

Cigré Study Committee SC B3 Substations

Prepared

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Chairman SC B3*



***IEEE Substation Committee
Annual Meeting
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SC B3 Profile

- **Fields of Activity :**

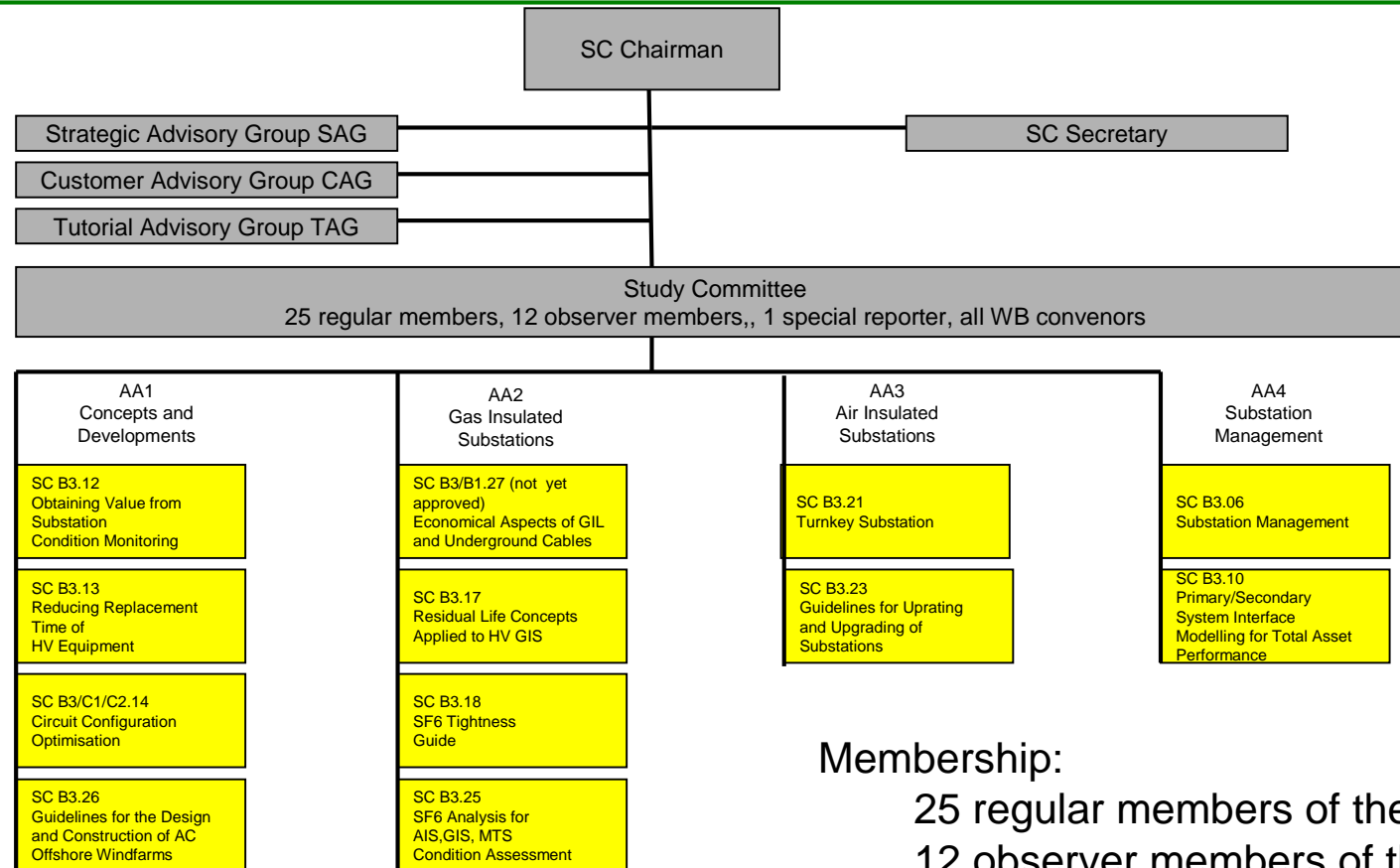
Design, construction, maintenance and ongoing management of substations and electrical installations in power stations, excluding generators

- **Working bodies:**

- 12 working groups
- 3 advisory groups



SC B3 Organsiation



Membership:

25 regular members of the SC
 12 observer members of the SC
 > 260 active working group members



SC B3 Main Technical Directions

- T1: New substation concepts
- T2: Substation management issues
- T3: Life cycle management and maintenance
- T4: Impact of new communication standards and smart grids on existing and new substations



SC B3 Co-operation

- Cooperation with other international organisations:
 - IEC
 - IEEE
 - CIRED

Advisory Areas

➤ **AA1 Concepts and Developments:**

- SC B3.12: Obtaining value from substation condition monitoring
- SC B3.13: Reducing replacement time of high voltage equipment
- SC B3/C1/C2.14. Circuit configuration optimisation
- SC B3.26: Guidelines for the design and construction of AC offshore wind farms



Advisory Areas

➤ **AA2 Gas Insulated Substations:**

- SC B3.17: Residual life concepts applied to HV GIS
- SC B3.18: SF₆ tightness guide
- SC B3.25: SF₆ analysis for AIS, GIS and MTS condition assessment
- SC JWG B3/B1.27: Economical aspects of GIL and underground cables (not yet approved)



Advisory Areas

➤ **AA3 Air Insulated Substations:**

- SC B3.21: Turn key substations
- SC B3.23: Guidelines for uprating and upgrading of substations

➤ **AA4 Substation Management:**

- SC B3.06: Substation management
- SC B3.10: Primary/Secondary system interface modeling for total asset performance



Brochures

- WG B3.15: “Guidelines to cost reduction of air insulated substations” *ELECTRA August 2008*
- WG B3/B1.09: “Application of long capacity gas insulated lines in structures” *ELECTRA October 2008*
- WG B3.01: “The impact of new functionalities on substation design” *ELECTRA June 2009*
- WG B3.11: “Combining innovation with standardisation” *ELECTRA August 2009*



Brochures

- WG B3.17: “GIS – State of the art 2008” (final brochure will follow) *ELECTRA June 2009*
- WG B3.18: “SF6 Tightness Guide” (draft available, will be published in 2010)
- WG B3.20: “Evaluation of different switchgear technologies (AIS, MTS, GIS) for rated voltages of 52 kV and above” *ELECTRA August 2009*
- WG B3.22 “Technical requirements for substations exceeding 800kV” *ELECTRA December 2009*



Main Activities

- Preparation of the next SC B3 Session 2010 in Paris August 23-27, 2010
 - SC B3 Poster Session on August 24, 2010
 - SC B3 Meeting on August 25, 2010
 - SC B3 Session on August 27, 2010
- Update of the Strategic Plan 2005-2014
- Update of the Action Plan 2010-2012
- Starting preparation of the SC B3 Session 2012 in Paris August 27-31, 2012



SC B3 Meetings

- SC B3 SAG/CAG/TAG Meeting on May 7-8, 2009 in Ljubljana/ Slovenia
- SC B3 Meeting on August 21, 2009 in Capetown South Africa
- SC B3 SAG/CAG/TAG Meeting on November 2-3, 2009 in Arnhem/ Netherlands
- SC B3 SAG/CAG/TAG Meeting on May 5-6, 2010, in Baden/Switzerland
- SC B3 Meeting on August 25, 2010 in Paris
- SC B3 Meeting on May 18, 2011 in Chicago (together with IEEE)



Conferences/Colloquia

- 6th Southern Africa Regional Conference 2009 on August 17-21, 2009 in Cape Town, South Africa combined with the Cigré SC A2/A3/B3 Colloquium and Tutorial on August 17 and 20, 2009 and the 46th SC B3 Meeting on August 21, 2009
- Regional Cigré Conference “HV Substations – Challenges 2010” in Melbourne/ Australia on March 18-20, 2010
- Joint IEEE/CIGRE Colloquium, Tutorial and Meeting in Chicago/USA on May 15-19, 2011



Conclusion

- The challenges in the power grids now and in the future will have an impact on the substations. It is the key role of SC B3 to work on proposals and solutions to cope with these challenges and changes.
- Many activities are running in the SC B3 to handle all the aspects of engineering, construction and operation of existing and future substations
- Cigré members have a wide range of knowledge and expertise. It is the clear goal to offer it to everybody involved in substation projects and management, in particular to young engineers



Thank you for your attention!

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AP B3 High Voltage Substations – Challenges 2010