

Assemblea Generale CIGRE Italia 2018



# CIGRE SC B1 - Insulated cables

## Update about 2018 Paris Session and ongoing activities

Assemblea CIGRE SC B1 2018 – Roma



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For power system expertise



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**SC B1**

# Study Committee B1 at a glance

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## Composition

- A Chairman
  - A secretary
  - 24 regular members
  - 12 observer members
  - 6 additional members
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- 27 active B1 working bodies
  - 8 cooperative works with other SCs
  - approx. 500 experts' community

Mission: Renewed version available on the Web Site



### 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.

### TECHNOLOGICAL FIELD OF ACTIVITY

AC and DC insulated power cable systems for power transmission, distribution and generation connections on land and in submarine applications. Power cable systems associated with micro-grids and the integration of distributed resources.

### SCOPE

Within its technical field of activity, [Study Committee B1](#) addresses topics throughout the asset management life-cycle phases; from conception, through research, development, design, production, deployment, operation, and end-of life. At all stages, technical, safety, economic, environmental and social aspects are addressed as well as interactions with, and integration into, the evolving power system and the environment. All aspects of performance, specification, testing and the application of testing techniques are within scope, with a specific focus on the impact of changing interactions and demands due to evolution of the power system. Life cycle assessment techniques, risk management techniques, education and training are also important aspects.

Within this framework additional specific areas of attention include:

Theory, principles and concepts, functionality, technological development, design, performance and application of materials, efficiency.

Manufacturing, quality assurance, application guidance, planning, routing and location, construction, erection, installation.

Reliability, availability, dependability, maintainability and maintenance, service, condition monitoring, diagnostics, restoration, repair, loading, upgrading, uprating.

Refurbishment, re-use/re-deployment, deterioration, dismantling, disposal.



# HIGHLIGHTS from SC B1

## Strategy, Actions, Commitments

- Work of the Study Committee is aligned with the 10-year SC B1 Strategy Plan, thus with the CIGRE Strategic Plan and Technical Directions
- Annual Reports tell what has been done
- Action plan details the ongoing work and the 3-year outlook
- Quality of TBs is monitored and constantly perfected.
- The time-to-market of SC B1 production always targets to improve

# HIGHLIGHTS from SC B1

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## SC Publications (published since 2018 SC meeting)

WG number	Name of the Publication	Publication date
WG B1.41	Long Term Performance of Soil and Backfill Systems	December 2017 – TB 714 - Electra 296
WG B1.51	Fire issues for insulated cable installed in air	March 2018 – TB 720 - Electra 297 (April 2018)
WG B1.55	Recommendations for additional testing for submarine cables from 6 kV ( $U_m = 7.2$ kV) up to 60 kV ( $U_m = 72.5$ kV)	May 2018 – TB 722 - Electra 298 (June 2018)
WG B1.28	On-site Partial Discharge Assessment of HV and EHV cable systems	May 2018 – TB 728 - Electra 299 (August 2018)



# HIGHLIGHTS from SC B1

## Publication Plan for 2018/2019

WG number	Name of the Publication	Publication date
WG B1.45	Thermal monitoring of cable circuits and grid operators' use of dynamic rating systems	Expected Availability on eCigre on November 2018
WG B1.46	Conductor Connectors: Mechanical and Electrical Test	Expected Availability on eCigre on November 2018
WG B1.50	SVL and bonding systems (design, testing, operation and monitoring)	Expected Availability on eCigre on December 2018
WG B1.44	Work under induced voltages and induced currents	Expected Availability on eCigre on December 2018
WG B1.52	Fault location on land and submarine links (AC and DC)	Expected Availability on eCigre on March 2019

# Ongoing WG

## Assemblea Generale CIGRE Italia 2018



### Partecipazione Membri Italiani nei Gruppi di Lavoro CIGRE SC B1

Working Group	Title	Convener	Italian Member	Company
WG B1.38	After laying tests on AC and DC cable systems with new techniques	M. Fenger (CA)	Stefano Franchi	Prysmian
WG B1.44	Work under Induced Voltages and Induced Currents + Link Boxes	C. Bradley (UK)	Luca Guizzo	Terna
WG B1.45	Thermal Monitoring Hardware of Cable Circuits + man-machine interface.	B. Hennuy (BE)	S. Dambone Sessa (Corresponding)	Università Padova
WG B1.46	Conductor Connectors: Mechanical and Electrical Test.	M. Uzelac (US)	Dario Quaggia	Prysmian
WG B1.48	Trenchless technologies:	Eugene Bergin (IE)	Sergio Chinosi	Prysmian
JWG B1/B3.49	Standard design of a common, dry type plug-in interface for GIS and power cables up to 145 kV	Pierre Mirebeau (FR)	Paolo Boffi	Prysmian
WG B1.50	SVL and bonding systems (design, testing, operation and monitoring).	Tiebin Zhao (US)	Luigi Colla	Prysmian
WG B1.52	Fault location on land and submarine links (AC and DC).	Robert Donaghy (IE)	Tullio Sturchio	Prysmian
WG B1.54	Behavior of cable systems under large disturbances (earthquake, storm, flood, fire, landslide, climate change)	Harry Orton (CA)	Giulia Bergamo	CESI
WG B1.56	Cable ratings verification	Frank de Wild (NL)	R. Benato (Corresponding) S. Dambone Sessa (Young)	Università Padova
WG B1.57	Update of service experience of HV underground and submarine cable systems	Soren Mikkelsen (DK)	Andrea Pelizzoni	Prysmian
JWG B1/B4	XX Revision of TB 86 "Overvoltages on HVDC cables"	Marcus Saltzer (SE)	Luigi Colla	Prysmian
WG B1.58	Asset Management in MV Cables Networks	Slawomir Noske (PL)	Roberto Candela	Prysmian
WG B1.60	Maintenance of HV Cable System	Bart Mampaey (BE)	Alessandro Fossi	Terna
WG B1.61	Installation of HV Cable System	Eugene Bergin (IE)	Sergio Chinosi	Prysmian
WG B1.62	Updating of TBs for EHVDC and UHVDC Cables Systems	Stefano Franchi Bononi (IT)	Davide Pietribiasi	Prysmian
WG B1.63	Specifications for HVAC Dynamic Cables above 36 kV	Emmanuelle Laure (FR)	Enrico Consonni	Prysmian
WG B1.64	Evaluation of Losses in Armored Three Core Power Cables	Ronny Stolan (NO)	Luigi Colla	Prysmian

# NEW WG

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### Partecipazione Membri Italiani nei NUOVI Gruppi di Lavoro CIGRE SC B1

Working Group or Task Force	Title	Convener	Italian Member	Company
WG B1.65	Installation of offshore cable systems	Soren Olsen Kruger (DK)	Marco Bacchini, Riccardo Ghidoni (Young)	Prysmian
WG B1.66	Recommendations for testing DC lapped cable systems for power transmission at a rated voltage up to and including 800 kV	Unnur Stella Gudmundsdottir (DK)	Marco Bacchini	Prysmian
WG B1.67	Loading pattern on cables connected to windfarms	Volker Werle (DE)	Fabio Miante	Prysmian
WG B1.68	Condition evaluation of lifetime strategy	Jacco Smit (NL)	Mario Pagano	UNINA
WG B1.69	Recommendations for the insulation coordination on AC cable systems	Thinus Du Plessis (ZA)	Francesco Palone (Corresponding)	Terna
WG B1.70	Recommendations for the use of and the testing of optical fibers in submarine cable systems	Roman Svoma (UK)	Gaia Dell'Anna	Prysmian
WG B1.71	Guidelines for safety risk management in cable systems	Julio Lopes (BR)	Da nominare	Terna
WG B1.72	Cable rating verification (2nd part) [To be launched]	Frank de Wild (NL)		
TF B1.73	Recommendations for the use and the testing of optical fibers inland cable systems	Burgos (ES)	Paolo Maioli	Prysmian
TF B1.74	Recommendations for a performance standard of insulated busbars	Pierre Mirebeau (FR)	Not necessary for Italy	

# Group Discussion Meeting SC B1 2018

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- 3 Preferential Subjects, 41 papers, 15 questions in the Special Report
- Special Reporter has been Hideo Tanaka supported in the preparation by Takenori Nakajima and Yukihiro Yagi as Contributing Experts
- 46 prepared contributions and from 14 Countries have been received and proposed during the meeting
- 52 spontaneous contributions were made during the meeting, including 9 by young engineers and 5 by women engineers
- 2 invited contributions have been also included in the program:
  - ✓ One from SC D1 about corrosion
  - ✓ One from Global YM showcase, from Russia





## CIGRE patent policy

« CIGRE publications including brochures are non-binding: their objective is to ensure dissemination of information and understanding on a worldwide basis.

These documents in respect of their use and applications need to be accessible to everybody.

It follows therefore, that a patent embodied fully or partly in a CIGRE publication must be accessible to everybody without undue constraints. To meet this requirement in general is the sole objective of the code of practice. The detailed arrangements arising from patents (licensing, royalties, etc.) are left to the parties concerned, as these arrangements might differ from case to case. »

# Preferential Subjects Paris 2020 – SC B1

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- **PS 1 : Cables for future power systems**
  - ✓ Innovative cables and systems
  - ✓ Prospective impacts on cable life-cycle from use and implementation of Big Data and Industry 4.0
  - ✓ New functionalities expected from cable systems
  
- **PS 2: Recent experiences with existing cable systems**
  - ✓ Design, manufacturing, installation techniques and operation
  - ✓ Advances in testing, including failure location, and relevant experience
  - ✓ Lessons learnt from permitting, consent and implementation
  
- **PS 3: Environment, asset management and resiliency of cable systems**
  - ✓ Environmental challenges in current, planned and future cable systems
  - ✓ Quality, monitoring, condition assessment, diagnostic testing, upgrading methodologies and relevant management
  - ✓ Safety considerations, cyber and physical security and IoT and including case studies



# Thank you

