

CIGRE and the ICC

A Brief White Paper on the IEEE Insulated Conductors Committee (ICC) What it is, what it does, and how it relates to CIGRE SC B1 “Insulated Cables”

1. What is the ICC?

ICC stands for Insulated Conductors Committee. The ICC is a committee within the Power Engineering Society of the Institute of Electrical and Electronics Engineers (IEEE). The IEEE is one of the world’s largest professional organizations. The ICC consists of four subcommittees dealing with the design, manufacture, installation, operation, testing and maintenance of insulated cable systems.

The mission of the ICC is:

“To continuously improve the fundamental technological understanding, practical application, and safe use of conductors having applied insulation or coverings”

The mission is achieved by active participation in the following activities:

- Development, review, and publication of IEEE technical standards and guides.
- Development and support of educational services.
- Exchange of information with other members and guests at ICC functions.

The ICC management consists of a Chair, a Vice- Chair, support staff, and Subcommittee Chairs. The ICC holds two meetings a year, almost always held in the US. Many cable experts from outside the US also attend the meetings.

2. What does the ICC cover?

The standards development process is the backbone of the ICC. There are over 40 working and discussion groups active in the ICC concerned with a wide range of topics including power cables standards, submarine cables, fiber optics, cleaning solvents for electrical cables, ampacity tables, soil thermal stability, testing and diagnostics, magnetic fields and many other relevant topics.

The ICC also plays an important role in promoting and facilitating the exchange of world-wide information on power cables, of all voltage ranges, including design, manufacture, installation, testing, diagnostics, maintenance and operation.

There are four technical subcommittees and two special programs. During these meetings, presentations are given on a variety of subjects. Spontaneous discussions often occur and are encouraged.

- **Subcommittee A: Cable Construction and Design:** Covers issues related to materials, construction, design and manufacturing of cables.
- **Subcommittee B: Accessories:** Covers issues related to testing, construction and design of cable terminations and joints
- **Subcommittee C: Cable Systems:** Covers issues related to testing, assembly and operation of cable systems.
- **Subcommittee D: Station, Control and Utilization Cables:** Covers issues related to testing, assembly, operation and construction of cable systems not normally employed on transmission and distribution systems. This includes station cables, control cables, fiber optic cables, etc.
- **Transnational Program:** Covers short presentations on international topics, usually new installations abroad, at the so-called Transnational Luncheon.
- **Educational Program:** Covers presentations in the framework of a broad educational subject such as diagnostics, testing methods etc., often followed by a panel discussion.

3. What is produced?

After every ICC meeting, comprehensive minutes are produced, including all presentations given during the ICC meeting. The Working Groups within ICC also produce standards and guides that are published by the IEEE. The knowledge, experience and commitment of its participants, working groups and discussion groups have made the ICC, since its establishment in 1946, an internationally recognized forum on all technical matters related to power cables. The ICC works to maintain and enhance its role as the leading open organization on power cables.

4. What are the present activities?

The present working groups and discussion groups address a range of subjects, such as:

- Characteristics of semi-conductive shields
- VLF testing in the field
- Accelerated ageing
- Partial Discharge Testing in the field
- Special bonding of cables
- Magnetic field of underground cables
- Smoke, toxicity and products of cable combustion
- Temperature monitoring and dynamic rating of cable systems
- Definition of tree retardant Cross-linked polyethylene
- Installing and operating cables in pipe lines

- Hot spot mitigation
- Installation of cables using trenchless techniques
- Characteristics of EPR cables
- Guide for the investigation & analysis of cable, joint and termination failures
- AC cable systems 60 kV and above
- Planning, design and installation of a transmission overhead/underground terminal
- Medium voltage underground cable reliability
- Cable neutral corrosion

5. Relationship with CIGRE SC B1 HV CABLES

The ICC has had a liaison with CIGRE SC B1 since 2000. Although CIGRE SCB1 focuses on HV issues and the ICC covers all voltage classes, many subjects of common interest are apparent. In a joint taskforce, issues of common interest are being discussed and new ideas are developed to stimulate future cooperation.

6. ICC Membership

The ICC meetings are open to all registered attendees. However, to become a member of the ICC, an individual must be a member of the IEEE and the related Power Engineering Society. To become a voting ICC member, there are several additional requirements.

Study Committee B1 members who are also members of the ICC include:

Pierre Argaut	French member of Study Committee B1, pierre.argaut@sagem.com
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Prepared by the JTF SCB1/ICC
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