



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

COMITÉ D'ETUDES N° 13:  
STUDY COMMITTEE NO. 13:

APPAREILLAGE DE COUPURE  
SWITCHING EQUIPMENT

**13-01 (SC) 14**  
Berlin, August 2, 2001

**Minutes of meeting**  
**Study Committee 13**  
**held in Arnhem, The Netherlands**  
**June 21<sup>st</sup> and 22<sup>nd</sup> , 2001**

## Participants of SC 13 Meeting 2001

Chairman	J. H. Brunke	United States
Secretary	E. Kynast	Germany
Members	F. J. Amon	Brazil
	Y. Doin	France
	A. Hyrczak	Poland
	A.L.J. Janssen	Netherlands
	D. Johnson	USA
	S. Jones	Australia
	M. Kapetanovic	Bosnia
	P. Kirchesch	Germany
	D. Kopejtkova	Czech Republic
	W. Lanz	Switzerland
	K-Y. Park	Korea
	J. Patel	India
	D. Peelo	Canada
	V. Varivodov	Russia
	M. Waldron	United Kingdom
	D. Wang	China
	K. Mestrovic	Croatia
	M. Runde	Norway
Conveners, Representatives	K. Fröhlich	Convener WG 13.07
	H. Schmitt	Convener WG 13.10
	H.H. Schramm	Convener WG 13.11, IEC TC 17, SC 17A,
	P. Högg	Convener WG 13.12
	H. Peters	JTF 23.19, Germany
	M. Glinkowski	JTF 12/13/23.21, USA
	H. Ito	Japan, acting for T. Yoshizumi
	A. Bosma	Sweden, acting for E.Schreurs and IEC TC 17/17A
Guests	J. Pannicke	IPH-Berlin, Germany
	R.P.P. Smeets	KEMA, NL
	G.C. Damstra	Technical University Eindhoven, NL
	L. van der Sluis	Delft University, NL
	I. Pylkkänen	KEMA-Powertest USA
	Z. Gajic	VATech-ElinHolec, NL
Absent Members	I. Bonfanti	Italy, Convener Advisory Group
	M. Borrás	Spain
	A. Even	Belgium
	I. Lungu	Romania
	E. Schreurs	Sweden, represented by A. Bosma
	T. Yoshizumi	Japan, represented by H. Ito
	S. Behloul	Algeria
	C. Cabrera-Rueda	Mexico
	J. Goldstein	Israel
	H. Said	Egypt

**Agenda of SC 13 Meeting  
June 21<sup>st</sup> and 22<sup>nd</sup> 2001 in Arnhem, NL**

1. Welcome
2. Minutes of meeting held in Paris, France  
August 29<sup>th</sup>, 2000; doc 13-00 (SC) 26 Secretary
3. Information given by the Chairman on subjects of current interest Chairman
  - Meeting of the Technical Committee
  - Miscellaneous
4. Working Groups and Joint Task Forces activities
  - membership, - meetings, - activity since last meeting,
  - future program, - reports
- 4.1 WG 13.07 Controlled switching K. Fröhlich
- 4.2 WG 13.10 Specifications for short circuit current limiters H. Schmitt
- 4.3 WG 13.11 Application Guide for IEC 60056 and 60694 H-H. Schramm
- 4.4 WG 13.12 Circuit-breaker controls P. Högg
- 4.5 JTF 23/13/14/21/22-16  
Preparation of guidelines for collection and handling of reliability data
- 4.6 JTF 23/34/13  
Co-ordination Committee on electronic control systems D. Johnson
- 4.7 JTF 23/13/33/34/36  
Withstand and test requirements for substation secondary circuits  
subjected to EMI Secretary
- 4.8 JTF 12/13/23.21  
Electrical Environment of Transformers M.Glinkowski
- 4.9 JTF 23.19 (JTF 23/12/22.xx)  
Dynamic loading of electric power transmission equipment H. Peters
- 4.10 Advisory Group H-H. Schramm
  - TF 1: Out-of-phase stresses and testing
  - TRV in HV networks
5. Liaisons and Cooperations
- 5.1 Liaison with WG 23.02 Gas insulated substations D. Kopejtkova
- 5.2 Activity of the Current Zero Club
- 5.3 Cooperation CIGRE SC 13 / CIRED

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|-----|--|----------------|
| 5.4 | Cooperation CIGRE SC 13/IEEE Switchgear Committee  | D. Johnson     |
| 5.5 | Cooperation CIGRE SC 13/IEC TC 17 and SC 17A   | H-H. Schramm   |
| 6.  | Further areas of activity  | Chairman       |
|     | <ul style="list-style-type: none"><li>• Survey on reliability of switching devices</li><li>• Asset management</li><li>• Seismic design of substations</li><li>• SC 13 web site</li></ul> |                |
| 7.  | CIGRE-Session Paris 2002<br>Special Reporter, Session Secretary  | Chairman       |
| 8.  | Colloquium 2003 in Sarajevo  | M. Kapetanovic |
| 9.  | Next Study Committee Meeting 2002  |                |
| 10. | Miscellaneous  |                |

## **1. Welcome**

The Chairman J.H. Brunke welcomed all members, conveners, representatives and guests to this meeting of CIGRE Study Committee 13 in Arnhem, following the invitation of KEMA.

On behalf of KEMA A. Janssen gave an introduction upon the organizational matters around the Study Committee meeting and the invitation to the opening ceremony of Test Station 6, the extension of KEMA High-Power Laboratory, to which all participants has been kindly invited.

For the participants and for the representation of absent members, who were not able to attend, see the list of participants.

No response upon the invitation was given from the members of Algeria, Mexico, Israel and Egypt.

The items of the Draft Agenda dated March 16<sup>th</sup>, 2001 and distributed with the invitation to the SC 13 meeting has not been changed.

## **2. Minutes of meeting held in Paris, France in 2000**

The minutes of the last meeting held in Paris, France on August 29, 2000 were approved without changes (document 13-00 (SC) 26).

## **3. Information given by the Chairman on subjects of current interest**

The meeting of the CIGRE Technical Committee was held in China on the Jungsee River in April 2001.

- The TC remind that all Study Committee members has to be Individual Members of CIGRE, the status Corporate Member is not sufficient.
- All SC's are advised to be more active in developing tutorials for to support education, e.g. for universities. SC-Advisory Groups on Tutorials should be formed to support this subject.
- To carry out the proposed workshop concerning Controlled Switching during the CIGRE-Session 2002 was rejected by the Chairman, because half-day time for that would have been taken from the SC 13 paper session.
- SC 13 got the permission to start the reliability study on circuit breakers and disconnect switches (new Working Group)
- The question of SC 13 to establish a JWG for to investigate the system demand of Short-Circuit Limiting Devices found no interest among the other SC-Chairmen.
- D. Peelo is working on WG 12.20 "Economics of Transformer Management" which will have possibly value for SC 13 economic studies.
- A "CIGRE re-organization" was discussed.  
Some SC's are being abolished, some new ones formed.  
Concerning Study Committee 13 there will be a much larger area of activities, because the Scope under discussion will be expanded to all kind of high-voltage equipment, except transformers and HVDC power electronics.  
The next discussions upon the re-organization will take place in September 2001 and the final decisions will be announced in Paris 2002.  
If necessary a Transition Group will be formed within SC 13 to accommodate that.

- For the Working-Group Award the Chairman asked the Members and especially the Conveners to give him suggestions of extraordinary active WG-Members or Conveners. Conveners,  
all Members
- Announcement was given to the following Regional Meetings and Symposia:
  - Regional Meetings
    - 4<sup>th</sup> Regional Conference in Arab Countries (Tripoli, Libyan March 19-21, 2001)
    - Large Regional Networks within the Black Sea Basin .(Suceava, Rumania, June 11-15, 2001)
    - “Innovative Engineering for Today’s Environment (Cape Town, South Africa, October 1-4, 2001)
    - “Bulk Power Transmission System Integration in Developing Countries”, New Delhi, India, November 8-10, 2001
  - Symposia:
    - Gas and Electricity Networks (Iguacu, Brazil, December 3-6, 2001)
    - Behaviour of Electrical Equipment and Components in Tropical Environment (Cairns, Australia, September 3-7, 2001)
    - Power Quality and Security, CIGRE/IEEE (Montreal, 2003)
    - Development and operation of interconnection in a restructuring context (China, 2003)
    - Asset Management, Proposal for 2005
- HTSC-Advisory Group requests that all WG’s send their progress or status concerning HTSC. The contributions will be gathered by the Chairman. Conveners

#### 4. Working Groups and Task Forces activities

##### 4.1 WG 13.07: Controlled switching

The Convener K. Fröhlich commented on his activity report 13-01 (SC) 03 IWD.

##### Membership:

no changes

##### Meetings:

September 27-28,2000 Amagasaki, Japan

April 3-4, 2001 Berlin, Germany

planned meeting:

September 6-7, 2001 Portland, OR, USA

##### Activities:

The second document “Controlled switching of HVAC circuit breakers – Planning, Specification and Testing” was finished and forwarded to the Central Office. A 6 page summary of that document was prepared for publication in Electra and send to the Central Office. The summary is planned to be published in the June issue.

Correspondingly the full text of the document will be put on the web.

The Working Group currently is focusing on the subject of the economical impact of controlled switching. For the following switching cases templates were created which should give assistance to consider all related aspects:

- line switching
- transformer switching
- capacitor bank switching
- shunt reactor switching

The WG Members are asked to watch out for controlled switching installations in their countries and fill in these templates. The templates summarize in a very compact format all technical facts which are related to controlled switching, how they are connected and it

is tried to evaluate the costs or cost savings. As a tentative result it turns out that CS may be an effective measure for cost reduction due to stress reduction on the breaker itself and/or on adjacent equipment. However, for the time being many economical advantages can be given only in a qualitative way rather than in money figures and more investigation is planned.

Future program:

For the future the continuation on cost-effects of CS is planned. A first draft is scheduled for end of 2001, the final draft end 2002.

Further two short chapters on short circuit interruption and up rating of circuit breakers by CS are planned (technical and economical aspects) in 2002.

The reliability of electronic systems has been discussed within the SC under the aspect of some bad experience, discrepancy between testing and service condition and the up to now rare experience in that field.

#### **4.2 WG 13.10: Specifications for short circuit current limiters**

The Convener H. Schmitt commented on his activity report 13-01 (SC) 04 IWD.

##### Membership:

Retiring Member: E. Plantive, France

New Member approved by the Study Committee:

Francois-Xavier Gamescasse, EdF, France

##### Meetings:

August 30, 2000 Paris, France

March 19-20, 2001 Eindhoven, Netherlands

planned meeting

November 5-6, 2001 Zurich, Switzerland

##### Activities:

The report part 1 "Functional Specification for a **Fault Current Limiter**" was finished. The whole report (29 pages) contains an extensive literature list and can be found within the member area of the CIGRE web with address [www.e-cigre.org](http://www.e-cigre.org). A 6 page summary of this report was published in Electra No. 194 in February 2001.

Three subgroups

- Testing
- State of the art
- System demands

will continue the work studying different aspects of FCL's. Each subgroup prepares a first draft paper which will be discussed during the next meeting. The results of the subgroups shall be published in Electra as part 2 of the "Functional Specification for a Fault Current Limiter".

H. Schmitt pointed out the possible principal functions of SCLs in the systems and the necessity to investigate the stresses on the SCL itself and the reaction of the system.

The discussion within the SC shows that there is a high demand of such limiters for the performance of the systems. In the USA EPRI started a large program for the investigation of these technique. Information can be found on the IEEE Switchgear Committee web.

Further input from other groups or utilities regarding system demands or experience with the limitation of short circuit currents will be helpful to complete the work.

all

#### **4.3 WG 13.11: Application Guide for IEC 60056 and 60694**

The Convener H.-H. Schramm commented on his activity report 13-00 (SC) 16 IWD.

##### Membership:

Retiring Members: Serge Théoleyre, France

New member in the Working Group:

J.-M- Biasse, Schneider-Electric, France

##### Meetings:

Sept. 14/15, 2000          Stockholm, Sweden

April 24/25, 2001        Grenoble, France

planned meeting

Aug. 30/31, 2001        Cairns, Australia

##### Activities:

The draft of "Application guide for IEC 60056 and IEC 60694 – Part I" has been distributed for comments (13-00 (SC) 21 IWD). The draft contains the following chapters:

- Introduction
- Classification of circuit-breakers
- Short-line fault
- Terminal fault
- Short-circuit current
- Arcing time
- TRV-circuit current and arcing time TRV

Since there has been no comments upon the draft it is considered as approved by SC 13.

The ongoing discussions and drafting concerns the topics:

- Miscellaneous provisions for breaking tests
- X/R ratio
- Rated normal current and temperature rise
- Insulation coordination
- Parallel switching
- Capacitive current switching
- Small inductive current switching
- Out-of-phase
- Impulse voltage withstand procedures
- ITRV
- Gas and vacuum tightness

Further items to be taken up will be:

- Pollution
- Transformer fed faults
- Multiple lightning and back flashes
- Grading capacitors
- Recommendations concerning transport, storage, erection, maintenance

The long list of items, which has been gathered in the beginning of the work, will be reviewed. Based on that, the finish of the WG work will be determined.



#### **4.4 WG 13.12: Circuit-breaker controls**

The Convener P. Högg commented on his activity report 13-01 (SC) 06 IWD.

##### Membership:

Meanwhile the new established Working Group has 11 Members (see Appendix). who were all approved by the Study Committee.

From Sweden and Australia further members has been announced.

A. Bosma  
S. Jones

##### Meetings:

27. /28. Feb. 2001      Kickoff meeting in Zurich, Switzerland  
planned meeting

11. /12. Sept. 2001      Lyon, France

##### Activities:

During the kickoff-meeting (minutes of meeting 13-01 (SC) 10 IWD) the WG discussed the scope in detail. It has been realized that there are a lot of parallel activities at CIGRE (SC 23/SC 34) and at IEC. The relations and interfaces between cb-, bay- and station-control has to be clarified, especially to be discussed with WG 23.05.

By use of the WG 13.06 work and by a questionnaire a catalogue of functions of breaker control and detailed information about malfunctioning of breaker control will be worked out. Additional input concerning the malfunctions will be got from test labs.

Since there are large differences in secondary systems of the utilities examples of actual used schematics for breakers (standard, modern, intelligent) will be gathered. The possible input of digital breaker control for a bay- or substation control-system has been discussed.

The discussion within SC 13 shows the opinion, that the digital techniques will come up more and more, despite the conservative philosophies regarding the reliability requirements. The WG should point out what is really needed for the breakers for to clarify this for the electronic specialists and try to reduce this to some less standard versions of control schemes.

#### **4.5 JTF 23/13/14/21/22-16**

##### **Preparation of guidelines for collection and handling of reliability data**

Neither any contacts nor any information concerning this JTF are available in SC 13. The same situation has SC 23. They will have this topic on their agenda for the next meeting this summer.

D. Peelo gave the hint that within SC 12 there is a large data-base concerning reliability statistics from 20 years experience (gathered by CIGRE and Canadian Utilities). It may be possible that statistical results for circuit-breakers can be drawn out of this.

#### **4.6 JTF 23/34/13 Co-ordination Committee on electronic control systems**

D. Johnson reported about the progress of the Co-ordination Group 23/34/13 (Progress Report 13-01 (SC) 17 IWD).

The membership of the group reduced to one representative of each Study Committee. Communication in the group will be done mainly by electronic correspondence.

Areas of co-ordination has been find out:

- WG 13.12 activities will be reported in SC 23 and 34 for possible co-ordination needs
- WG 13.07 work is a question for co-ordination since controlled switching functionality's are sometimes included in other control devices
- WG 23.05 "Secondary Systems" has possible overlap with WG 13.12
- New activities in SC 23 concerning "Interfaces in Substation" will have representatives from SC 34. Any need for SC 13 was not decided.

#### **4.7 JTF 23/13/33/34/36**

##### **Withstand and test requirements for substation secondary circuits subjected to EMI**

Both Representatives from SC 13 in this JTF have not been able to attend. The Secretary gave a short report about the state of work of the JTF:

The last meeting was in March 2001 in Brussels, Belgium.

Activities and statements:

- EMC-area is already quite well covered by IEC- and CISPRES-Standards and other publications
- The number of standards is too high for efficient work
- A questionnaire has been circulated asking for experiences to several IEC-Committees, CENELEC-, CISPRES-, ANSI/IEEE and Japanese standardisation committees, Utilities
- Result will be gathered in a final document within this year.

Note of the Secretary: Further information will be found in the Minutes of Meeting (13-01 (SC) 15 IWD), received and distributed after the meeting.

#### **4.8 JTF 12/13/23.21 Electrical Environment of Transformers**

M. Glinkowski, Convenor of JTF 12/13/23.21 reported about the progress of work (see also 13-01 (SC) 02 IWD).

During the last meeting in Paris, France on March 9, 2001 the following topics has been discussed:

Electrical problems in transformers are of low probability. Risk factors indicating potential problems with electrical transients in transformers has been figured out.

Electrical problems related to transformers are rather well known in experts circles. JWG recommends that effort be directed in educating and communicating the knowledge from the experts to the industrial community.

Modeling and simulation of electrical transients is important part of identifying potential problems. Although some deficiency exists particularly in modeling of HF damping results it can be used to effectively minimize the risk of future problems.

Testing of HF transients in transformers is difficult.

Cumulative effect of aging the insulation of windings has to be recognized. Because of this cumulative effect the failures might not be easily associated with a particular root-cause.

Transformer failure statistics indicate that the failure rate related to electrical performance of transformers is higher than originally thought.

HF transients are harmful to transformers and are result of interaction in the system and are never related to one specific device or component.

BIL specification for transformer is not sufficient especially when transients are considered.

A table of contents for the 2002 Paris workshop has been presented.

#### **4.9 JTF 23.19 (JTF 23/12/22.xx)**

##### **Dynamic loading of electric power transmission equipment**

H. Peters as SC 13 Representative reported about the first activities of the JTF 23.19 (shortened numbering from before JTF 23/12/22.xx).

The JTF with Convenor P. Fletcher had its kickoff meeting in Paris, August 29, 2000 and a first working meeting in Leatherhead, UK, January 22-23, 2001. A first draft of a position paper has been worked out and discussed. For 2002 Paris Session a paper titled "Dynamic loading of transmission equipment – an overview" will be prepared for SC 23, Preferential Subject 3: Life Management of Substations. The JTF is looking for members from SC 21 and SC 39.

During the discussion a main question was pointed out: How can a system be driven harder? Current overload seems to be possible, but the maximum temperatures are a limitation due to the lost of lifetime.

#### **4.10 Advisory Group**

The Convenor I. Bonfanti send his apology not being able to attend the meeting. H.H. Schramm, member of the Advisory Group, presented the report of the Convenor about the activities (see additionally the Activity Report 13-01 (SC) 07 IWD).

##### TF 1: Out-of-phase stresses and testing

The Task Force 1 was set up in October 2000 and the work was finalized in December 2000. The work gives support to IEC 17A WG23 to finalize their Committee Draft for Voting concerned with harmonization of IEC and ANSI TRVs for high voltage circuit-breakers. The work has been positively used by IEC. The document will be distributed to SC 13 members for further comments and improvements and is proposed to be included into the publication of WG 13.11.

##### TRV in HV networks

The concern was that the material used by IEC is about 30 years old and question was weather these TRVs are still representative for actual conditions. A collection of historical material was made by H.H. Schramm to appreciate how the present status was reached to support any conclusion. The conclusion was that the Advisory Group sees no reason to propose a WG to SC 13 for reconsidering TRV values above 100 kV for the time being.

##### MVTRVs

Concerning MV TRVs, e.g. Test Circuits topology, a work will be started on request from IEC 17A, depending on the results of the New Work Item Proposal under way.

##### Transformer secondary faults

Concerning transformer secondary faults no work has been started up to now. It was decided to wait and see what comes out of IEEE, where a TF of the IEEE High voltage

circuit breaker subcommittee coordinated with the transformer committee is investigating the subject.

## **5 Liaisons and Cooperations**

### **5.1 Liaison with WG 23.02 Gas insulated substations**

D. Kopejtkova, Member of SC 23 gave an overview about the organization and activities of SC 23 and especially of WG 23.02; see document 13-01 (SC) 11 IWD.

Special announcement has been made to the next SC 23 meeting on October 22-23, 2001 in Venezuela, combined with a colloquium titled "Trends in substations technology and environmental conditions".

During the presentation discussion came up concerning the recently distributed paper "SF6 in the Electric Industry – Status 2000" (distributed within SC 13 on June 12, 2001 per e-mail titled "CIGRE paper SF6 2000"). Values of SF6-release today and for the future has been discussed controversially, since different situations are known from investigations of CAPIEL (European Committee of Switchgear Manufacturers). It was stated that a coordination is urgently necessary. Decision was made that SC 13 will give comment upon the matter to SC 23. H.-H. Schramm was asked to provide data so the chairman could write to the Chairman of SC23 with the SC13 concerns.

J.H. Brunke/  
H.H. Schramm

### **5.2 Activity of the Current Zero Club**

The Chairman K. Möller gave his apology not being able to attend. The only news from the Current Zero Club is that the Chairmanship will be taken over by Dr. Michel Barrault, Schneider Electric, France with the next meeting in September 2001.

### **5.3 Cooperation CIGRE SC 13 / CIRED**

No activities;

It was generally stated that CIRED is full in line with SC 13.

### **5.4 Cooperation CIGRE SC 13/IEEE Switchgear Committee**

D. Johnson reported about the activities of the IEEE Switchgear Committee (see 13-01 (SC) 13 IWD).

Generally, harmonization efforts with IEC continues, even accelerate. Serious discussion continues regarding IEEE adoption of IEC standards, with in-country clauses. A Task Force has been created to consider issues surrounding adoption, and which "in-country" clauses would be needed.

A new Task Force to review TRV's from transformer fed faults has been established. The Task Force is working with the IEEE Transformer Committee to gather updated transformer data first.

A first draft of a Common Clause Standard (similar to IEC 60694, titled C37.100.1) is ready for distribution to working group members. The Circuit Switcher Standard will be balloted by end of June, after inclusion of changes coming from IEC TC 17 review.

## 5.5 Cooperation CIGRE SC 13 / IEC TC 17 and SC 17A

H.-H. Schramm as Chairman of IEC TC 17 and SC 17A reported about the recent activities in TC 17/SC 17A.

The proposal to reorganize TC 17, means split according Low and High Voltage matters has been rejected. As new proposal came up to incorporate HV fuses into TC 17, since the techniques for HV and LV fuses are quite different inside of SC 32A.

According to a new numbering system the revised IEC 60056 will get the number IEC 62271-100.

The major ongoing projects are:

- A proposal concerning “Electrical Endurance” based on the survey of WG 13.08 is under discussion
- To standardize requirements for grading capacitors for circuit breakers has been just started in TC 33
- IEC 60420 “ Fuse-switch combinations” and IEC 60129 “Disconnectors” are under revision.
- The harmonization of TRV values is on a good way.
- The next new projects will be:
  - Revision of IEC 60427 “Synthetic testing” and IEC 60694 “High voltage equipment”;
  - upgrade the report IEC 61233 “Inductive currents” to a standard;
  - start discussions concerning by-pass circuit breaker and equipment with combined functions;
  - review standards on seismic testing and calculation, based on IEEE 693.

A JWG from IEEE and IEC was proposed to revise IEEE 693. Since 58 members are already from US the JWG cannot act as international group. The Chairman will ask the Substation Committee for to establish rules for international groups.

Chairman

## 6. Further areas of activity

- Survey on reliability of circuit breaker and disconnecter

To start a new survey on the reliability of circuit breaker and disconnecter was decided after discussion by correspondence before and during the meeting. The task will be taken over by a new working group under the convenership of C.E. Sölver, ABB, Sweden.

The SC agreed upon that the survey should include all techniques (gas-insulated, open-air) and will be as far as possible coordinated with the GIS-reliability survey of SC 23. The coordination and possible combination of the SC 13 survey with the SC 23 survey will be strongly dependant on the new organization of CIGRE SC’s. To extend the scope of the new working group may be necessary after establishment of the new organization.

The survey is scheduled to start in 2003. The Chairman and Convener will work out the scope of the new working group.

Chairman

All participants has been asked to think about the nomination of experts. D. Kopejtkova already offered her membership in the new WG.

All

- Asset management

Based on the e-mail correspondence before the meeting it was commonly agreed not to establish an own working group within SC 13 but to join the work of SC 23. As representatives S. Jones offered his support as correspondence member. Additionally a full member as SC 13 representative will be nominated by P. Högg.

P. Högg  
Secretary

- SC 13 web side

The responsibility for to take care of the SC 13 web side has been kindly taken over by the Institute of K. Fröhlich of ETH-Zürich / Swiss Federal Institute of Technology. Web master will be Mike Chapman, a student of this institute.

The structure of the web page will contain links to WG-areas, in which the Conveners can place their Scopes and papers. The web pages can be used for electronic communication.

- CIGRE web page

Concerning the CIGRE CO-web page several members complain the procedure to enter the web-page areas where a password is necessary. It is nearly impossible to enter the pages by use of the e-mail addresses, because the personal addresses are changing relatively often. Requests for help seem to be ignored by the web personal. The web entrance should be more comfortable for possible users, otherwise the use of the web makes no sense. The Chairman will write to the CO and ask for improvements.

Chairman

- Advisory Group on SC 13 restructure for a new organization of CIGRE SCs

For the probably coming new organization of SCs an Advisory Group will be established to discuss and organize the upcoming questions and activities. Beside Chairman and Secretary the following has been kindly offered their support: K. Fröhlich, H.-H. Schramm and M. Waldron.

- Advisory Group on Tutorials

According the TC advice to be more active in Tutorials an Advisory Group has been nominated, to coordinate appropriate activities for to carry out Tutorials. Most work of this group will be done by correspondence via e-mail. After offering their support the following has been nominated: D. Peelo as Convener, A. Bosma, M. Runde and R.P.P. Smeets from KEMA, Netherlands.

- System aspects of current limiting devices

For system planing today there is a high need of fault current limiting devices. Since the circuit currents have increased in many areas a lot of questions came up like which methods are appropriate for current limitation and what is the network behavior by use of certain techniques. It was proposed to establish a Joint Working Group to work out the questions: Actual status of existing limiters, further development, system decisions, FCL-technologies and economics.

Within the work of WG 13.10 most of this topics are already covered. Problem is that the input is rather low at the moment, especially from US and Japan, although there seems to

be a high demand. Also the response from other SCs was very low (see topic 3 “TC-meeting”). To establish a JWG is therefore not the appropriate measure.

D. Johnson offered his support by opening the discussion in the IEEE Switchgear Committee; possibly by to have an Informative Session.

D.Johnson

Further support will be to have the matter of system demands for FCL as a Preferential Subject for the CIGRE Session 2004.

It was decided for to have a result as fast as possible to extend the scope of WG 13.10 and to establish a Task Force titled “Increasing short-circuit currents” within WG 13.10. Aim of the TF should be to deliver a 6-page ELECTRA-paper within 1,5 years. Convenor of the Task Force will be H. Schmitt.

H. Schmitt

A call for experts will be distributed soon to all SC 13 members and relevant parties (SC 23, SC 33) to ask their National Committees for nominations.

Secretary

- Measurement of SF6 loss

In addition to the discussion of the SC 23 paper “SF6 Study 2000” the questions came up “How is the actual handling with SF6 ?” and “How to measure correct ?” It was agreed that this matters has to be investigated by WG 23.01 in cooperation with CAPIEL.

- Preferential Subjects 2004

Until latest to the meeting 2002 the Preferential Subject for the 2004 Session has to be fixed. The Chairman will ask by e-mail for suggestions.

Chairman

Resulting out of this meeting a first subject will be:  
- System aspects of Fault Current Limiters

## **7 CIGRE-Session Paris 2002**

The tentative Time-Tables of 2002 CIGRE Session showed some conflicts in interesting areas (SC 13 and SC 23 on the same day).

On request of the Chairman this is meanwhile settled. According the final time-table the SC 13 Session will be held on Friday, August 30, 2002 (see Appendix B). The SC 13 meeting should be on Tuesday or Wednesday.

- Special Reporter; Session Secretary

A. Janssen agreed to act as Special Reporter.

A. Giboulet will be asked for to act again as Session Secretary.

Secretary

## **8 Colloquium 2003 in Sarajevo**

M. Kapetanovic presented the work of the Organization Committee (M. Kapetanovic, K. Fröhlich, D. Peelo, W. Lanz) preparing the planned Colloquium 2003 in Sarajevo. A draft of the flyer “Call for Papers and Program” was distributed and discussed. The draft was generally approved by SC 13. As discussions and suggestions the following was mentioned:

- organizational correspondence should be done via CIGRE-Paris, as planned;
- as additional Preferential Subject “Increased currents and FCL” can be included:

- due to the short time margins of the deadlines it can be asked to papers directly, without synopses before.

A generous sponsorship will be important for to have a successful Colloquium !

For the planning of a Tutorial beside the Colloquium and SC 13 meeting the organizers will get in touch with the new established Advisory Group on Tutorials. M.Kapetanovic  
D.Peelo

## **9 Next Study Committee Meeting 2002**

The next Study Committee meeting will be held in the week of Paris-Session, August 26-30, 2002; possible day will be Tuesday, second possibility is Wednesday.

## **10 Miscellaneous**

Concerning the low participation of some Members in SC 13 activities (no attendance, no responses) the Chairman will take action like directly ask the candidates and NCs for a statement and ask CIGRE Central Office for to change membership-status depending on the response. Chairman

J.F. Amon gave a brief report about a Technical Colloquium on Switching Equipment organized by the National Committee in Rio, Brazil on April 24-25, 2001. A lot of experience has been discussed and exchanged among the 45 participants from mainly Utilities and Universities. Information and papers can be found in the web (<http://w3.to/brce13>) which can be entered without password.

The Chairman closed the meeting, thanked all for participating and thanked KEMA for the hospitality and especially A. Janssen for the perfect organization of the meeting in Arnhem.



- Appendix A: List of SC 13 Documents since last meeting**
- Appendix B: Session 2002 Time-Table**
- Appendix C: Members of SC and WG's**



## **CIGRE SC 13**

### **List of documents since SC 13 Meeting 2000**

13-00 (SC) 26	SC 13 Minutes of Meeting August 29 <sup>th</sup> , 2000 in Paris, France
13-00 (SC) 27 IWD	WG 13.10: Minutes of Meeting August 30, 2000 in Paris, France
13-00 (SC) 28 IWD	WG 13.07: Minutes of Meeting September 28 - 29, 2000 in Osaka, Japan
13-00 (SC) 29 IWD	Establishing of the Advisory Group (AG 13.01)
13-01 (SC) 01 IWD	JTF 23/13/33/34/36: Minutes of Meeting December 06/07, 2000 in Heiligenhaus, Germany
13-01 (SC) 02 IWD	JWG 12/13/23.21 Minutes of Meeting March 09, 2001 in Paris, France
13-01 (SC) 03 IWD	Activity report of WG 13.07
13-01 (SC) 04 IWD	Activity report of WG 13.10
13-01 (SC) 05 IWD	Activity report of WG 13.11
13-01 (SC) 06 IWD	Activity report of WG 13.12
13-01 (SC) 07 IWD	Activity report of Advisory Group 01
13-01 (SC) 08 IWD	WG 13.10: Minutes of Meeting No. 10 March 19 and 20, 2001 in Eindhoven, Netherlands
13-01 (SC) 09 IWD	WG 13.07: Minutes of Meeting No. 12 April 3 and 4, 2001 in Berlin, Germany
13-01 (SC) 10 IWD	WG 13.12: Minutes of Meeting February 27/28, 2001 in Zurich, Switzerland
13-01 (SC) 11 IWD	Overview of SC 23 "Substations" WGs activities in 2000 to 2001

13-01 (SC) 12 IWD	Progress Report of Co-operation Group 23/34/13 October 2000 to 2001
13-01 (SC) 13 IWD	SC 13 - IEEE SWG Issues, June 21, 2001
<b>13-01 (SC) 14</b>	SC 13 Minutes of Meeting June 21/22, 2001 in Arnhem, The Netherlands
13-01 (SC) 15 IWD	JTF 23/13/33/34/36: Minutes of Meeting March 29/30,2001 in Brussels, Belgium
13-01 (SC) 16 IWD	JTF 23/12/13/21/22-16: Draft of Final Report "Guidelines for collection and handling of reliability data"

from Secretary General, dated 25/06/2001

## 2002 CIGRE SESSION

### TIME-TABLE

	Monday 26/08	Tuesday 27/08	Wednesday 28/08	Thursday 29/08	Friday 30/08
A.M .	Electricity Liberalisation (California crisis...)	SC 12	EPEE	SC 39	SC 38
		SC 37	SC35	SC 21	SC 22
		SC 33	SC 23	SC 36	SC 14
		SC 15	SC 11	SC 34	<b>SC 13</b>
P.M .	General Assembly	W 12*	Large Disturbances	SC 39	SC 38
		SC 37	SC 35	SC 21	SC 22
	Presentation Future activities	SC33	SC 23	SC 36	SC 14
		P 15*	SC 11	SC 34	<b>SC 13</b>

- W 12, SC 33 and P 15 can be partly devoted to the SC Group Meeting (SC Chairman's decision)

Note: As Joint Sessions have been dropped, the relevant papers will be taken up in Group Discussion Meetings as per decision of the SC Chairmen concerned.



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**Working Group 13.11**  
**Application Guide for IEC 60056 and 60694**

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