi Bizottság)
- WG = Workung Gropup (Munka Bizottság)
- TF = Task Force
- Nyelv: angol, francia,
- ELECTRA
- Tagság: egyéni és kollektív (4500-5000)
- Tagság: Regular Members, Observer Members,

- CIGRE website: www.cigre.org
- Kétévenként Plenáris Ülés Párizsban (páros évek)
- Kétévente Kollokvium vagy Szimpózium (páratlan évek)
- Helyi rendezvények

- Tagság: egyéni és kollektív
- Tagság: Regular Members, Observer Members,
- Csatlakozás: Membership Application Form
- Közlemények: CIGRE események, TF, WG és SC
- dokumentumok
- Reports, Papers, Brochures, etc. (katalógus)
- Konferenciák
- Kollokviumok
- Preferential Subjects
- Tutorials
- Kapcsolatok, IEC, IEEE, ISH, MATPOST, stb.

INTERNATIONAL COUNCIL ON LARGE ELECTRIC SYSTEMS

> **What is CIGRE?** > **Technical Activities** > **Events** > **Publicatio**

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What is CIGRE?

Aim

Activities

Membership

Structure

Official Documents

Aim

CIGRE (International Council on Large Electric Systems) is one of the leading worl
technical, economic, environmental, organisational and regulatory aspects.

A permanent, non-governmental and non-profit International Association, based in

> Facilitate and develop the exchange of engineering knowledge and information, I
countries as regards generation and high voltage transmission of electricity.

> Add value to the knowledge and information exchanged by synthesizing state-of-

> Make managers, decision-makers and regulators aware of the synthesis of CIGR

More specifically, issues related to planning and operation of power systems, as w
equipment and plants are at the core of CIGRE's mission. Problems related to prot
and information systems are also part of CIGRE's area of concern.

SC ORGANISATION 2002

A1
ROTATING ELECTRICAL MACHINES

A2
TRANSFORMERS

A3
HIGH VOLTAGE EQUIPMENT

B1
INSULATED CABLES

B2
OVERHEAD LINES

B3
SUBSTATIONS

B4
HVDC & POWER ELECTRONICS

B5
PROTECTION & AUTOMATION

C1
SYSTEM DEVELOPMENT & ECONOMICS

C2
SYSTEM OPERATION & CONTROL

C3
SYSTEM ENVIRONMENTAL PERFORMANCE

C4
SYSTEM TECHNICAL PERFORMANCE

C5
ELECTRICITY MARKETS & REGULATIONC5

C6
DISTRIBUTION SYSTEMS & DISPERSED GENERATION

D1
MATERIALS & EMERGING TECHNOLOGIES

D2
INFORMATION SYSTEMS & TELECOMMUNICATIONS

FIELDS OF ACTIVITY OF STUDY COMMITTEES

A_1	**Rotating Electrical Machines** Economics, design, construction, test, behaviour and materials for turbine generators, hydrogenerators, non conventional machines and large motors.
A_2	**Transformers** Design, construction, manufacture and operation for all kinds of power transformers including industrial,DC converters and phase-shift transformers and for all types of reactors and transformer components (bushing, tap-changer…)
A_3	**High Voltage Equipment** Theory, design, construction and operation for all devices for switching, interrupting and limiting currents, surges arresters, capacitors, busbars and equipment insulators and instrument transformers.
B_1	**Insulated Cables** Theory, design, applications, manufacture, installation, testing, operation, maintenance and diagnostic techniques for land and submarine AC and DC insulated cables systems.
B_2	**Overhead lines** Design, study of electrical and mechanical characteristics and performance, route selection, construction, operation, service life, maintenance, refurbishment uprating and upgrading of overhead lines and their components including : conductors, earth wires, insulators, towers, foundation and earthing systems.
B_3	**Substations** Design, construction, maintenance and ongoing management of substations and electrical installations in power stations, excluding generators.
B_4	**HVDC and Power Electronics** Economics, application, planning aspects, design, protection, control, construction and testing of HVDC links and the associated equipment. Power Electronics for AC systems and Power Quality Improvement and Advanced Power Electronics.
B_5	**Protection and Automation** Principles, design, application and management of power system protection, substation control, automation, monitoring and recording – including associated internal and external communications, substation metering systems and interfacing for remote control and monitoring.

C_1	**System Development and Economics** Economics and system analysis methods for the development of power systems : methods and tools for static and dynamic analysis, planning issues and methods in various context, assets management strategies.
C_2	**System Operation and Control** Technical and human resource aspects of operation of power systems : methods and tools for frequency, voltage and equipment control, operational planning and real time security assessment, fault and restoration management, performance evaluation, control centre functionalities and operators training.
C_3	**System Environmental Performance** Identification and assessment of the impacts on environment of electric power systems and methods used for assessing and managing the environmental impact of system equipment.
C_4	**System Technical Performance** Methods and tools for power system analysis in the following fields : power quality performance, electromagnetic compatibility, lightning characteristics and system interaction, insulation coordination, analytical assessment of system security.
C_5	**Electricity Markets and Regulation** Analysis of different approaches in the organisation of the Electric Supply Industry : different market structures and products, related techniques and tools, regulations aspects.
C_6	**Distribution Systems and Dispersed Generation** Assessment of technical impact and requirements which new distribution features impose on the structure and operation of the system : widespread development of dispersed generation, application of energy storage devices, demand side management ; rural electrification.
D_1	**Materials and Emerging Technologies** Monitoring and evaluation of new and existing materials for electrotechnology, diagnostic techniques and related knowledge rules and emerging technologies with expected impact on the system in medium to long term.
D_2	**Information Systems and Telecommunications** Principles, economics, design, engineering, performance, operation and maintenance of telecommunication and information networks and services for Electric Power Industry ; monitoring of related technologies.

FIELDS OF ACTIVITY OF STUDY COMMITTEES

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Scopes of Study Committees

A 1 Rotating Electrical Machines

MISSION

To facilitate and promote the progress of engineering and the international exchange of information and knowledge in the field of rotating electrical machines. To add value to this information and knowledge by means of synthesising state-of-the-art practices and developing recommendations.

SCOPE

The activities of the Study Committee cover economics, design, construction, tests, behaviour and materials of turbine generators, hydro generators, non conventional machines and large motors. The relationship between electrical machines and the mechanical behavior of coupled prime movers behavior should be analyzed. In addition, behaviour of rotating machines as the part of power station and its performance in the power system will be covered in collaboration with other relevant Committees.

In order to respond to the future environment, different strategic directions will be followed. The long term goal of asset management is the most effective operation of machines to optimise performance, reliability and efficiency and to inform maintenance decisions through suitable diagnostics and understanding behaviour and signs of deterioration.

Scopes of Study Committees

A 2 Transformers

MISSION

To facilitate and promote the progress of engineering and the international exchange of information and knowledge in the field of transformers. To add value to this information and knowledge by means of synthesizing state-of-the-art practices and developing recommendations.

SCOPE

The scope of the SC Transformers covers :

- all kinds of power transformers including industrial, DC converter and phase-shifting transformers
- all type of reactors (shunt, series , saturated, smoothing, ...)
- transformer components (bushings, tap changers, accessories)

The field of study includes :

- design, construction and manufacture, including in site erection;
- application of material;
- asset management (maintenance and operation, condition monitoring, techniques in service, repair and refurbishment, disposal, ...);
- safety and environmental aspects (noise, oil spill, fire, explosion, EMC, ...);
- quality assurance and testing;
- behaviour in and interaction with the system under normal and abnormal conditions;
- dependability (reliability, availability, maintainability, safety), risk management;
- economic aspects, decision making.

Scopes of Study Committees

A 3 High Voltage Equipment

MISSION

To facilitate and promote the progress of engineering and the international exchange of information and knowledge in the field of high voltage equipment. To add value to this information and knowledge by means of synthesizing state-of-the-art practices and developing recommendations.

SCOPE

Responsible for the theory, design, construction, and application of high voltage equipment components, equipment, and equipment systems for both AC and DC systems. This includes the behaviour and interactions with, and duties imposed by the network and other system equipment under normal and abnormal conditions, testing and testing technologies, quality assurance, reliability, maintenance and asset management.

This equipment includes all devices for switching, interrupting, or limiting currents (circuit breakers, load switches, disconnect switches, earthing switches, fault current limiters, etc.) independent of technology. It also includes surge arresters, capacitors, busbar and equipment insulators, instrument transformers, bushings, and all other high voltage equipment not specifically covered under another equipment study committee's scopes. Emphasis is on function and interaction of high voltage equipment including air and gas-insulated equipment, solid insulation used in high voltage equipment, outdoor insulation, and equipment using other insulation systems and interrupting media.

Scopes of Study Committees

B 1 Insulated Cables

MISSION

To facilitate and promote the progress of engineering and the international exchange of information and knowledge in the field of insulated cables. To add value to this information and knowledge by means of synthesizing state-of-the-art practices and developing recommendations.

SCOPE

The activities of CIGRE Study Committee B1 concern all types of AC and DC insulated cable systems for land and submarine connections and are focused mainly on high voltage applications. Whenever appropriate, however, lower voltage applications are also considered.

Within this field, the scope of work of the Study Committee covers design, manufacture, installation, service, quality assurance, tests and testing technology, behaviour in and interaction with the network, reliability, asset management, maintenance and diagnostic techniques in service.

Scopes of Study Committees

B 2 Overhead Lines

MISSION

To facilitate and promote the progress of engineering and the international exchange of information and knowledge in the field of overhead lines. To add value to this information and knowledge by means of synthesizing state-of-the-art practices and developing recommendations.

SCOPE

The field of study includes:

- conductors, earth wires, optical cables, and their associated insulators, joints, hardware and accessories;
- towers including accessories;
- tower foundations and earthing systems.

The studies (electrical and mechanical) cover the individual items, the subsystems formed from those items, such as conductor bundles, and the interactions between the components comprising the subsystems.

The important parameters describing the environment experienced by overhead lines are covered, together with the effects of the environment on the line's components with regard to design specifications and loading, electrical and mechanical performance, service life and deterioration mechanisms. In addition, the Committee studies the effects of the line on the environment (including life cycle assessment) both in terms of its individual components, as well as the line as a whole. The scope includes the study of activities such as design, route selection, construction, operation, and asset management items such as : maintenance, refurbishment, uprating, upgrading, restoration and dismantling of the line.

Scopes of Study Committees

B 3 Substations

MISSION

To facilitate and promote the progress of engineering and the international exchange of information and knowledge in the field of substations. To add value to this information and knowledge by means of synthesizing state-of-the-art practices and developing recommendations.

SCOPE

Responsible for the design, construction, maintenance and ongoing management of substations and for electrical installation in power stations excluding generators. Serves a broad range of target groups in the Electric Power Industry whose needs include the technical, economic, environmental and social aspects of this scope in varying degrees.

Major objectives include increased reliability and availability, asset management, environmental impact containment, and the adoption of appropriate technological advances in equipment and systems to achieve these objectives.

Scopes of Study Committees

D 1 Materials and emerging technologies

MISSION

To facilitate and promote the progress of engineering and the international exchange of information and knowledge in the field of materials and emerging technologies. To add value to this information and knowledge by means of synthesizing state-of-the-art practices and developing recommendations.

SCOPE

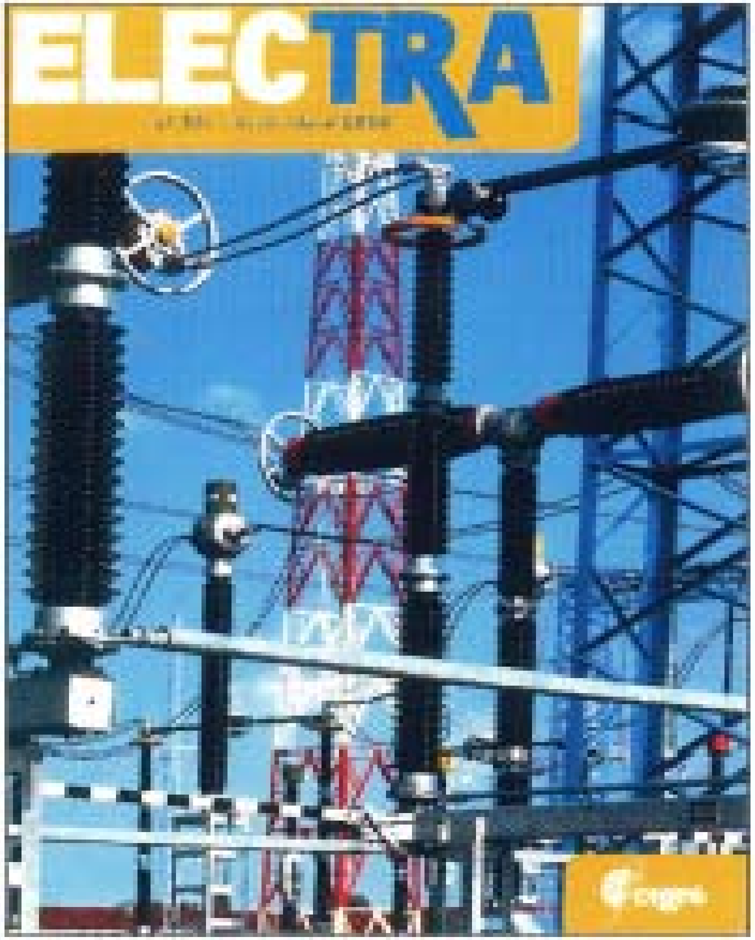
The activities of CIGRE Study Committee D1 concern the monitoring and evaluation of:

- new and existing materials for electrotechnology,
- diagnostic techniques and related knowledge rules,
- those emerging technologies which may be expected to have a significant impact on the system in the medium to long term.

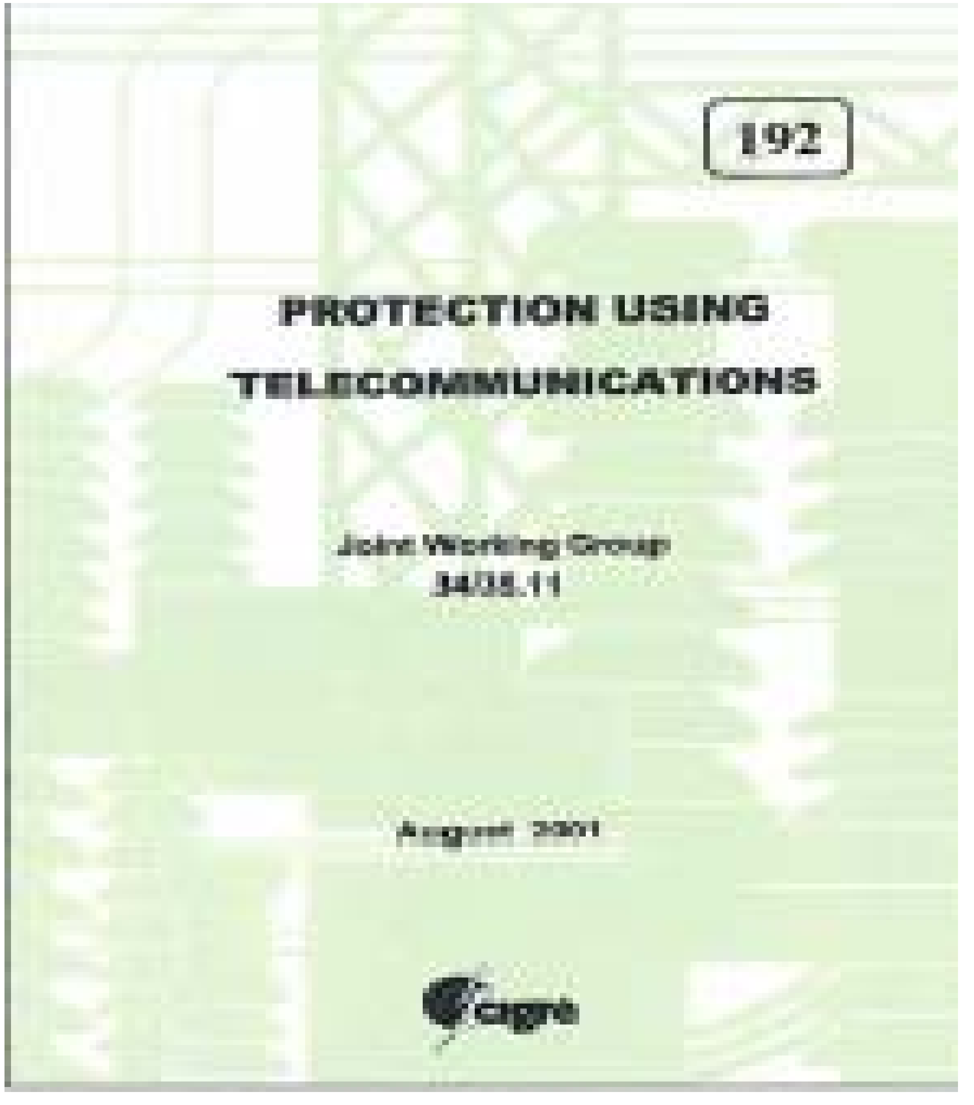
Said activities are focused mainly on transmission and distribution but emerging generation technologies will also be specifically considered.

Within this scope, the work of the Study Committee is principally scientific in nature and has as its main aim the provision of timely information on new developments and trends to other CIGRE Study Committees. In order to ensure that said work meets the expectations and requirements of its internal customers, the Study Committee will set up a suitable Customer Advisory Group responsible for establishing priorities, monitoring results and gauging internal customer satisfaction.

Through its work the Study Committee strives to keep CIGRE fully aware of the evolution of materials and technologies relevant to its activities.



- ELECTRA: két havonta jelenik meg, minden Cigre tag magkapja
- SC, WG és TF publikációk, egyesületi élettel kapcsolatos infók,
- hirdetési felületek



Technical Brochures, Eddig 200 került kiadásra, SC D1

Chairman: Ernst Gockenbach

Secretary: Joachim Hoboell

AG D1.05: Capacitors – M. Rinaldi

AG SC D1: Strategic and Customer Related Advisory Group

Working Groups – Task Force

WG D1.01	Fluid Impreganted Insulated Systems
WG D1.03	Insulating Gases
WG D1.07	Solid Insulating Materials for Rotating Machines
WG D1.12	Materials for DC Applications
WG D1.12	Materials for DC Applications
WG D1.14	Material Properties for Non-ceramic Outdoor Insulation
WG D1.15	HTSC – Material Application & Cooling
WG D1.16	High Field Phenomena in Solid Insulation and Interfaces
WG D1.17	HV Asset Condition Assessment Tools, Data Quality and Expert Systems
WG D1.18	Emerging Technologies in Power Systems
WG D1.33	High Voltage Test and Measuring Techniques

STUDY Committee D1

Chairman

Secretary Gockenbach Ernst

Regular members Holboell Joachim Finlay Barry Francis AUSTRALIE AUSTRALIA Muhr Michael Hans, Prof. Dr. AUTRICHE AU Platbrood Gerard BELGIQUE BELGIUM Serra Eduardo Torres BRESIL BRAZIL Pélissou Serge CANADA CANADA Holboell Joachim DANEMARK DENMARK Suonpää Harri O. FINLANDE FINLAND Matuszewski Patrick FRANCE FRANCE Schichler Uwe, Dr. ALLEMAGNE GERMANY Vitellas Isidoros GRECE GREECE Csepes Gusztav HONGRIE HUNGARY Ramu T.S. INDE INDIA Cavallini Andrea ITALIE ITALY Nagao Masayuki, Prof. JAPON JAPAN Koo Ja-Yoon, Prof. COREE KOREA Geene Henk T. F. PAYS BAS NETHERLANDS

Observer members Lundgaard Lars Esben NORVEGE NORWAY Vaga Natalya RUSSIE RUSSIA Reynders Jan Peter, Prof. AFRIQUE DU SUD Pablo Hermida, Alfonso de ESPAGNE SPAIN Gubanski Stanislaw M. SUEDE SWEDEN Mattmann Peter SUISSE SWITZERLAND Graham John Scott ROYAUME UNI UNITED KIN Gorur Ravi S. ETATS UNIS UNITED STATES

Nossier Abdel Razzak EGYPTE EGYPT Sokolija Kemo, Prof. BOSNIE HERZEGOVINE

Nikoloski Ljubomir MACEDOINE MACEDONIA Shkolnik Anatoly ISRAEL ISRAEL

Wankowicz Jacek G. POLOGNE POLAND Perez Sanchez Alfonso MEXIQUE MEXICO Notingher Petru ROUMANIE ROMANIA

Working groups area Active Working Groups August 2006: WG D1.01 Fluid Impreganted Insulated Systems **WG D1.03** Insulating Gases **AG D1.05** Capacitors **WG D1.07**Solid Insulating Materials for Rotating Machines **WG D1.12**Materials for DC Applications **WG D1.14** Material Properties for Nonceramic Outdoor Insulation **WG D1.15**HTSC-Material Applications & Cooling **WG D1.16**High Field Phenomena in Solid Insulation and Interfaces **WG D1.17** HV Asset Condition Assessment Tools, Data Quality and Expert System **WG D1.18** Emerging Technologies in Power Systems **WG D1.33** High Voltage Test and Measuring Techniques **AG SC.D1** Strategic and Customer Related Advisory Group