

Studienkomitee B4

SC-B4

Alexander Gaun
Coil Innovation GmbH

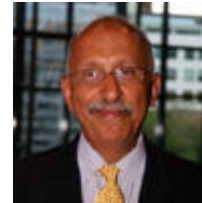


HVDC and Power Electronics Scope

- HVDC Systeme und Leistungselektronik für AC (FACTS) Anwendungen
- Mitglieder aus Industrie, Netzbetreiber, Wissenschaft und Beratungsfirmen
- Die Zielgruppe umfasst Ingenieure in der Stromversorgung, Industrie, Normungsgremien, Investoren und Aufsichtsbehörden
- Unvoreingenommene und ausgewogene Dokumente über wirtschaftliche, technische und Ökologische Fragestellungen im Verantwortungsbereich
- Die Arbeit des Studienkomitees inkludiert die Analyse von Betriebserfahrungen mit bestehenden Übertragungssystemen sowie die Planung, Entwicklung, Prüfung und Betriebsaspekte neuer Projekte

SC-B4 Überblick

- **Chairman: Bjarne Andersen**
new Chair: Mohammed Rashwan



- **Secretary: Stig Nilsson**
new Secretary: Jingxuan (Joanne) Hu



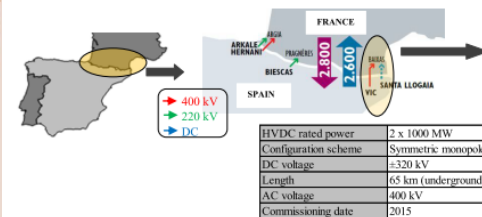
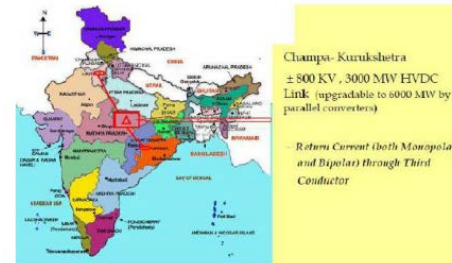
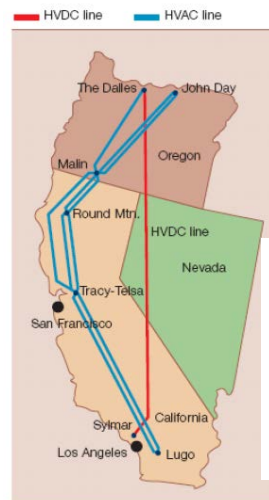
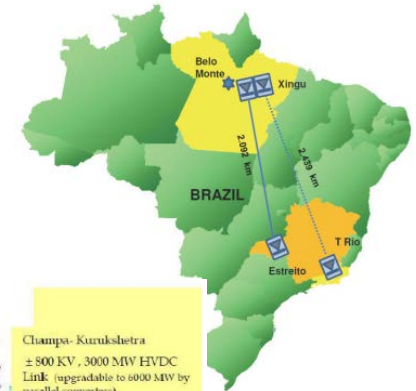
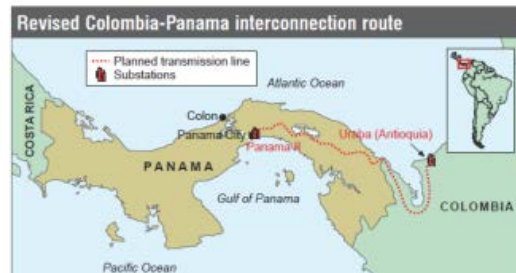
- **24 SC Regular Members**
- **13 SC Observer Members**
- **Teilnehmer am SC B4 Meeting 29.08.2014: 87**
- **4 Advisory Groups (Strategic, DC Grid, Communication and System Performance)**
- **Publikationen 2014**
 - ◆ REF. 590 2014 B4-04 Protocol for reporting the operational performance of HVDC Transmission Systems
 - ◆ REF. 604 2014 B4-57 Guide for the Development of Models for HVDC Converters in a HVDC Grid
 - ◆ Electra 274 June 2014: Annual Report B4 HVDC
 - ◆ Electra 275 August 2014: Cigre Position Paper „The Path towards HVDC Grids“

- **Working Groups: 17; Joint Working Groups: 3 (A3, C1, C4)**
- **2014 neu beschlossen:**
 - ◆ JWG C4/B4.38: Network Modelling for Harmonic Studies (Convenor Zia Emin) (Start November 2014)
 - ◆ WG B4.66: Implications for harmonics and filtering of the staggered installation of HVDC converter stations in proximate locations (Convenor: Fernando Cattán Jusan) (Start: Oktober 2014)
 - ◆ WG B4.67: Harmonic aspects of VSC HVDC, and appropriate harmonic limits (Convenor Nigel Shore) (Start: Oktober 2014)
 - ◆ WG B4.68: Revision of Technical Brochure 92 – DC Harmonics and Filtering (Convenor: Nigel Shore) (Start: Oktober 2014)
 - ◆ WG B4.69: Minimizing loss of transmitted power by VSC during overhead line fault (Convenor: Dennis Woodford) (Start: Jänner 2015)
- **Geplanter Abschluss 2014/2015**
 - ◆ WG B4.62: Connection of Wind Farms to Weak AC networks (Convenor: Nalin Pahalawaththa)
 - ◆ WG B4.63: Commissioning of VSC HVDC Schemes (Convenor: Les Brand)
 - ◆ JWG B4/C1.65: Recommended voltages for HVDC grids (Convenor: Alexandre Parisot)
 - ◆ JWG A3/B4.34: Technical requirements and specifications of state-of-the-art DC switching equipment (Convenor: Christian Franck)

- **28 Beiträge zur Diskussion (~450 Besucher)**
- **25 Beiträge in der Poster Session**
 - Vorzugsthema 1: HGÜ-Systeme, Ausrüstung und Anwendungen
 - Technologische Entwicklungen inklusive HGÜ-Netze
 - Integration von erneuerbaren Energieressourcen
 - Projektplanungs-, Umwelt- und Regulator-Themen
 - Projektumsetzung und Betriebserfahrungen
 - Vorzugsthema 2: FACTS-Anlagen, Ausrüstung und Anwendungen
 - Integration von erneuerbaren Energieressourcen
 - Erhöhung der Leistungsfähigkeit von Übertragungsnetzen
 - Projektplanungs-, Umwelt- und Regulator-Themen
 - Projektumsetzung und Betriebserfahrungen
 - Vorzugsthema 3: Entwicklungen in der Leistungselektronik
 - Gleichstromschalter, Gleichstrom Lastflußregelung und Fehlerstrombegrenzungseinrichtungen
 - Neue Halbleiter Elemente und Konverter Topologien

■ Vorzugsthema 1: HGÜ-Systeme, Ausrüstung und Anwendungen

- Colombia-Panamá Verbindung
- New Zealand HVDC Pole 3 Project
- 800 kV HVDC Link Belo Monte 1
- Rio Madeira Project: Operational Experience
- 1100kV UHVDC Technology Research Work
- 800kV Champa-Kurukshetra Link
- France-Spain Eastern Interconnection
- Java-Sumatra HVDC Link
- Celilo HVDC Upgrade (USA)
- Offshore HVDC Networks
- DC Circuit Breakers in HVDC Grids



■ FACTS-Anlagen, Ausrüstung und Anwendungen (Simulationen)

- VSC Models For Project Planning Studies
- Dynamic Compensation (Statcom vs SVC): Papers und Beiträge

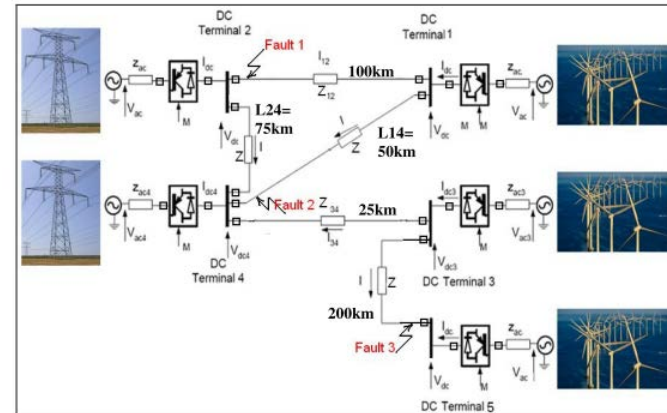


(Factory and Commissioning Tests)

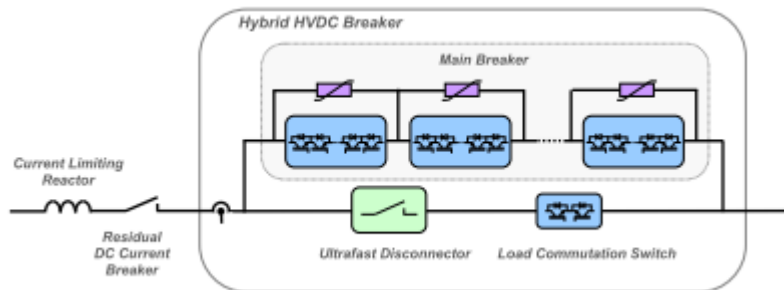
- Control Methods for VSI

■ Entwicklungen in der Leistungselektronik

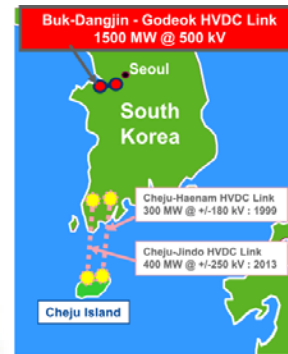
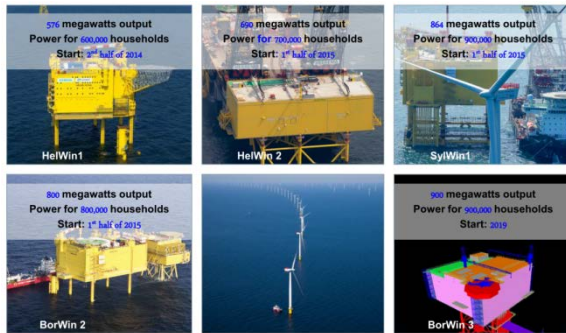
- 120 kV Direct current circuit breaker (Alstom und RTE)



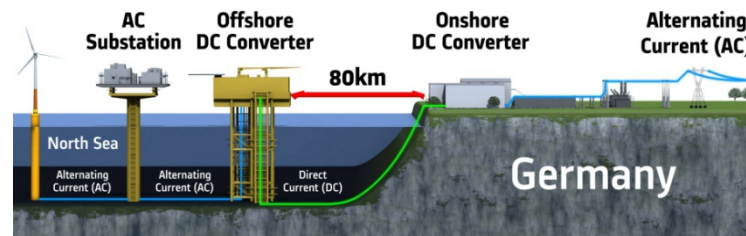
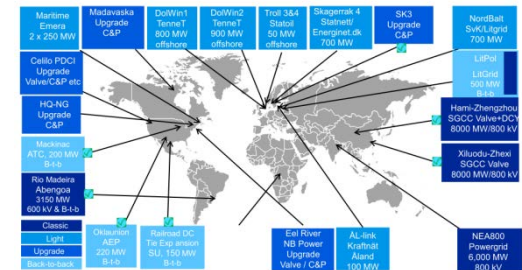
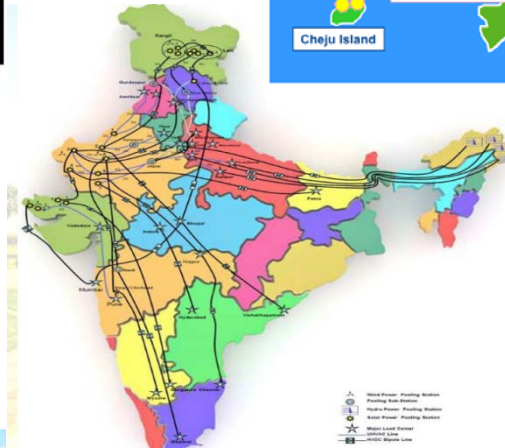
- Hybrid HVDC breaker (ABB)



SC Projects HVDC & FACTS (new and ongoing)

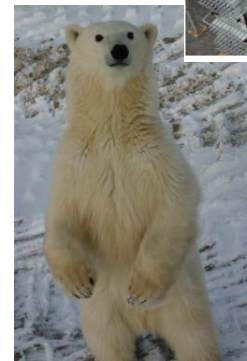
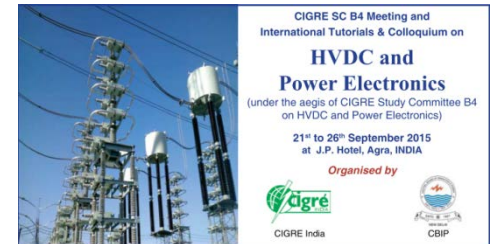


Black Sea BIB - provides grid enhancement and green energy export from Georgia to Turkey



Termine 1

- "Cigré International Symposium" von 27.05.-28.05.2015 in Lund/Schweden
- "Cigré Tutorials, Colloquium and SC Meeting" von 21.09.-26.09. 2015 in Agra/Indien
- "Cigré HVDC Workshop" von 28.10.-29.10.2015 in Rio de Janeiro/Brasilien
- 2017 B4 Study Committee & Working Group Meetings, Winnipeg, Canada



Termine 2

■ 2016 Cigre Session

- PS 1: HVDC systems and their applications
 - Planning and implementation of HVDC projects including, need, justification, design, integration of wind generation, environmental and economic assessment.
 - Application of new technologies in HVDC, HVDC grids / Multi-terminal HVDC.
 - Refurbishment and upgrading.
 - Service and operating experience.
- PS 2: FACTS and other Power Electronic (PE) systems for transmission systems
 - Planning and implementation including, need, justification, facts devices for renewables, environmental and economic assessment.
 - Application of new technologies.
 - Refurbishment and upgrading.
 - Service and operating experience.
- PS 3: DC, FACTS and other Power Electronic (PE) systems for distribution systems
 - Applications for harvesting and integration of renewables, power quality improvements and increasing asset utilisation.
 - Service and operating experience.
 - Planning and implementation including need justification, environmental and economic assessment.
 - New concepts, designs and control algorithms.



Ende

