

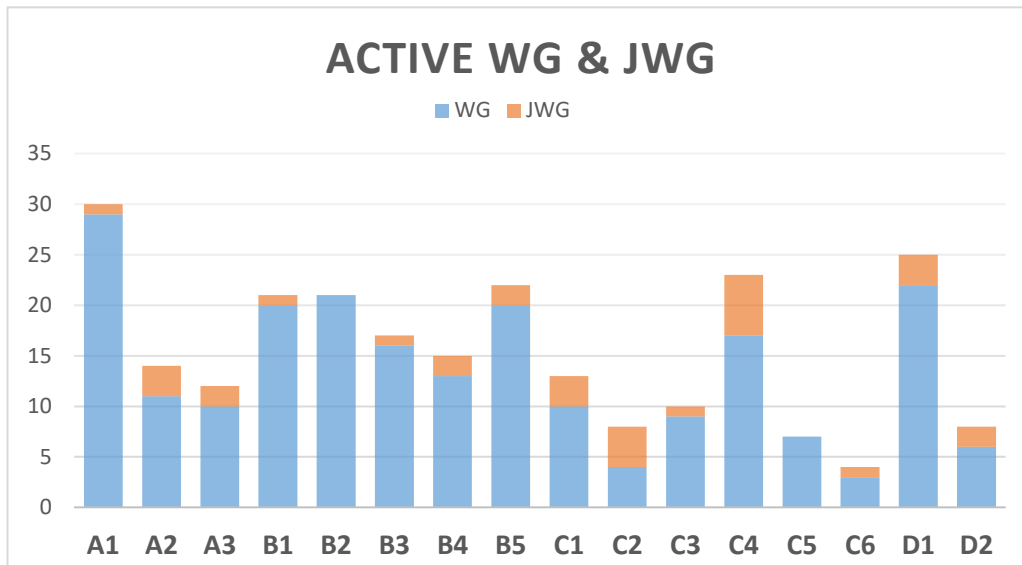
## STUDY COMMITTEES

- A1 Rotating Electrical Machines**
- A2 Transformers**
- A3 High Voltage Equipment**
- B1 Insulated Cables**
- B2 Overhead lines**
- B3 Substations**
- B4 HVDC and Power Electronic**
- B5 Protection and Automation**
- C1 System Development and Economics**
- C2 System Operation and Control**
- C3 System Environmental Performance**
- C4 System Technical Performance**
- C5 Electricity Markets and Regulation**
- C6 Distribution Systems and Dispersed Generation**
- D1 Materials and Emerging Test Techniques**
- D2 Information Systems and Telecommunications**

# Statistics of CIGRE Working Groups

250 active Working Groups (WG or JWG)

Last update : 30 April 2018

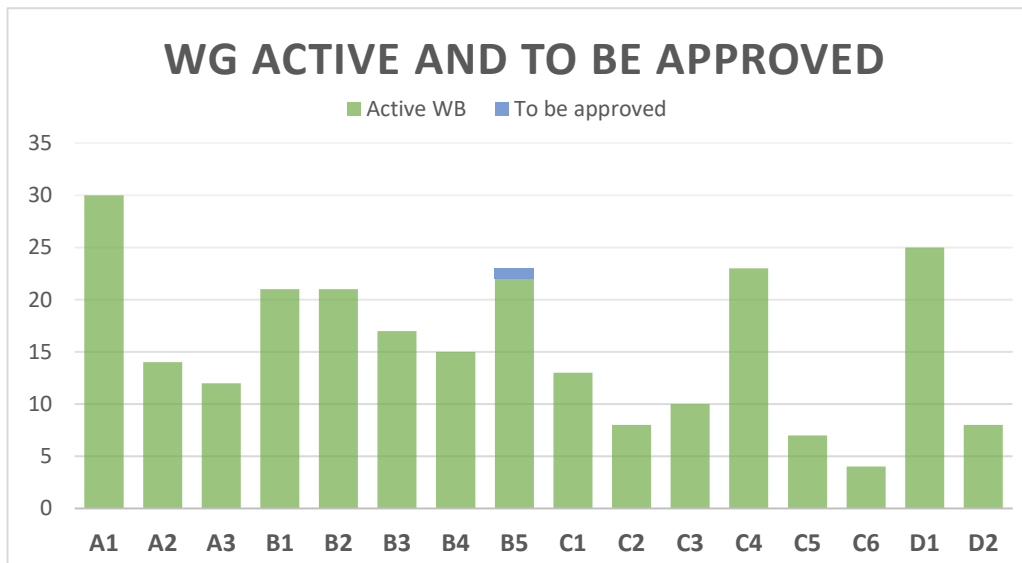


This document presents the updated lists of active Working Groups (WG) in each of the 16 Study Committees (SC).

Each Study Committee list gives:

- The type (Working Group or Joint Working Group)
- The title of the WG
- The name and country of the WG Convener
- The date of approval of the WG by the Technical Committee Chairman.

The detailed Terms of Reference (TOR) of the WG can be downloaded from the links provided on the page following each Study Committee list page.



# CIGRE WORKING GROUPS LISTS

## SC A1 Rotating Electrical Machines

Last update : 30 April 2018

	Type	Number	Title	Name of convener	Date of approval
1	WG	A1-62	Thrust Bearings for Hydropower - A Survey of Known Problems and Root Causes	Fritz Neumayer (AT)	18/04/2018
2	WG	A1-63	Turbo Generator Stator Winding Bushings and Lead Connections – Field Experience, Failures and Design Improvements	Juergen_R. Weidner (DE)	23/04/2018
3	WG	A1-61	Survey of Partial Discharge Monitoring in Large Motors	André Tomaz de Carvalho (BR)	26/05/2017
4	WG	A1-60	Guide on economic evaluation for refurbishment or replacement decisions on hydro generators	Mark Bruintjies (ZA)	26/06/2017
5	WG	A1-59	Survey on Industry Practices and Effects associated with the Cutting Out of Stator Coils in Hydrogenerators	Charles Millet (CA)	09/02/2017
6	WG	A1-58	Selection of Copper Versus Aluminium Rotors for Induction Motors	Fredemar Rünco (BR)	29/06/2016
7	WG	A1-57	The Visual Inspection of Stator Windings and Cores of Large Turbo Generators	Fred CLAASSENS (ZA)	29/04/2016
8	WG	A1-56	Survey on Lap and Wave Windings and their Consequences on Maintenance and Performance	Richard PERERS (SE)	12/01/2016
9	WG	A1-55	Survey on Split Core Stators	Sun YUTIAN (CN)	12/01/2015
10	WG	A1-54	Impact of Flexible Operation on Large Motors	John DOYLE (IE)	27/09/2015
11	WG	A1-53	Guide on Design Requirements of Motors for Variable Speed Drive Application	A.K. GUPTA (IN)	04/06/2015
12	JWG	A1/C4-52	Wind generators and frequency-active power control of power systems	Nicholas MILLER (US)	15/04/2015
13	WG	A1-51	Monitoring, Reliability & Availability of Wind Generators	D. McMillan (GB)	06/02/2015
14	WG	A1-50	Factory Quality Assurance Testing Requirements for Turbo-generator Components.	Sergio RODRIGUEZ (ES)	09/01/2015
15	WG	A1-49	Magnetic core dimensioning limits in Hydro-Generators	Johnny Rocha (BR)	21/11/2014
16	WG	A1-48	Guidance on the Requirements for High Speed Balancing / Overspeed Testing of Turbine Generator Rotors Following Maintenance or Repair	Ben Adams (GB)	03/11/2014
17	WG	A1-47	Technological Feasibility Studies for Super (IE4) and Ultra (IE5) Premium Efficient Motors	Dohyun Kang (KR)	03/11/2014
18	WG	A1-46	Guide on Use of Premium Efficiency IE3 (IEC 60034-30) Motors & Determining Benefits of Green House Gas Emission Reduction	D-K. CHATURVEDI (IN)	24/08/2014
19	WG	A1-45	Guide for Determining the Health Index of Large Electric Motors	Phumlani Khumalo (ZA)	15/07/2014
20	WG	A1-44	Guideline on Testing of Turbo and Hydrogenerators	Dave Tarrant (ZA)	20/12/2013
21	WG	A1-43	State of the art of rotor temperature measurement	Ante Elez (HR)	21/11/2013
22	WG	A1-42	Influence of Key Requirements to Optimise the Value of Hydrogenerators	Eduardo Guerra (AR)	15/08/2013
23	WG	A1-39	Application of dielectric dissipation factor measurements on new stator coils and bars	Monique Krieg-Wezelenburg (NL)	11/11/2012
24	WG	A1-37	Turbogenerator Stator Winding Support System Experience	Alberto Villarrubia (ES)	12/08/2012
25	WG	A1-34	Testing Voltage of Doubly-Fed Asynchronous Generator-Motor Rotor Windings for Pumped Storage System	Osamu Nagura (JP)	20/10/2011
26	WG	A1-33	Guide for the Proper Storage and Cleanliness of turbogenerators and their Components	Kevin Mayor (CH)	14/10/2011
27	WG	A1-32	A Survey on Small Hydro Power Plants Considering Technical and Strategic Aspects: Present Status and Future Outlooks	Alexander Gromow (BR)	09/08/2011
28	WG	A1-31	State of the art of stator winding supports in slot area and winding overhang of Hydro Generators	Franz Ramsauer (AT)	01/06/2011
29	WG	A1-29	Guide on New Generator-Grid Interaction Requirements	Luis Rouco (ES)	25/10/2010
30	WG	A1-24	Literature survey on diagnostics trends for wind generators for reliability improvement	Sameh Salem (US)	25/01/2010

# CIGRE WORKING GROUPS LISTS

## SC A1 Rotating Electrical Machines

Last update : 30 April 2018

Type	Number	Links to the Terms of Reference
1	WG A1-62	<a href="http://www.cigre.org/content/download/76399/3461904/version/1/file/TOR-WG+A1.62_Thrust+Bearings+for+Hydropower++A+Survey+of+Known+Problems+and+Root+Causes.pdf">http://www.cigre.org/content/download/76399/3461904/version/1/file/TOR-WG+A1.62_Thrust+Bearings+for+Hydropower++A+Survey+of+Known+Problems+and+Root+Causes.pdf</a>
2	WG A1-63	<a href="http://www.cigre.org/content/download/76401/3461910/version/1/file/TOR-WG+A1.63_Turbo+Generator+Stator+Winding+Bushings+and+Lead+Connections+%E2%80%93+Field+Experience%2C+Failures+and+Design+Improvements.pdf">http://www.cigre.org/content/download/76401/3461910/version/1/file/TOR-WG+A1.63_Turbo+Generator+Stator+Winding+Bushings+and+Lead+Connections+%E2%80%93+Field+Experience%2C+Failures+and+Design+Improvements.pdf</a>
3	WG A1-61	<a href="http://www.cigre.org/content/download/72686/3315983/version/1/file/TOR-WG+A1.61_Survey+of+Partial+Discharge+Monitoring+in+Large+Motors.pdf">http://www.cigre.org/content/download/72686/3315983/version/1/file/TOR-WG+A1.61_Survey+of+Partial+Discharge+Monitoring+in+Large+Motors.pdf</a>
4	WG A1-60	<a href="http://www.cigre.org/content/download/72858/3323684/version/1/file/TOR-WG+A1.60_Guide+on+economic+evaluation+for+refurbishment+or+replacement+decisions+on+hydro+generators.pdf">http://www.cigre.org/content/download/72858/3323684/version/1/file/TOR-WG+A1.60_Guide+on+economic+evaluation+for+refurbishment+or+replacement+decisions+on+hydro+generators.pdf</a>
5	WG A1-59	<a href="http://www.cigre.org/content/download/71197/3261161/version/1/file/TOR-WG+A1.59_Survey+on+Industry+Practices+and+Effects+associated+with+the+Cutting+Out+of+Stator+Coils+in+Hydrogenerators.pdf">http://www.cigre.org/content/download/71197/3261161/version/1/file/TOR-WG+A1.59_Survey+on+Industry+Practices+and+Effects+associated+with+the+Cutting+Out+of+Stator+Coils+in+Hydrogenerators.pdf</a>
6	WG A1-58	<a href="http://www.cigre.org/content/download/68084/3170814/version/1/file/TOR-WG+A1.58_Selection+of+Copper+Versus+Aluminium+Rotors+for+Induction+Motors.pdf">http://www.cigre.org/content/download/68084/3170814/version/1/file/TOR-WG+A1.58_Selection+of+Copper+Versus+Aluminium+Rotors+for+Induction+Motors.pdf</a>
7	WG A1-57	<a href="http://www.cigre.org/content/download/66721/3136194/version/1/file/TOR-WG+A1.57_The+Visual+Inspection+of+Stator+Windings+and+Cores+of+Large+Turbo+Generators.pdf">http://www.cigre.org/content/download/66721/3136194/version/1/file/TOR-WG+A1.57_The+Visual+Inspection+of+Stator+Windings+and+Cores+of+Large+Turbo+Generators.pdf</a>
8	WG A1-56	<a href="http://www.cigre.org/content/download/64897/3084331/version/1/file/TOR-WG+A1.56_Survey+on+Lap+and+Wave+Windings+and+their+Consequences+on+Maintenance+and+Performance.pdf">http://www.cigre.org/content/download/64897/3084331/version/1/file/TOR-WG+A1.56_Survey+on+Lap+and+Wave+Windings+and+their+Consequences+on+Maintenance+and+Performance.pdf</a>
9	WG A1-55	<a href="http://www.cigre.org/content/download/64896/3084328/version/1/file/TOR-WG+A1.55_Survey+on+Split+Core+Stators.pdf">http://www.cigre.org/content/download/64896/3084328/version/1/file/TOR-WG+A1.55_Survey+on+Split+Core+Stators.pdf</a>
10	WG A1-54	<a href="http://www.cigre.org/content/download/62918/2824699/version/1/file/TOR-WG+A1.54_Impact+of+Flexible+Operation+on+Large+Motors.pdf">http://www.cigre.org/content/download/62918/2824699/version/1/file/TOR-WG+A1.54_Impact+of+Flexible+Operation+on+Large+Motors.pdf</a>
11	WG A1-53	<a href="http://www.cigre.org/content/download/60662/2757240/version/1/file/TOR-WG+A1.53_Guide+on+Design+Requirements+of+Motors+for+Variable+Speed+Drive+Application.pdf">http://www.cigre.org/content/download/60662/2757240/version/1/file/TOR-WG+A1.53_Guide+on+Design+Requirements+of+Motors+for+Variable+Speed+Drive+Application.pdf</a>
12	JWG A1/C4-52	<a href="http://www.cigre.org/content/download/59641/2728865/version/1/file/TOR-JWG+A1_C4.52_Wind+generators+and+frequency+active+power+control+of+power+systems.pdf">http://www.cigre.org/content/download/59641/2728865/version/1/file/TOR-JWG+A1_C4.52_Wind+generators+and+frequency+active+power+control+of+power+systems.pdf</a>
13	WG A1-51	<a href="http://www.cigre.org/content/download/58257/2694333/version/1/file/TOR-WG+A1.51_Monitoring%2C+Reliability+%26+Availability+of+Wind+Generators.pdf">http://www.cigre.org/content/download/58257/2694333/version/1/file/TOR-WG+A1.51_Monitoring%2C+Reliability+%26+Availability+of+Wind+Generators.pdf</a>
14	WG A1-50	<a href="http://www.cigre.org/content/download/57731/2676714/version/1/file/TOR-WG+A1.50_Factory+Quality+Assurance+Testing+Requirements+for+Turbo-generator+Components.pdf">http://www.cigre.org/content/download/57731/2676714/version/1/file/TOR-WG+A1.50_Factory+Quality+Assurance+Testing+Requirements+for+Turbo-generator+Components.pdf</a>
15	WG A1-49	<a href="http://www.cigre.org/content/download/56734/2648831/version/1/file/TOR-WG+A1.49_Magnetic+core+dimensioning+limits+in+Hydro-Generators.pdf">http://www.cigre.org/content/download/56734/2648831/version/1/file/TOR-WG+A1.49_Magnetic+core+dimensioning+limits+in+Hydro-Generators.pdf</a>
16	WG A1-48	<a href="http://www.cigre.org/content/download/56329/2638715/version/1/file/TOR-WG+A1.48_Guidance+on+the+Requirements+for+High+Speed+Balancing+Overspeed+Testing+of+Turbine+Generator+Rotors+Following+Maintenance+or+Repair.pdf">http://www.cigre.org/content/download/56329/2638715/version/1/file/TOR-WG+A1.48_Guidance+on+the+Requirements+for+High+Speed+Balancing+Overspeed+Testing+of+Turbine+Generator+Rotors+Following+Maintenance+or+Repair.pdf</a>
17	WG A1-47	<a href="http://www.cigre.org/content/download/56328/2638712/version/1/file/TOR-WG+A1.47_Technological+Feasibility+Studies+for+Super+and+Ultra+Premium+Efficient+Motors.pdf">http://www.cigre.org/content/download/56328/2638712/version/1/file/TOR-WG+A1.47_Technological+Feasibility+Studies+for+Super+and+Ultra+Premium+Efficient+Motors.pdf</a>
18	WG A1-46	<a href="http://www.cigre.org/content/download/56209/2637198/version/1/file/TOR-WG+A1.46_Guide+on+Use+of+Premium+Efficiency+IE3+%28IEC+60034-30%29+Motors+%26+Determining+Benefits+of+Green+House+Gas+Emission+Reduction.pdf">http://www.cigre.org/content/download/56209/2637198/version/1/file/TOR-WG+A1.46_Guide+on+Use+of+Premium+Efficiency+IE3+%28IEC+60034-30%29+Motors+%26+Determining+Benefits+of+Green+House+Gas+Emission+Reduction.pdf</a>
19	WG A1-45	<a href="http://www.cigre.org/content/download/56204/2637183/version/1/file/TOR-WG+A1.45_Guide+for+Determining+the+Health+Index+of+Large+Electric+Motors.pdf">http://www.cigre.org/content/download/56204/2637183/version/1/file/TOR-WG+A1.45_Guide+for+Determining+the+Health+Index+of+Large+Electric+Motors.pdf</a>
20	WG A1-44	<a href="http://www.cigre.org/content/download/53557/2554658/version/1/file/TOR-WG+A1.44_Guideline_on_Testing_of_Turbo_and_Hydrogenerators.pdf">http://www.cigre.org/content/download/53557/2554658/version/1/file/TOR-WG+A1.44_Guideline_on_Testing_of_Turbo_and_Hydrogenerators.pdf</a>
21	WG A1-43	<a href="http://www.cigre.org/content/download/53556/2554655/version/1/file/TOR-WG+A1.43_State+of+the+art+of+rotor+temperature+measurement.pdf">http://www.cigre.org/content/download/53556/2554655/version/1/file/TOR-WG+A1.43_State+of+the+art+of+rotor+temperature+measurement.pdf</a>
22	WG A1-42	<a href="http://www.cigre.org/content/download/58590/2700504/version/1/file/TOR-WG+A1.42+Influence+of+Key+Requirements+to+Optimise+the+Value+of+Hydrogenerators.pdf">http://www.cigre.org/content/download/58590/2700504/version/1/file/TOR-WG+A1.42+Influence+of+Key+Requirements+to+Optimise+the+Value+of+Hydrogenerators.pdf</a>
23	WG A1-39	<a href="http://www.cigre.org/content/download/58431/2699490/version/1/file/TOR-WG+A1.39+Application+of+dielectric+dissipation+factor+measurements+on+new+stator.pdf">http://www.cigre.org/content/download/58431/2699490/version/1/file/TOR-WG+A1.39+Application+of+dielectric+dissipation+factor+measurements+on+new+stator.pdf</a>
24	WG A1-37	<a href="http://www.cigre.org/content/download/58437/2699508/version/1/file/TOR-WG+A1.37+Turbogenerator+Stator+Winding+Support+System+Experience.pdf">http://www.cigre.org/content/download/58437/2699508/version/1/file/TOR-WG+A1.37+Turbogenerator+Stator+Winding+Support+System+Experience.pdf</a>
25	WG A1-34	<a href="http://www.cigre.org/content/download/58455/2699562/version/1/file/TOR-WG+A1.34+Testing+Voltage+of+Doubly-Fed+Asynchronous+Generator+Motor+Rotor+Windings+for+Pumped+Storage+System.pdf">http://www.cigre.org/content/download/58455/2699562/version/1/file/TOR-WG+A1.34+Testing+Voltage+of+Doubly-Fed+Asynchronous+Generator+Motor+Rotor+Windings+for+Pumped+Storage+System.pdf</a>
26	WG A1-33	<a href="http://www.cigre.org/content/download/58456/2699565/version/1/file/TOR-WG+A1.33+Guide+for+the+Proper+Storage+and+Cleanliness+of+Turbogenerators.pdf">http://www.cigre.org/content/download/58456/2699565/version/1/file/TOR-WG+A1.33+Guide+for+the+Proper+Storage+and+Cleanliness+of+Turbogenerators.pdf</a>
27	WG A1-32	<a href="http://www.cigre.org/content/download/58460/2699577/version/1/file/TOR-WG+A1.32+A+Survey+on+Small+Hydro+Power+Plants+Considering+Technical+and+Strategic+Aspects.pdf">http://www.cigre.org/content/download/58460/2699577/version/1/file/TOR-WG+A1.32+A+Survey+on+Small+Hydro+Power+Plants+Considering+Technical+and+Strategic+Aspects.pdf</a>
28	WG A1-31	<a href="http://www.cigre.org/content/download/58470/2699607/version/1/file/TOR-WG+A1.31+State+of+the+art+of+stator+winding+supports+in+slot+area+and+winding+overhang.pdf">http://www.cigre.org/content/download/58470/2699607/version/1/file/TOR-WG+A1.31+State+of+the+art+of+stator+winding+supports+in+slot+area+and+winding+overhang.pdf</a>
29	WG A1-29	<a href="http://www.cigre.org/content/download/58500/2699697/version/1/file/TOR-WG+A1.29+Guide+on+New+Generator+Grid+Interaction+Requirements.pdf">http://www.cigre.org/content/download/58500/2699697/version/1/file/TOR-WG+A1.29+Guide+on+New+Generator+Grid+Interaction+Requirements.pdf</a>
30	WG A1-24	<a href="http://www.cigre.org/content/download/58527/2699778/version/1/file/TOR-WG+A1.24+Literature+survey+on+diagnostics+trends+for+wind+generators+for+reliability.pdf">http://www.cigre.org/content/download/58527/2699778/version/1/file/TOR-WG+A1.24+Literature+survey+on+diagnostics+trends+for+wind+generators+for+reliability.pdf</a>

# CIGRE WORKING GROUPS LISTS

**SC      A2      Transformers**

**Last update : 30 April 2018**

	Type	Number	Title	Name of convener	Date of approval
1	WG	A2-58	Installation and Pre-Commissioning of Transformers and Shunt Reactors	Ross Willoughby (AU)	06/02/2017
2	WG	A2-59	On-Site Assembly, On-Site Rebuild, and On-Site High Voltage Testing of Power Transformers	Yukiyasu SHIRASAKA (JP)	06/02/2017
3	WG	A2-57	Effects of DC Bias on power transformers	Dejan SUSA (NO)	29/04/2016
4	WG	A2-56	Power transformer efficiency	Zarko JANIC (DE)	08/03/2016
5	WG	A2-55	Life Extension of oil filled Transformers and Shunt Reactors	Pascal MUELLER (CH)	08/03/2016
6	WG	A2-54	Power transformer audible sound requirements	Christoph Ploetner (DE)	09/10/2015
7	WG	A2-53	Objective interpretation methodology for the mechanical condition assessment of transformer windings using FRA	Patrick Picher (CA)	09/10/2015
8	JWG	A2/C4-52	High-frequency transformer models for non-standard waveforms	Bjørn Gustavsen (NO)	26/02/2014
9	JWG	A2/D1-51	Improvement to Partial Discharge Measurements for Factory and Site Acceptance Tests of Power Transformers	Sebastian Coenen (DE)	26/02/2014
10	WG	A2-50	Effect of the distributed energy sources and consequent induced reverse power flow (step up) on transmission and distribution transformers	Jean-Christophe Riboud (FR)	18/12/2012
11	WG	A2-49	Condition Assessment of Power Transformers	Peter Cole (AU)	18/12/2012
12	JWG	A2/D1-46	Field experience with transformer solid insulating ageing markers	Ronny Mertens (BE)	21/06/2011
13	WG	A2-45	Transformer failure investigation and post-mortem analysis	Marie-Claude Lessard (CA)	21/06/2011
14	WG	A2-43	Transformer bushings reliability ( $U_m \geq 72,5$ kV)	A Mikulecky (HR)	15/06/2010

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# CIGRE WORKING GROUPS LISTS

**SC      A2      Transformers**

**Last update : 30 April 2018**

Type	Number	Links to the Terms of Reference
1	WG      A2-58	<a href="http://www.cigre.org/content/download/71132/3260333/version/1/file/TOR-WG+A2.58_Installation+and+Pre-Commissioning+of+Transformers+and+Shunt+Reactors.pdf">http://www.cigre.org/content/download/71132/3260333/version/1/file/TOR-WG+A2.58_Installation+and+Pre-Commissioning+of+Transformers+and+Shunt+Reactors.pdf</a>
2	WG      A2-59	<a href="http://www.cigre.org/content/download/71131/3260330/version/1/file/TOR-WG+A2.59_On-Site+Assembly%2C+On-Site+Rebuild%2C+and+On-Site+High+Voltage+Testing+of+Power+Transformers.pdf">http://www.cigre.org/content/download/71131/3260330/version/1/file/TOR-WG+A2.59_On-Site+Assembly%2C+On-Site+Rebuild%2C+and+On-Site+High+Voltage+Testing+of+Power+Transformers.pdf</a>
3	WG      A2-57	<a href="http://www.cigre.org/content/download/66722/3136197/version/1/file/TOR-WG+A2.57+Effects+of+DC+Bias+on+power+transformers.pdf">http://www.cigre.org/content/download/66722/3136197/version/1/file/TOR-WG+A2.57+Effects+of+DC+Bias+on+power+transformers.pdf</a>
4	WG      A2-56	<a href="http://www.cigre.org/content/download/65716/3105668/version/1/file/TOR-WG+A2.56++Power+Transformer+Efficiency.pdf">http://www.cigre.org/content/download/65716/3105668/version/1/file/TOR-WG+A2.56++Power+Transformer+Efficiency.pdf</a>
5	WG      A2-55	<a href="http://www.cigre.org/content/download/65715/3105665/version/1/file/TOR-WG+A2.55++Life+Extension+of+oil+filled+Transformers+and+Shunt+Reactors.pdf">http://www.cigre.org/content/download/65715/3105665/version/1/file/TOR-WG+A2.55++Life+Extension+of+oil+filled+Transformers+and+Shunt+Reactors.pdf</a>
6	WG      A2-54	<a href="http://www.cigre.org/content/download/63136/2827174/version/1/file/TOR-WG+A2.54_Power+transformer+audible+sound+requirements.pdf">http://www.cigre.org/content/download/63136/2827174/version/1/file/TOR-WG+A2.54_Power+transformer+audible+sound+requirements.pdf</a>
7	WG      A2-53	<a href="http://www.cigre.org/content/download/63135/2827171/version/1/file/TOR-WG+A2.53_Objective+interpretation+methodology+for+the+mechanical+condition+assessment+of+transformer+windings+using+FRA.pdf">http://www.cigre.org/content/download/63135/2827171/version/1/file/TOR-WG+A2.53_Objective+interpretation+methodology+for+the+mechanical+condition+assessment+of+transformer+windings+using+FRA.pdf</a>
8	JWG      A2/C4-52	<a href="http://www.cigre.org/content/download/53553/2554646/version/1/file/TOR-JWG+A2_C4.52+High-frequency+transformer+models+for+non+standard+waveforms.pdf">http://www.cigre.org/content/download/53553/2554646/version/1/file/TOR-JWG+A2_C4.52+High-frequency+transformer+models+for+non+standard+waveforms.pdf</a>
9	JWG      A2/D1-51	<a href="http://www.cigre.org/content/download/53554/2554649/version/1/file/TOR-JWG+A2_D1.51+-+Improvement+to+PD+measurements+for+Factory+and+Site+Acceptance+Test.pdf">http://www.cigre.org/content/download/53554/2554649/version/1/file/TOR-JWG+A2_D1.51+-+Improvement+to+PD+measurements+for+Factory+and+Site+Acceptance+Test.pdf</a>
10	WG      A2-50	<a href="http://www.cigre.org/content/download/58424/2699469/version/1/file/TOR-WG+A2.50+Effect+of+the+distributed+energy+sources+and+consequent+induced.pdf">http://www.cigre.org/content/download/58424/2699469/version/1/file/TOR-WG+A2.50+Effect+of+the+distributed+energy+sources+and+consequent+induced.pdf</a>
11	WG      A2-49	<a href="http://www.cigre.org/content/download/58423/2699466/version/1/file/TOR-WG+A2.49+Condition+Assessment+of+Power+Transformers.pdf">http://www.cigre.org/content/download/58423/2699466/version/1/file/TOR-WG+A2.49+Condition+Assessment+of+Power+Transformers.pdf</a>
12	JWG      A2/D1-46	<a href="http://www.cigre.org/content/download/58464/2699589/version/1/file/TOR-JWG+A2-D1-46+Field+experience+with+transformer+solid+insulating+ageing+markers.pdf">http://www.cigre.org/content/download/58464/2699589/version/1/file/TOR-JWG+A2-D1-46+Field+experience+with+transformer+solid+insulating+ageing+markers.pdf</a>
13	WG      A2-45	<a href="http://www.cigre.org/content/download/58465/2699592/version/1/file/TOR-WG+A2-45+Transformer+failure+investigation+and+post-mortem+analysis.pdf">http://www.cigre.org/content/download/58465/2699592/version/1/file/TOR-WG+A2-45+Transformer+failure+investigation+and+post-mortem+analysis.pdf</a>
14	WG      A2-43	<a href="http://www.cigre.org/content/download/58514/2699739/version/1/file/TOR-WG+A2.43+Transformer+bushings+reliability+%28Um+%EF%82%B3+72%2C5+kV%29.pdf">http://www.cigre.org/content/download/58514/2699739/version/1/file/TOR-WG+A2.43+Transformer+bushings+reliability+%28Um+%EF%82%B3+72%2C5+kV%29.pdf</a>
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# CIGRE WORKING GROUPS LISTS

## SC      A3      High Voltage Equipment

Last update : 30 April 2018

	Type	Number	Title	Name of convener	Date of approval
1	WG	A3-42	Failure analysis and risk mitigation for recent incidents of AIS instrument transformers	Helvio Azevedo-Martins (BR)	19/03/2018
2	WG	A3-41	Interrupting and switching performance with SF6 free switching equipment	René Smeets (NL)	01/03/2018
3	WG	A3-40	Technical requirements and field experiences with MV DC switching equipment	Christian Heinrich (DE)	01/03/2018
4	WG	A3-39	Application and field experience with Metal Oxide Surge Arresters	Robert Le_Roux (IE)	06/02/2017
5	WG	A3-38	Shunt Capacitor Switching in distribution and transmission systems : Verification by tests and performance in service	Edgar DULLINI (DE)	29/04/2016
6	JWG	A3/B5/C4-37	System conditions for and probability of Out-of-Phase	Anton Janssen (NL)	09/05/2014
7	WG	A3-36	Application and Benchmark of Multi Physic Simulations and Engineering Tools for Temperature Rise Calculation	Martin Kriegel (CH)	09/05/2014
8	WG	A3-35	Guidelines and Best Practices for the Commissioning of Controlled Switching Projects	André Mercier (CA)	14/10/2013
9	JWG	A3-32/CIRE	Non-intrusive methods for condition assessment of distribution and transmission switchgears	Nenad Uzelac (US)	01/09/2012
10	WG	A3-31	Accuracy, Calibration & Interfacing of Instrument Transformers with Digital Outputs	Farnoosh Rahmatian (CA)	25/07/2011
11	WG	A3-30	Impact of overstressing of substation equipment	Antonio Carvalho (BR)	19/08/2010
12	WG	A3-29	Deterioration of ageing substation equipment and possible mitigation techniques	Ankur MAHESHWARI (IN)	19/07/2010

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# CIGRE WORKING GROUPS LISTS

## SC      A3      High Voltage Equipment

Last update : 30 April 2018

Type	Number	Links to the Terms of Reference
1	WG      A3-42	<a href="http://www.cigre.org/content/download/75642/3428831/version/1/file/TOR-WG+A3.42_Failure+analysis+of+recent+AIS+instrument+transformer+incidents.pdf">http://www.cigre.org/content/download/75642/3428831/version/1/file/TOR-WG+A3.42_Failure+analysis+of+recent+AIS+instrument+transformer+incidents.pdf</a>
2	WG      A3-41	<a href="http://www.cigre.org/content/download/75447/3419821/version/1/file/TOR-WG+A3.41_Interrupting+and+switching+performance+with+SF6+free+switching+equipment.pdf">http://www.cigre.org/content/download/75447/3419821/version/1/file/TOR-WG+A3.41_Interrupting+and+switching+performance+with+SF6+free+switching+equipment.pdf</a>
3	WG      A3-40	<a href="http://www.cigre.org/content/download/75445/3419815/version/1/file/TOR-WG+A3.40_Technical+requirements+and+field+experiences+with+MV+DC+switching+equipment.pdf">http://www.cigre.org/content/download/75445/3419815/version/1/file/TOR-WG+A3.40_Technical+requirements+and+field+experiences+with+MV+DC+switching+equipment.pdf</a>
4	WG      A3-39	<a href="http://www.cigre.org/content/download/71129/3260314/version/1/file/TOR-WG+A3.39_Application+and+field+experience+with+Metal+Oxide+Surge+Arresters.pdf">http://www.cigre.org/content/download/71129/3260314/version/1/file/TOR-WG+A3.39_Application+and+field+experience+with+Metal+Oxide+Surge+Arresters.pdf</a>
5	WG      A3-38	<a href="http://www.cigre.org/content/download/66723/3136200/version/1/file/TOR-WG+A3.38_Shunt+Capacitor+Switching+in+distribution+and+transmission+systems-Verif+by+tests+%26+perf+in+service.pdf">http://www.cigre.org/content/download/66723/3136200/version/1/file/TOR-WG+A3.38_Shunt+Capacitor+Switching+in+distribution+and+transmission+systems-Verif+by+tests+%26+perf+in+service.pdf</a>
6	JWG     A3/B5/C4-37	<a href="http://www.cigre.org/content/download/56194/2637153/version/1/file/TOR-JWG+A3_B5_C4.37_System+conditions+for+and+probability+of+Out-of-Phase.pdf">http://www.cigre.org/content/download/56194/2637153/version/1/file/TOR-JWG+A3_B5_C4.37_System+conditions+for+and+probability+of+Out-of-Phase.pdf</a>
7	WG      A3-36	<a href="http://www.cigre.org/content/download/56193/2637150/version/1/file/TOR-WG+A3.36_Application+and+Benchmark+of+Multi+Physic+Simulations+and+Engineering+Tools+for+Temperature+Rise+Calculation.pdf">http://www.cigre.org/content/download/56193/2637150/version/1/file/TOR-WG+A3.36_Application+and+Benchmark+of+Multi+Physic+Simulations+and+Engineering+Tools+for+Temperature+Rise+Calculation.pdf</a>
8	WG      A3-35	<a href="http://www.cigre.org/content/download/53569/2555050/version/1/file/TOR-WG+A3.35_Guidelines+and+Best+Practices+for+the+Commissioning+and.pdf">http://www.cigre.org/content/download/53569/2555050/version/1/file/TOR-WG+A3.35_Guidelines+and+Best+Practices+for+the+Commissioning+and.pdf</a>
9	JWG     A3-32/CIRE	<a href="http://www.cigre.org/content/download/58937/2709503/version/1/file/TOR-JWG+C2-C5-05_updated+2012+Development+and+Changes+in+the+Business+of++System+Operators++.pdf">http://www.cigre.org/content/download/58937/2709503/version/1/file/TOR-JWG+C2-C5-05_updated+2012+Development+and+Changes+in+the+Business+of++System+Operators++.pdf</a>
10	WG      A3-31	<a href="http://www.cigre.org/content/download/58461/2699580/version/1/file/TOR-WG+A3.31+Accuracy%2C+Calibration+%26+Interfacing+of+Instrument+Transformers+with+Digital.pdf">http://www.cigre.org/content/download/58461/2699580/version/1/file/TOR-WG+A3.31+Accuracy%2C+Calibration+%26+Interfacing+of+Instrument+Transformers+with+Digital.pdf</a>
11	WG      A3-30	<a href="http://www.cigre.org/content/download/58505/2699712/version/1/file/TOR-WG+A3.30+Impact+of+overstressing+of+substation+equipment.pdf">http://www.cigre.org/content/download/58505/2699712/version/1/file/TOR-WG+A3.30+Impact+of+overstressing+of+substation+equipment.pdf</a>
12	WG      A3-29	<a href="http://www.cigre.org/content/download/58489/2699664/version/1/file/TOR-WG+A3.29_Deterioration+of+ageing+substation+equipment+and+possible+mitigation+techniques.pdf">http://www.cigre.org/content/download/58489/2699664/version/1/file/TOR-WG+A3.29_Deterioration+of+ageing+substation+equipment+and+possible+mitigation+techniques.pdf</a>
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# CIGRE WORKING GROUPS LISTS

## SC B1 Insulated Cables

Last update : 30 April 2018

	Type	Number	Title	Name of convener	Date of approval
1	WG	B1-66	Recommendations for Testing DC Lapped Cable Systems for Power Transmission at a Rated Voltage up to and including 800 kV	Gunnar Evenset (NO)	01/03/2018
2	WG	B1-62	Recommendations for Testing DC Extruded Cable Systems for Power Transmission at a Rated Voltage up to and including 800 kV	Stefano-Franchi Bononi (IT)	23/02/2018
3	WG	B1-64	Evaluation of Losses in Armoured Three Core Power Cables	Ronny Stølán (NO)	11/02/2018
4	WG	B1-63	Recommendations for mechanical testing of submarine cables for dynamic applications	Emmanuelle LAURE (FR)	17/01/2018
5	WG	B1-61	Installation of HV Cable Systems	Eugene Bergin (IE)	19/03/2017
6	WG	B1-60	Maintenance of HV Cable Systems	Bart Mampaey (BE)	09/02/2017
7	WG	B1-58	Condition Assessment and Diagnostic Methods to support Asset Management of MV Cable Networks	Slawomir Noske (PL)	06/02/2017
8	WG	B1-56	Cable rating verification	Frank de Wild (NL)	12/01/2016
9	WG	B1-57	Update of service experience of HV underground and submarine cable systems	Søren Mikkelsen (DK)	12/01/2016
10	WG	B1-55	Recommendations for additional testing for submarine cables from 6 kV (Um = 7.2 kV) up to 60 kV (Um = 72.5 kV)	Marc JEROENSE (SE)	29/01/2016
11	WG	B1-54	Behaviour of cable systems under large disturbances (earthquake, storm, flood, fire, landslide, climate change)	Harry ORTON (CA)	12/11/2015
12	WG	B1-50	Sheath Voltage Limiters and Bonding Systems (Design, Testing, Operation and Monitoring)	Tiebin ZHAO (US)	06/02/2015
13	WG	B1-51	Fire issues for insulated cables installed in air	Paolo MAIOLI (IT)	06/02/2015
14	WG	B1-52	Fault Location on Land and Submarine Links (AC & DC)	Robert DONAGHY (IE)	06/02/2015
15	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)	30/06/2014
16	WG	B1-48	Trenchless technologies for Underground Cables	Eugene Bergin (IE)	30/06/2014
17	WG	B1-46	Conductor Connectors: Mechanical and Electrical Tests	Milan Uzelac (US)	24/04/2014
18	WG	B1-45	Thermal monitoring of cable circuits and grid operators' use of dynamic rating systems	Blandine Hennuy (BE)	24/04/2014
19	WG	B1-44	Guidelines for safe work on cable systems under induced voltages or currents	Caroline Bradley (GB)	03/04/2013
20	WG	B1-38	After laying tests on AC and DC cable systems with new technologies	Mark Fenger (CA)	20/08/2012
21	WG	B1-28	On site Partial Discharges Assessment	Nigel Hampton (US)	03/11/2008
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# CIGRE WORKING GROUPS LISTS

## SC B1 Insulated Cables

Last update : 30 April 2018

Type	Number	Links to the Terms of Reference
1 WG	B1-66	<a href="http://www.cigre.org/content/download/75446/3419818/version/1/file/TOR-WG+B1.66_Recommendations+for+testing+DC+Lapped+Cable+Systems+for+power+transmission+at+rated+voltage+up+to+800kV.pdf">http://www.cigre.org/content/download/75446/3419818/version/1/file/TOR-WG+B1.66_Recommendations+for+testing+DC+Lapped+Cable+Systems+for+power+transmission+at+rated+voltage+up+to+800kV.pdf</a>
2 WG	B1-62	<a href="http://www.cigre.org/content/download/75336/3415730/version/1/file/TOR-WG+B1.62_Recommendations+for+testing+DC+extruded+cable+systems+at+a+rated+voltage+up+to+800+kV.pdf">http://www.cigre.org/content/download/75336/3415730/version/1/file/TOR-WG+B1.62_Recommendations+for+testing+DC+extruded+cable+systems+at+a+rated+voltage+up+to+800+kV.pdf</a>
3 WG	B1-64	<a href="http://www.cigre.org/content/download/75150/3411826/version/1/file/TOR-WG+B1.64_Evaluation+of+Losses+in+Armoured+Three+Core+Power+Cables.pdf">http://www.cigre.org/content/download/75150/3411826/version/1/file/TOR-WG+B1.64_Evaluation+of+Losses+in+Armoured+Three+Core+Power+Cables.pdf</a>
4 WG	B1-63	<a href="http://www.cigre.org/content/download/74930/3402936/version/1/file/TOR-WG+B1.63_Recommendations+for+mechanical+testing+of+submarine+cables+for+dynamic+applications.pdf">http://www.cigre.org/content/download/74930/3402936/version/1/file/TOR-WG+B1.63_Recommendations+for+mechanical+testing+of+submarine+cables+for+dynamic+applications.pdf</a>
5 WG	B1-61	<a href="http://www.cigre.org/content/download/71663/3279298/version/1/file/TOR-WG+B1.61_Installation+of+HV+Cable+Systems.pdf">http://www.cigre.org/content/download/71663/3279298/version/1/file/TOR-WG+B1.61_Installation+of+HV+Cable+Systems.pdf</a>
6 WG	B1-60	<a href="http://www.cigre.org/content/download/71195/3261155/version/1/file/TOR-WG+B1.60_Maintenance+of+HV+Cable+Systems.pdf">http://www.cigre.org/content/download/71195/3261155/version/1/file/TOR-WG+B1.60_Maintenance+of+HV+Cable+Systems.pdf</a>
7 WG	B1-58	<a href="http://www.cigre.org/content/download/71127/3260308/version/1/file/TOR-WG+B1.58_Condition+Assessment+and+Diagnostic+Methods+to+support+Asset+Management+of+MV+Cable+Networks.pdf">http://www.cigre.org/content/download/71127/3260308/version/1/file/TOR-WG+B1.58_Condition+Assessment+and+Diagnostic+Methods+to+support+Asset+Management+of+MV+Cable+Networks.pdf</a>
8 WG	B1-56	<a href="http://www.cigre.org/content/download/64898/3084334/version/1/file/TOR-WG+B1.56_Cable+rating+verification.pdf">http://www.cigre.org/content/download/64898/3084334/version/1/file/TOR-WG+B1.56_Cable+rating+verification.pdf</a>
9 WG	B1-57	<a href="http://www.cigre.org/content/download/64899/3084337/version/1/file/TOR-WG+B1.57_Update+of+service+experience+of+HV+underground+and+submarine+cable+systems.pdf">http://www.cigre.org/content/download/64899/3084337/version/1/file/TOR-WG+B1.57_Update+of+service+experience+of+HV+underground+and+submarine+cable+systems.pdf</a>
10 WG	B1-55	<a href="http://www.cigre.org/content/download/65102/3089968/version/1/file/TOR-WG+B1.55_Recommendations+for+additional+testing+for+submarine+cables+from+6+kV+%28Um%3D7.2+kV%29+up+to+60+kV+%28Um%3D72.5+kV%29.pdf">http://www.cigre.org/content/download/65102/3089968/version/1/file/TOR-WG+B1.55_Recommendations+for+additional+testing+for+submarine+cables+from+6+kV+%28Um%3D7.2+kV%29+up+to+60+kV+%28Um%3D72.5+kV%29.pdf</a>
11 WG	B1-54	<a href="http://www.cigre.org/content/download/63649/2839420/version/1/file/TOR-WG+B1.54_Behaviour+of+cable+systems+under+large+disturbances.pdf">http://www.cigre.org/content/download/63649/2839420/version/1/file/TOR-WG+B1.54_Behaviour+of+cable+systems+under+large+disturbances.pdf</a>
12 WG	B1-50	<a href="http://www.cigre.org/content/download/58260/2694342/version/1/file/TOR-WG+B1.50_Sheath+Voltage+Limiters+and+Bonding+Systems+%28Design%2C+Testing%2C+Operation+and+Monitoring%29.pdf">http://www.cigre.org/content/download/58260/2694342/version/1/file/TOR-WG+B1.50_Sheath+Voltage+Limiters+and+Bonding+Systems+%28Design%2C+Testing%2C+Operation+and+Monitoring%29.pdf</a>
13 WG	B1-51	<a href="http://www.cigre.org/content/download/58259/2694339/version/1/file/TOR-WG+B1.51_Fire+issues+for+insulated+cables+installed+in+air.pdf">http://www.cigre.org/content/download/58259/2694339/version/1/file/TOR-WG+B1.51_Fire+issues+for+insulated+cables+installed+in+air.pdf</a>
14 WG	B1-52	<a href="http://www.cigre.org/content/download/58258/2694336/version/1/file/TOR-WG+B1.52_Fault+Location+on+Land+and+Submarine+Links+%28AC+%26+DC%29.pdf">http://www.cigre.org/content/download/58258/2694336/version/1/file/TOR-WG+B1.52_Fault+Location+on+Land+and+Submarine+Links+%28AC+%26+DC%29.pdf</a>
15 JWG	B1/B3-49	<a href="http://www.cigre.org/content/download/56201/2637174/version/1/file/TOR-JWG+B1-B3.49+Standard+design+of+a+common%2C+dry+type+plug-in+interface+for+GIS+and+power+cables+up+to+145+kV+.pdf">http://www.cigre.org/content/download/56201/2637174/version/1/file/TOR-JWG+B1-B3.49+Standard+design+of+a+common%2C+dry+type+plug-in+interface+for+GIS+and+power+cables+up+to+145+kV+.pdf</a>
16 WG	B1-48	<a href="http://www.cigre.org/content/download/56200/2637171/version/1/file/TOR-WG+B1.48+Trenchless+technologies+for+Underground+Cables.pdf">http://www.cigre.org/content/download/56200/2637171/version/1/file/TOR-WG+B1.48+Trenchless+technologies+for+Underground+Cables.pdf</a>
17 WG	B1-46	<a href="http://www.cigre.org/content/download/56188/2637135/version/1/file/TOR-WG+B1.46_Conductor+Connectors+Mechanical+and+Electrical+Tests.pdf">http://www.cigre.org/content/download/56188/2637135/version/1/file/TOR-WG+B1.46_Conductor+Connectors+Mechanical+and+Electrical+Tests.pdf</a>
18 WG	B1-45	<a href="http://www.cigre.org/content/download/56186/2637129/version/1/file/TOR-WG+B1.45_Thermal+monitoring+of+cable+circuits+and+grid+operators%E2%80%99+use+of+dynamic+rating+systems.pdf">http://www.cigre.org/content/download/56186/2637129/version/1/file/TOR-WG+B1.45_Thermal+monitoring+of+cable+circuits+and+grid+operators%E2%80%99+use+of+dynamic+rating+systems.pdf</a>
19 WG	B1-44	<a href="http://www.cigre.org/content/download/58628/2701635/version/1/file/TOR-WG+B1.44_Guidelines+for+safe+work+on+cable+systems+under+induced+voltage+or+currents.pdf">http://www.cigre.org/content/download/58628/2701635/version/1/file/TOR-WG+B1.44_Guidelines+for+safe+work+on+cable+systems+under+induced+voltage+or+currents.pdf</a>
20 WG	B1-38	<a href="http://www.cigre.org/content/download/58599/2700531/version/1/file/TOR-WG+B1.38+After+laying+tests+on+AC+and+DC+cable+systems+with+new+technologies.pdf">http://www.cigre.org/content/download/58599/2700531/version/1/file/TOR-WG+B1.38+After+laying+tests+on+AC+and+DC+cable+systems+with+new+technologies.pdf</a>
21 WG	B1-28	<a href="http://www.cigre.org/content/download/58554/2699859/version/1/file/TOR-WG+B1-28+On-site+Partial+Discharge+Assessment+of+HV+and+EHV+cable+systems.pdf">http://www.cigre.org/content/download/58554/2699859/version/1/file/TOR-WG+B1-28+On-site+Partial+Discharge+Assessment+of+HV+and+EHV+cable+systems.pdf</a>
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# CIGRE WORKING GROUPS LISTS

**SC B2 Overhead lines**

**Last update : 30 April 2018**

	Type	Number	Title	Name of convener	Date of approval
1	WG	B2-70	Aircraft Warning Markers and bird flight diverters for Overhead Lines – Experience and recommendations	Naji Sahlani (US)	27/02/2018
2	WG	B2-69	Coatings for Power Network Equipment	Masoud FARZANEH (CA)	14/11/2017
3	WG	B2-68	Sustainability of OHL conductors and fittings – Conductor condition assessment and life extension	Cécile Rozé (FR)	02/08/2017
4	WG	B2-67	Assessment and Testing of Wood and Alternative Material Type Poles	Ahsan Siddique (AU)	24/04/2017
5	WG	B2-66	Safe handling and installation guide for high temperature low sag (HTLS) conductors	Vivek Chari (IN)	07/10/2016
6	WG	B2-64	Inspection and Testing of Equipment and Training for Live-Line Work on Overhead Lines	Balint NEMETH (HU)	27/09/2015
7	WG	B2-65	Detection, Prevention and Repair of Sub-surface Corrosion in Overhead Line Supports, Anchors and Foundations	Pierre MARAIS (ZA)	27/09/2015
8	WG	B2-62	Design of Compact HVDC Overhead Lines	Javier Iglesias (ES)	24/04/2015
9	WG	B2-63	Compact AC Transmission Lines	Rob Stephen (ZA)	23/04/2015
10	WG	B2-61	Transmission Line Structures with Fiber Reinforced Polymer (FRP) Composites	Árni-Björn Jónasson (IS)	29/03/2015
11	WG	B2-60	Affordable Overhead Transmission Lines for Sub-Saharan Countries	Hugo VALENTE (PT)	04/03/2015
12	WG	B2-59	Forecasting Dynamic Line Ratings	Dale Douglass (US)	30/06/2014
13	WG	B2-58	Vibration Modeling of High Temperature Low Sag conductors – Self damping characterization	Giorgio Diana (IT)	12/05/2014
14	WG	B2-57	Survey of operational Composite Insulator Experience and Application Guide for Composite Insulators	Frank Schmuck (CH)	14/04/2014
15	WG	B2-55	Conductors for the Uprating of Existing Overhead Lines	Dale Douglass (US)	08/01/2012
16	WG	B2-53	Management guidelines for outsourcing OHTL technical expertise	Keith Lindsey (US)	17/05/2011
17	WG	B2-52	The use of robotics in assessment and maintenance of OHL	André LEBLAND (CA)	17/05/2011
18	WG	B2-50	Safe handling of fittings and conductors	Peter Dulhunty (AU)	15/12/2010
19	WG	B2-45	Bushfire Characteristics and the Potential Impacts on Overhead Line Performance	Hein Vosloo (ZA)	06/09/2010
20	WG	B2-40	Preparatory studies for revision of IEC standard calculations of the electrical distances between live parts and obstacles for OHL	Robert Lake (NZ)	15/02/2008
21	WG	B2-24	Qualification of HV and UHV OHL supports under static and dynamic loads	Asim Haldar (CA)	30/03/2010
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# CIGRE WORKING GROUPS LISTS

**SC B2 Overhead lines**

**Last update : 30 April 2018**

Type	Number	Links to the Terms of Reference
1 WG	B2-70	<a href="http://www.cigre.org/content/download/75377/3417098/version/1/file/TOR-WG+B2.70_Aircraft+warning+markers+and+bird+flight+diverters+for+Overhead+Lines+%E2%80%93+Experience+and+recommendations.pdf">http://www.cigre.org/content/download/75377/3417098/version/1/file/TOR-WG+B2.70_Aircraft+warning+markers+and+bird+flight+diverters+for+Overhead+Lines+%E2%80%93+Experience+and+recommendations.pdf</a>
2 WG	B2-69	<a href="http://www.cigre.org/content/download/74550/3388220/version/1/file/TOR-WG+B2.69_Coatings+for+Power+Network+Equipment.pdf">http://www.cigre.org/content/download/74550/3388220/version/1/file/TOR-WG+B2.69_Coatings+for+Power+Network+Equipment.pdf</a>
3 WG	B2-68	<a href="http://www.cigre.org/content/download/73260/3333846/version/1/file/TOR-WG+B2.68_Sustainability+of+OHL+conductors+and+fittings%E2%80%93Conductor+condition+assessment+and+life+extension.pdf">http://www.cigre.org/content/download/73260/3333846/version/1/file/TOR-WG+B2.68_Sustainability+of+OHL+conductors+and+fittings%E2%80%93Conductor+condition+assessment+and+life+extension.pdf</a>
4 WG	B2-67	<a href="http://www.cigre.org/content/download/72160/3295796/version/1/file/TOR-WG+B2.67_Assessment+and+Testing+of+Wood+and+Alternative+Material+Type+Poles.pdf">http://www.cigre.org/content/download/72160/3295796/version/1/file/TOR-WG+B2.67_Assessment+and+Testing+of+Wood+and+Alternative+Material+Type+Poles.pdf</a>
5 WG	B2-66	<a href="http://www.cigre.org/content/download/69779/3221360/version/1/file/TOR-WG+B2.66_Safe+handling+and+installation+guide+for+high+temperature+low+sag+%28HTLS%29+conductors.pdf">http://www.cigre.org/content/download/69779/3221360/version/1/file/TOR-WG+B2.66_Safe+handling+and+installation+guide+for+high+temperature+low+sag+%28HTLS%29+conductors.pdf</a>
6 WG	B2-64	<a href="http://www.cigre.org/content/download/62917/2824696/version/1/file/TOR-WG+B2.64+Inspection+and+Testing+of+Equipment+and+Training+for+Live-Line+Work+on+Overhead+Lines.pdf">http://www.cigre.org/content/download/62917/2824696/version/1/file/TOR-WG+B2.64+Inspection+and+Testing+of+Equipment+and+Training+for+Live-Line+Work+on+Overhead+Lines.pdf</a>
7 WG	B2-65	<a href="http://www.cigre.org/content/download/62916/2824693/version/1/file/TOR-WG+B2.65+Detection%2C+Prevention+and+Repair+of+Sub-surface+Corrosion+in+Overhead+Line+Supports%2C+Anchors+and+Foundations.pdf">http://www.cigre.org/content/download/62916/2824693/version/1/file/TOR-WG+B2.65+Detection%2C+Prevention+and+Repair+of+Sub-surface+Corrosion+in+Overhead+Line+Supports%2C+Anchors+and+Foundations.pdf</a>
8 WG	B2-62	<a href="http://www.cigre.org/content/download/59916/2736224/version/1/file/TOR-WG+B2.62-Design+of+Compact+HVDC+Overhead+Lines.pdf">http://www.cigre.org/content/download/59916/2736224/version/1/file/TOR-WG+B2.62-Design+of+Compact+HVDC+Overhead+Lines.pdf</a>
9 WG	B2-63	<a href="http://www.cigre.org/content/download/59851/2735145/version/1/file/TOR-WG+B2.63_Compact+AC+Transmission+Lines.pdf">http://www.cigre.org/content/download/59851/2735145/version/1/file/TOR-WG+B2.63_Compact+AC+Transmission+Lines.pdf</a>
10 WG	B2-61	<a href="http://www.cigre.org/content/download/59369/2721557/version/1/file/TOR-WG+B2.61-Transmission+Line+Structures+with+Fiber+Reinforced+Polymer+%28FRP%29+Composites.pdf">http://www.cigre.org/content/download/59369/2721557/version/1/file/TOR-WG+B2.61-Transmission+Line+Structures+with+Fiber+Reinforced+Polymer+%28FRP%29+Composites.pdf</a>
11 WG	B2-60	<a href="http://www.cigre.org/content/download/58848/2707358/version/1/file/TOR-WG+B2.60_Affordable+Overhead+Transmission+Lines+for+Sub-Saharan+Countries.pdf">http://www.cigre.org/content/download/58848/2707358/version/1/file/TOR-WG+B2.60_Affordable+Overhead+Transmission+Lines+for+Sub-Saharan+Countries.pdf</a>
12 WG	B2-59	<a href="http://www.cigre.org/content/download/56202/2637177/version/1/file/TOR-WG+B2.59+Forecasting+Dynamic+Line+Ratings.pdf">http://www.cigre.org/content/download/56202/2637177/version/1/file/TOR-WG+B2.59+Forecasting+Dynamic+Line+Ratings.pdf</a>
13 WG	B2-58	<a href="http://www.cigre.org/content/download/56196/2637159/version/1/file/TOR-WG+B2.58_Vibration+Modeling+of+High+Temperature+Low+Sag+conductors+%E2%80%93Self+damping+characterization.pdf">http://www.cigre.org/content/download/56196/2637159/version/1/file/TOR-WG+B2.58_Vibration+Modeling+of+High+Temperature+Low+Sag+conductors+%E2%80%93Self+damping+characterization.pdf</a>
14 WG	B2-57	<a href="http://www.cigre.org/content/download/56187/2637132/version/1/file/TOR-WG+B2.57_Survey+of+operational+Composite+Insulator+Experience+and+Application+Guide+for+Composite+Insulators.pdf">http://www.cigre.org/content/download/56187/2637132/version/1/file/TOR-WG+B2.57_Survey+of+operational+Composite+Insulator+Experience+and+Application+Guide+for+Composite+Insulators.pdf</a>
15 WG	B2-55	<a href="http://www.cigre.org/content/download/58450/2699547/version/1/file/TOR-WG+B2.55+Conductors+for+the+Uprating+of+Existing+Overhead+Lines.pdf">http://www.cigre.org/content/download/58450/2699547/version/1/file/TOR-WG+B2.55+Conductors+for+the+Uprating+of+Existing+Overhead+Lines.pdf</a>
16 WG	B2-53	<a href="http://www.cigre.org/content/download/58471/2699610/version/1/file/TOR-WG+B2.53+Management+guidelines+for+outsourcing+OHTL+technical+expertise.pdf">http://www.cigre.org/content/download/58471/2699610/version/1/file/TOR-WG+B2.53+Management+guidelines+for+outsourcing+OHTL+technical+expertise.pdf</a>
17 WG	B2-52	<a href="http://www.cigre.org/content/download/58472/2699613/version/1/file/TOR-WG+B2.52+The+use+of+robotics+in+assessment+and+maintenance+of+OHL.pdf">http://www.cigre.org/content/download/58472/2699613/version/1/file/TOR-WG+B2.52+The+use+of+robotics+in+assessment+and+maintenance+of+OHL.pdf</a>
18 WG	B2-50	<a href="http://www.cigre.org/content/download/58494/2699679/version/1/file/TOR-WG+B2.50+Safe+handling+of+fittings+and+conductors.pdf">http://www.cigre.org/content/download/58494/2699679/version/1/file/TOR-WG+B2.50+Safe+handling+of+fittings+and+conductors.pdf</a>
19 WG	B2-45	<a href="http://www.cigre.org/content/download/58503/2699706/version/1/file/TOR-WG+B2.45+Bushfire+Characteristics+and+the+Potential+Impacts+on+OHL+performances.pdf">http://www.cigre.org/content/download/58503/2699706/version/1/file/TOR-WG+B2.45+Bushfire+Characteristics+and+the+Potential+Impacts+on+OHL+performances.pdf</a>
20 WG	B2-40	<a href="http://www.cigre.org/content/download/58553/2699856/version/1/file/TOR-WG+B2.40+Preparatory+studies+for+revision+of+IEC+standard.pdf">http://www.cigre.org/content/download/58553/2699856/version/1/file/TOR-WG+B2.40+Preparatory+studies+for+revision+of+IEC+standard.pdf</a>
21 WG	B2-24	<a href="http://www.cigre.org/content/download/58524/2699769/version/1/file/TOR-WG+B2.24+Qualification+of+HV+%26+UHV+OHL+supports+under+static+and+dynamic+loads+.pdf">http://www.cigre.org/content/download/58524/2699769/version/1/file/TOR-WG+B2.24+Qualification+of+HV+%26+UHV+OHL+supports+under+static+and+dynamic+loads+.pdf</a>
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# CIGRE WORKING GROUPS LISTS

## SC      B3      Substations

Last update : 30 April 2018

	Type	Number	Title	Name of convener	Date of approval
1	WG	B3-51	Service continuity guide for the maintenance, repair and extension of HV GIS	Mark KUSCHEL (DE)	09/04/2018
2	WG	B3-50	Concepts for on-site HV testing of GIS after installation, extension, retrofit or repair	Mark REUTER (DE)	17/11/2017
3	WG	B3-49	Review of substation busbar component reliability	Milan Radosavljevic (SE)	25/05/2017
4	WG	B3-48	Asset health indices for equipment in existing Substations	Jan Bednarik (IE)	01/12/2016
5	WG	B3-47	Application of Robotics in Substations	Jianbin FAN (CN)	01/11/2016
6	WG	B3-46	Guidelines for Safe Work Methods in Existing Substations	Mark McVey (US)	04/09/2016
7	WG	B3-45	Application of non-SF6 gases or mixtures in medium voltage and high voltage gas-insulated switchgear	Piet KNOL (NL)	30/06/2016
8	WG	B3-43	Contemporary solutions for low cost substations	Pererine TONKING (AU)	26/07/2015
9	WG	B3-44	Substation servicing and supervision using mobile devices and smart sensing	Nicolaie Fantana (DE)	17/03/2015
10	WG	B3-42	Reliability analysis and design guidelines for LV AC/DC Auxiliary Systems	Jianbin Fan (CN)	10/12/2014
11	WG	B3-41	Mobile Substations Incorporating HV GIS – Design Aspects	Paul Fletcher (GB)	11/08/2014
12	WG	B3-40	SF6 Gas Measurement Guide	Eamonn Duggan (IE)	17/06/2014
13	WG	B3-39	Impact of NCIT applications on HV Gas Insulated Switchgear	Karsten Pohlink (CH)	24/04/2014
14	WG	B3-38	Management of risk in Substations	Gérald Buchs (CH)	09/02/2014
15	JWG	B3-35/CIRED	Substation earthing system design optimisation through the application of quantified risk analysis	Bill CARMAN (AU)	01/09/2012
16	WG	B3-24	Benefits of PD diagnosis on GIS condition assessment	Mark Reuter (DE)	16/06/2012
17	WG	B3-34	Expected impact of future grid concept on substation management	Johan SMIT (NL)	03/05/2011
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# CIGRE WORKING GROUPS LISTS

Last update : 30 April 2018

SC	B3	Substations	
Type	Number	Links to the Terms of Reference	
1	WG	B3-51	<a href="http://www.cigre.org/content/download/75983/3444166/version/1/file/TOR-WG+B3.51+Service+continuity+guide+for+the+maintenance%2C+repair+and+extension+of+HV+GIS.pdf">http://www.cigre.org/content/download/75983/3444166/version/1/file/TOR-WG+B3.51+Service+continuity+guide+for+the+maintenance%2C+repair+and+extension+of+HV+GIS.pdf</a>
2	WG	B3-50	<a href="http://www.cigre.org/content/download/74551/3388223/version/1/file/TOR-WG+B3.50-Concepts+for+on-site+HV+testing+of+GIS+after+installation%2C+extension%2C+retrofit+or+repair.pdf">http://www.cigre.org/content/download/74551/3388223/version/1/file/TOR-WG+B3.50-Concepts+for+on-site+HV+testing+of+GIS+after+installation%2C+extension%2C+retrofit+or+repair.pdf</a>
3	WG	B3-49	<a href="http://www.cigre.org/content/download/72688/3315989/version/1/file/TOR-WG+B3.49_Review+of+substation+busbar+component+reliability.pdf">http://www.cigre.org/content/download/72688/3315989/version/1/file/TOR-WG+B3.49_Review+of+substation+busbar+component+reliability.pdf</a>
4	WG	B3-48	<a href="http://www.cigre.org/content/download/72654/3314538/version/1/file/TOR-WG+B3.48_Asset+health+indices+for+equipment+in+existing+Substations-Rev1.pdf">http://www.cigre.org/content/download/72654/3314538/version/1/file/TOR-WG+B3.48_Asset+health+indices+for+equipment+in+existing+Substations-Rev1.pdf</a>
5	WG	B3-47	<a href="http://www.cigre.org/TOR-WG-B3.47-Application-of-Robotics-in-Substations2">http://www.cigre.org/TOR-WG-B3.47-Application-of-Robotics-in-Substations2</a>
6	WG	B3-46	<a href="http://www.cigre.org/content/download/69508/3213614/version/1/file/TOR-WG+B3.46_Guidelines+for+Safe+Work+Methods+in+Substations.pdf">http://www.cigre.org/content/download/69508/3213614/version/1/file/TOR-WG+B3.46_Guidelines+for+Safe+Work+Methods+in+Substations.pdf</a>
7	WG	B3-45	<a href="http://www.cigre.org/content/download/68085/3170817/version/1/file/TOR-WG+B3.45_Application+of+non-SF6+gases+or+gas-mixtures+in+MV+%26+HV+gas-insulated+switchgear.pdf">http://www.cigre.org/content/download/68085/3170817/version/1/file/TOR-WG+B3.45_Application+of+non-SF6+gases+or+gas-mixtures+in+MV+%26+HV+gas-insulated+switchgear.pdf</a>
8	WG	B3-43	<a href="http://www.cigre.org/content/download/61543/2784329/version/1/file/TOR-WG+B3.43+Contemporary+solutions+for+low+cost+substations.pdf">http://www.cigre.org/content/download/61543/2784329/version/1/file/TOR-WG+B3.43+Contemporary+solutions+for+low+cost+substations.pdf</a>
9	WG	B3-44	<a href="http://www.cigre.org/content/download/59155/2715383/version/1/file/TOR-WG+B3.44+Substation+servicing+and+supervision+using+mobile+devices+and+smart+sensing.pdf">http://www.cigre.org/content/download/59155/2715383/version/1/file/TOR-WG+B3.44+Substation+servicing+and+supervision+using+mobile+devices+and+smart+sensing.pdf</a>
10	WG	B3-42	<a href="http://www.cigre.org/content/download/57312/2665500/version/1/file/TOR-WG+B3.42+Reliability+analysis+and+design+guidelines+for+LV+ACDC+Auxiliary+Systems.pdf">http://www.cigre.org/content/download/57312/2665500/version/1/file/TOR-WG+B3.42+Reliability+analysis+and+design+guidelines+for+LV+ACDC+Auxiliary+Systems.pdf</a>
11	WG	B3-41	<a href="http://www.cigre.org/content/download/56208/2637195/version/1/file/TOR-WG+B3.41+Mobile+Substations+Incorporating+HV+GIS+%E2%80%93+Design+Aspects.pdf">http://www.cigre.org/content/download/56208/2637195/version/1/file/TOR-WG+B3.41+Mobile+Substations+Incorporating+HV+GIS+%E2%80%93+Design+Aspects.pdf</a>
12	WG	B3-40	<a href="http://www.cigre.org/content/download/56199/2637168/version/1/file/TOR-WG+B3.40+SF6+Gas+Measurement+Guide.pdf">http://www.cigre.org/content/download/56199/2637168/version/1/file/TOR-WG+B3.40+SF6+Gas+Measurement+Guide.pdf</a>
13	WG	B3-39	<a href="http://www.cigre.org/content/download/56191/2637144/version/1/file/TOR-WG+B3.39_Impact+of+NCIT+applications+on+HV+Gas+Insulated+Switchgear.pdf">http://www.cigre.org/content/download/56191/2637144/version/1/file/TOR-WG+B3.39_Impact+of+NCIT+applications+on+HV+Gas+Insulated+Switchgear.pdf</a>
14	WG	B3-38	<a href="http://www.cigre.org/content/download/53550/2554637/version/1/file/TOR-WG+B3.38+Management+of+risk+in+Substations.pdf">http://www.cigre.org/content/download/53550/2554637/version/1/file/TOR-WG+B3.38+Management+of+risk+in+Substations.pdf</a>
15	JWG	B3-35/CIRED	<a href="http://www.cigre.org/content/download/58937/2709503/version/1/file/TOR-JWG+C2-C5-05_updated+2012+Development+and+Changes+in+the+Business+of++System+Operators++.pdf">http://www.cigre.org/content/download/58937/2709503/version/1/file/TOR-JWG+C2-C5-05_updated+2012+Development+and+Changes+in+the+Business+of++System+Operators++.pdf</a>
16	WG	B3-24	<a href="http://www.cigre.org/content/download/58594/2700516/version/1/file/TOR-WG+B3.24+Benefits+of+PD+diagnosis+on+GIS+condition+assessment.pdf">http://www.cigre.org/content/download/58594/2700516/version/1/file/TOR-WG+B3.24+Benefits+of+PD+diagnosis+on+GIS+condition+assessment.pdf</a>
17	WG	B3-34	<a href="http://www.cigre.org/content/download/58473/2699616/version/1/file/TOR-WG+B3-34+Expected+impact+of+future+grid+concept+on+substation+management.pdf">http://www.cigre.org/content/download/58473/2699616/version/1/file/TOR-WG+B3-34+Expected+impact+of+future+grid+concept+on+substation+management.pdf</a>
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# CIGRE WORKING GROUPS LISTS

**SC      B4      HVDC and Power Electronic**

**Last update : 30 April 2018**

	Type	Number	Title	Name of convener	Date of approval
1	WG	B4-78	Cyber Asset Management for HVDC/FACTS Systems	Kerry WALKER (CA)	20/11/2017
2	WG	B4-76	DC-DC converters in HVDC Grids and for connections to HVDC systems	Dragan Jovcic (GB)	29/11/2016
3	WG	B4-75	Feasibility Study for assessment of lab losses measurement of VSC valves	Christian Rathke (DE)	01/11/2016
4	WG	B4-74	Guide to Develop Real-Time Simulation Models (RTSM) for HVDC Operational Studies	Qi Guo (CN)	07/10/2016
5	WG	B4-72	DC grid benchmark models for system studies	Ting AN (CN)	12/11/2015
6	JWG	B4/B1/C4-73	Surge and extended overvoltage testing of HVDC Cable Systems	Markus SALTZER (SE)	08/12/2015
7	WG	B4-71	Application guide for the insulation coordination of Voltage Source Converter HVDC (VSC HVDC) stations	Mojtaba Mohaddes (CA)	10/02/2015
8	WG	B4-70	Guide for Electromagnetic Transient Studies involving VSC converters	Sébastien Dennetière (FR)	16/10/2014
9	WG	B4-69	Minimizing loss of transmitted power by VSC during overhead line fault	Dennis WOODFORD (CA)	30/09/2014
10	WG	B4-68	Revision of Technical Brochure 92 – DC Harmonics and Filtering	Nigel SHORE (GB)	21/07/2014
11	WG	B4-67	Harmonic aspects of VSC HVDC, and appropriate harmonic limits	Nigel SHORE (GB)	21/07/2014
12	WG	B4-66	Implications for harmonics and filtering of the staggered installation of HVDC converter stations in proximate locations	Fernando CATTAN (BR)	21/07/2014
13	WG	B4-64	Impact on AC System Characteristics on the Performance of HVDC schemes	Carl BARKER (GB)	25/02/2013
14	WG	B4-61	General Guidelines for HVDC Electrode Design	Jingxuan Hu (CA)	01/06/2011
15	JWG	B4/B5-59	Control and Protection of HVDC Grids	Kees KOREMAN (NL)	23/02/2011
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# CIGRE WORKING GROUPS LISTS

**SC      B4      HVDC and Power Electronic**

**Last update : 30 April 2018**

Type	Number	Links to the Terms of Reference
1	WG B4-78	<a href="http://www.cigre.org/content/download/74553/3388229/version/1/file/TOR-WG+B4.78_Cyber+Asset+Management+for+HVDC-FACTS+Systems.pdf">http://www.cigre.org/content/download/74553/3388229/version/1/file/TOR-WG+B4.78_Cyber+Asset+Management+for+HVDC-FACTS+Systems.pdf</a>
2	WG B4-76	<a href="http://www.cigre.org/content/download/70494/3243829/version/1/file/TOR-WG+B4.76+DC-DC+converters+in+HVDC+Grids+and+for+connections+to+HVDC+systems.pdf">http://www.cigre.org/content/download/70494/3243829/version/1/file/TOR-WG+B4.76+DC-DC+converters+in+HVDC+Grids+and+for+connections+to+HVDC+systems.pdf</a>
3	WG B4-75	<a href="http://www.cigre.org/TOR-WG-B4.75_Feasibility-Study-for-assessment-of-lab-losses-measurement-of-VSC-valves">http://www.cigre.org/TOR-WG-B4.75_Feasibility-Study-for-assessment-of-lab-losses-measurement-of-VSC-valves</a>
4	WG B4-74	<a href="http://www.cigre.org/content/download/69781/3221366/version/1/file/TOR-WG+B4.74_Guide+to+Develop+Real-Time+Simulation+Models+%28RTSM%29+for+HVDC+Operational+Studies.pdf">http://www.cigre.org/content/download/69781/3221366/version/1/file/TOR-WG+B4.74_Guide+to+Develop+Real-Time+Simulation+Models+%28RTSM%29+for+HVDC+Operational+Studies.pdf</a>
5	WG B4-72	<a href="http://www.cigre.org/content/download/63648/2839417/version/1/file/TOR-WG+B4.72_DC+grid+benchmark+models+for+system+studies.pdf">http://www.cigre.org/content/download/63648/2839417/version/1/file/TOR-WG+B4.72_DC+grid+benchmark+models+for+system+studies.pdf</a>
6	JWG B4/B1/C4-73	<a href="http://www.cigre.org/content/download/64493/3070335/version/1/file/TOR-JWG+B4_B1_C4.73_Surge+and+extended+overvoltage+testing+of+HVDC+Cable+Systems.pdf">http://www.cigre.org/content/download/64493/3070335/version/1/file/TOR-JWG+B4_B1_C4.73_Surge+and+extended+overvoltage+testing+of+HVDC+Cable+Systems.pdf</a>
7	WG B4-71	<a href="http://www.cigre.org/content/download/58291/2695875/version/1/file/TOR-WG+B4.71_Application+guide+for+the+insulation+coordination+of+Voltage+Source+Converter+HVDC+%28VSC+HVDC%29+stations.pdf">http://www.cigre.org/content/download/58291/2695875/version/1/file/TOR-WG+B4.71_Application+guide+for+the+insulation+coordination+of+Voltage+Source+Converter+HVDC+%28VSC+HVDC%29+stations.pdf</a>
8	WG B4-70	<a href="http://www.cigre.org/content/download/56214/2637213/version/1/file/TOR-WG+B4.70+Guide+for+EMT+studies+with+VSC.pdf">http://www.cigre.org/content/download/56214/2637213/version/1/file/TOR-WG+B4.70+Guide+for+EMT+studies+with+VSC.pdf</a>
9	WG B4-69	<a href="http://www.cigre.org/content/download/56212/2637207/version/1/file/TOR-WG+B4.69+Minimizing+loss+of+transmitted+power+by+VSC+during+overhead+line+fault.pdf">http://www.cigre.org/content/download/56212/2637207/version/1/file/TOR-WG+B4.69+Minimizing+loss+of+transmitted+power+by+VSC+during+overhead+line+fault.pdf</a>
10	WG B4-68	<a href="http://www.cigre.org/content/download/56205/2637186/version/1/file/TOR-WG+B4.68+-+DC+harmonics+and+Filters.pdf">http://www.cigre.org/content/download/56205/2637186/version/1/file/TOR-WG+B4.68+-+DC+harmonics+and+Filters.pdf</a>
11	WG B4-67	<a href="http://www.cigre.org/content/download/56207/2637192/version/1/file/TOR-WG+B4.67+-+Harmonic+aspects+of+VSC+HVDC+and+appropriate+harmonic+limits.pdf">http://www.cigre.org/content/download/56207/2637192/version/1/file/TOR-WG+B4.67+-+Harmonic+aspects+of+VSC+HVDC+and+appropriate+harmonic+limits.pdf</a>
12	WG B4-66	<a href="http://www.cigre.org/content/download/56206/2637189/version/1/file/TOR-WG+B4.66+-+Harmonics+and+filtering+for+HVDC+in+staggered+installations.pdf">http://www.cigre.org/content/download/56206/2637189/version/1/file/TOR-WG+B4.66+-+Harmonics+and+filtering+for+HVDC+in+staggered+installations.pdf</a>
13	WG B4-64	<a href="http://www.cigre.org/content/download/58417/2699448/version/1/file/TOR-WG+B4.64+Impact+of+AC+System+Characteristics+on+the+Performance.pdf">http://www.cigre.org/content/download/58417/2699448/version/1/file/TOR-WG+B4.64+Impact+of+AC+System+Characteristics+on+the+Performance.pdf</a>
14	WG B4-61	<a href="http://www.cigre.org/content/download/58469/2699604/version/1/file/TOR-WG+B4-61+General+Guidelines+for+HVDC+Electrode+Design.pdf">http://www.cigre.org/content/download/58469/2699604/version/1/file/TOR-WG+B4-61+General+Guidelines+for+HVDC+Electrode+Design.pdf</a>
15	JWG B4/B5-59	<a href="http://www.cigre.org/content/download/58476/2699625/version/1/file/TOR-JWG+B4-B5-59+Control+and+Protection+of+HVDC+Grids.pdf">http://www.cigre.org/content/download/58476/2699625/version/1/file/TOR-JWG+B4-B5-59+Control+and+Protection+of+HVDC+Grids.pdf</a>
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# CIGRE WORKING GROUPS LISTS

**SC B5 Protection and Automation**

**Last update : 30 April 2018**

	Type	Number	Title	Name of convener	Date of approval
1	JWG	B5/D2-67	Time in Communication Networks, Protection and Control Applications –Time Sources and Distribution Methods	Yubo Yuan (CN)	14/04/2018
2	WG	B5-65	Enhancing Protection System Performance by Optimising the Response of Inverter-Based Sources	Dr. Farfilho (BR)	14/04/2018
3	WG	B5-66	Cyber Security requirements for PACS and the Resilience of PAC Architectures	Dennis Holstein (US)	20/11/2017
4	WG	B5-64	Methods for Specification of Functional Requirements of Protection, Automation, and Control	Iony Patriota de Siqueira (BR)	17/01/2017
5	WG	B5-63	Protection, Automation and Control System Asset Management	Massimo Petrini (IT)	17/01/2017
6	WG	B5-62	Life Cycle Testing of Synchrophasor Based Systems used for Protection, Monitoring and Control	Mladen Kezunovic (US)	17/01/2017
7	JWG	B5/C4-61	Impact of Low Inertia Network on Protection and Control	Ray Zhang (GB)	17/01/2017
8	WG	B5-60	Protection, Automation and Control Architectures with Functionality Independent of Hardware	Alexander Voloshin (RU)	17/01/2017
9	WG	B5-59	Requirements for Near-Process Intelligent Electronic Devices	Xu LEI (CN)	12/01/2016
10	WG	B5-58	Faster protection and network automation systems: implications and requirements	Andrei PODSHIVALIN (RU)	12/01/2016
11	WG	B5-57	New challenges for frequency protection	Vladimir Terzija (GB)	12/01/2016
12	WG	B5-55	Application of Travelling Wave Technology for Protection and Automation	Peter Crossley (GB)	08/01/2015
13	WG	B5-56	Optimization of Protection Automation and Control Systems	Klaus-Peter Brand (CH)	08/01/2015
14	WG	B5-54	Protection and Automation Issues of Islanded Systems during System Restoration/Black Start	Nirmal Nair (NZ)	09/12/2013
15	WG	B5-53	Test Strategy for PAC functions in a full digital substations based on IEC 61850 applications	Alex Apostolov (US)	09/12/2013
16	WG	B5-52	Analysis and comparison of fault location systems in Substation Automation Systems	Sepehr Sefidpour (SE)	19/11/2013
17	WG	B5-51	Requirements and Use of Remotely Accessed Information for SAS Maintenance and Operation	Li Li (CN)	11/11/2012
18	WG	B5-50	IEC 61850 Based Substation Automation Systems – Users Expectations and Stakeholders Interactions	Grégory Huon (BE)	11/11/2012
19	WG	B5-48	Protection for developing network with limited fault current capability of generation	Bin Su (CN)	04/03/2012
20	WG	B5-47	Network Protection Performance Audits	Peter Watson (GB)	24/01/2012
21	WG	B5-41	Investigation of possibilities to improve metering systems for billing purposes in substations	Harrie Lenting (NL)	01/04/2010
22	WG	B5-24	Protection Requirements on Transient Response of Voltage and Current Digital Acquisition Chain	Janez Zakonjsek (SI)	04/12/2008

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# CIGRE WORKING GROUPS LISTS

**SC B5 Protection and Automation**

**Last update : 30 April 2018**

Type	Number	Links to the Terms of Reference
1	JWG B5/D2-67	<a href="http://www.cigre.org/content/download/76029/3445256/version/1/file/TOR+JWG+B5_D2.67_Time+in+Communication+Networks%2C+Protection+and+Control+Applications+%E2%80%93.pdf">http://www.cigre.org/content/download/76029/3445256/version/1/file/TOR+JWG+B5_D2.67_Time+in+Communication+Networks%2C+Protection+and+Control+Applications+%E2%80%93.pdf</a>
2	WG B5-65	<a href="http://www.cigre.org/content/download/76028/3445253/version/1/file/TOR+WG+B5.65_Enhancing+Protection+System+Performance+by+Optimising+the+Response.pdf">http://www.cigre.org/content/download/76028/3445253/version/1/file/TOR+WG+B5.65_Enhancing+Protection+System+Performance+by+Optimising+the+Response.pdf</a>
3	WG B5-66	<a href="http://www.cigre.org/content/download/74552/3388226/version/1/file/TOR-WG+B5.66_Cyber+Security+requirements+for+PACS+and+the+Resilience+of+PAC+Architectures.pdf">http://www.cigre.org/content/download/74552/3388226/version/1/file/TOR-WG+B5.66_Cyber+Security+requirements+for+PACS+and+the+Resilience+of+PAC+Architectures.pdf</a>
4	WG B5-64	<a href="http://www.cigre.org/content/download/70917/3253257/version/1/file/TOR-WG+B5.64_Methods+for+Specification+of+Functional+Requirements+of+Protection%2C+Automation%2C+and+Control.pdf">http://www.cigre.org/content/download/70917/3253257/version/1/file/TOR-WG+B5.64_Methods+for+Specification+of+Functional+Requirements+of+Protection%2C+Automation%2C+and+Control.pdf</a>
5	WG B5-63	<a href="http://www.cigre.org/content/download/70916/3253254/version/1/file/TOR-WG+B5.63_Protection%2C+Automation+and+Control+System+Asset+Management.pdf">http://www.cigre.org/content/download/70916/3253254/version/1/file/TOR-WG+B5.63_Protection%2C+Automation+and+Control+System+Asset+Management.pdf</a>
6	WG B5-62	<a href="http://www.cigre.org/content/download/70915/3253251/version/1/file/TOR-WG+B5.62_Life+Cycle+Testing+of+Synchrophasor+Based+Systems+used+for+Protection%2C+Monitoring+and+Control.pdf">http://www.cigre.org/content/download/70915/3253251/version/1/file/TOR-WG+B5.62_Life+Cycle+Testing+of+Synchrophasor+Based+Systems+used+for+Protection%2C+Monitoring+and+Control.pdf</a>
7	JWG B5/C4-61	<a href="http://www.cigre.org/content/download/70913/3253245/version/1/file/TOR-JWG+B5-C4.+61_Impact+of+Low+Inertia+Network+on+Protection+and+Control.pdf">http://www.cigre.org/content/download/70913/3253245/version/1/file/TOR-JWG+B5-C4.+61_Impact+of+Low+Inertia+Network+on+Protection+and+Control.pdf</a>
8	WG B5-60	<a href="http://www.cigre.org/content/download/70914/3253248/version/1/file/TOR-WG+B5.60_Protection%2C+Automation+and+Control+Architectures+with+Functionality+Independent+of+Hardware.pdf">http://www.cigre.org/content/download/70914/3253248/version/1/file/TOR-WG+B5.60_Protection%2C+Automation+and+Control+Architectures+with+Functionality+Independent+of+Hardware.pdf</a>
9	WG B5-59	<a href="http://www.cigre.org/content/download/64902/3084346/version/1/file/TOR-WG+B5.59_Requirements+for+Near-Process+Intelligent+Electronic+Devices.pdf">http://www.cigre.org/content/download/64902/3084346/version/1/file/TOR-WG+B5.59_Requirements+for+Near-Process+Intelligent+Electronic+Devices.pdf</a>
10	WG B5-58	<a href="http://www.cigre.org/content/download/64901/3084343/version/1/file/TOR-WG+B5.58_Faster+protection+and+network+automation+systems+implications+and+requirements.pdf">http://www.cigre.org/content/download/64901/3084343/version/1/file/TOR-WG+B5.58_Faster+protection+and+network+automation+systems+implications+and+requirements.pdf</a>
11	WG B5-57	<a href="http://www.cigre.org/content/download/64900/3084340/version/1/file/TOR-WG+B5.57_New+challenges+for+frequency+protection.pdf">http://www.cigre.org/content/download/64900/3084340/version/1/file/TOR-WG+B5.57_New+challenges+for+frequency+protection.pdf</a>
12	WG B5-55	<a href="http://www.cigre.org/content/download/57729/2676708/version/1/file/TOR-WG+B5.55_Application+of+Travelling+Wave+Technology+for+Protection+and+Automation.pdf">http://www.cigre.org/content/download/57729/2676708/version/1/file/TOR-WG+B5.55_Application+of+Travelling+Wave+Technology+for+Protection+and+Automation.pdf</a>
13	WG B5-56	<a href="http://www.cigre.org/content/download/57728/2676705/version/1/file/TOR-WG+B5.56_Optimization+of+Protection+Automation+and+Control+Systems.pdf">http://www.cigre.org/content/download/57728/2676705/version/1/file/TOR-WG+B5.56_Optimization+of+Protection+Automation+and+Control+Systems.pdf</a>
14	WG B5-54	<a href="http://www.cigre.org/content/download/53559/2554664/version/1/file/TOR-WG+B5.54_Protection+and+Automation+Issues+of+Islanded+Systems.pdf">http://www.cigre.org/content/download/53559/2554664/version/1/file/TOR-WG+B5.54_Protection+and+Automation+Issues+of+Islanded+Systems.pdf</a>
15	WG B5-53	<a href="http://www.cigre.org/content/download/53558/2554661/version/1/file/TOR-WG+B5.53_Test+Strategy+for+PAC+on+IEC61850.pdf">http://www.cigre.org/content/download/53558/2554661/version/1/file/TOR-WG+B5.53_Test+Strategy+for+PAC+on+IEC61850.pdf</a>
16	WG B5-52	<a href="http://www.cigre.org/content/download/53571/2555145/version/1/file/TOR-WG+B5.52_Analysis+and+comparison+of+fault+location+systems+in+Substation.pdf">http://www.cigre.org/content/download/53571/2555145/version/1/file/TOR-WG+B5.52_Analysis+and+comparison+of+fault+location+systems+in+Substation.pdf</a>
17	WG B5-51	<a href="http://www.cigre.org/content/download/58430/2699487/version/1/file/TOR-WG+B5.51_Requirements+and+Use+of+Remotely+Accessed+Information+for+SAS.pdf">http://www.cigre.org/content/download/58430/2699487/version/1/file/TOR-WG+B5.51_Requirements+and+Use+of+Remotely+Accessed+Information+for+SAS.pdf</a>
18	WG B5-50	<a href="http://www.cigre.org/content/download/58429/2699484/version/1/file/TOR-WG+B5.50_IEC+61850+Based+Substation+Automation+Systems+%E2%80%93+Users.pdf">http://www.cigre.org/content/download/58429/2699484/version/1/file/TOR-WG+B5.50_IEC+61850+Based+Substation+Automation+Systems+%E2%80%93+Users.pdf</a>
19	WG B5-48	<a href="http://www.cigre.org/content/download/58443/2699526/version/1/file/TOR-WG+B5-48+Protection+for+developing+network+with+limited+fault+current+capability+of+generation.pdf">http://www.cigre.org/content/download/58443/2699526/version/1/file/TOR-WG+B5-48+Protection+for+developing+network+with+limited+fault+current+capability+of+generation.pdf</a>
20	WG B5-47	<a href="http://www.cigre.org/content/download/58448/2699541/version/1/file/TOR-WG+B5-47+Network+Protection+Performance+Audits.pdf">http://www.cigre.org/content/download/58448/2699541/version/1/file/TOR-WG+B5-47+Network+Protection+Performance+Audits.pdf</a>
21	WG B5-41	<a href="http://www.cigre.org/content/download/58520/2699757/version/1/file/TOR-WG+B5-41+Investigation+of+possibilities+to+improve+metering+systems+for+billing+purposes+in+substations.pdf">http://www.cigre.org/content/download/58520/2699757/version/1/file/TOR-WG+B5-41+Investigation+of+possibilities+to+improve+metering+systems+for+billing+purposes+in+substations.pdf</a>
22	WG B5-24	<a href="http://www.cigre.org/content/download/58534/2699799/version/1/file/TOR-WG+B5-24+Protection+Requirements+on+Transient+Response+of+Voltage+and+Current+Digital+Acquisition+Chain.pdf">http://www.cigre.org/content/download/58534/2699799/version/1/file/TOR-WG+B5-24+Protection+Requirements+on+Transient+Response+of+Voltage+and+Current+Digital+Acquisition+Chain.pdf</a>
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# CIGRE WORKING GROUPS LISTS

## SC C1 System Development and Economics

Last update : 30 April 2018

	Type	Number	Title	Name of convener	Date of approval
1	JWG	C1/C6-37/CIRE	Optimal transmission and distribution investment decisions under increasing energy scenario uncertainty	Juan_Carlos ARANEDA (CL)	02/08/2017
2	WG	C1-38	Valuation as a comprehensive approach to asset management in view of emerging developments	Ancell Graeme (NZ)	24/04/2017
3	WG	C1-39	Optimal power system planning under growing uncertainty	Chongqing Kang (CN)	19/03/2017
4	WG	C1-40	Planning Coordination between System Operators, Transmitters and Distributors: Frameworks, Methods, and Allocation of Costs and Benefits	Christopher Reali (CA)	19/03/2017
5	JWG	C1/C4-36	Review of Large City & Metropolitan Area power system development trends taking into account new generation, grid and information technologies	Valdson Simoes (BR)	06/02/2017
6	WG	C1-35	Global electricity network feasibility study	Jun YU (CN)	29/02/2016
7	WG	C1-34	ISO Series 55000 Standards: General Process Assessment Steps and Information Requirements for Utilities	Boudewijn NEIJENS (NL)	09/09/2015
8	WG	C1-33	Interface & Allocation Issues in multi-party and/or cross-jurisdiction power infrastructures projects	Antonio ILICETO (IT)	23/04/2015
9	JWG	C1/C3-31	Including stakeholders in the investment planning process	Alan CROES (NL)	02/03/2015
10	WG	C1-21	What advanced components and technologies are needed and which are available or under development to meet future network development requirements	Andrea Mansoldo (IE)	07/09/2009
11	WG	C1-23	Transmission investment decision points and trees	Ronald Marais (ZA)	03/06/2009
12	WG	C1-22	New investment decision processes and regulatory practices required to deal with changing economic drivers	Olivier Herz (FR)	03/06/2009
13	WG	C1-12	The impact of transmission codes on the planning of systems	Peter Wallace (AU)	05/07/2006
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# CIGRE WORKING GROUPS LISTS

**SC C1 System Development and Economics**

**Last update : 30 April 2018**

Type	Number	Links to the Terms of Reference
1	JWG C1/C6-37/CIRED	<a href="http://www.cigre.org/content/download/73262/3333852/version/1/file/TOR-JWG+C1_C6.37_CIRED_Optimal+transmission+and+distribution+investment+decisions+under+increasing+energy+scenario+uncertainty.pdf">http://www.cigre.org/content/download/73262/3333852/version/1/file/TOR-JWG+C1_C6.37_CIRED_Optimal+transmission+and+distribution+investment+decisions+under+increasing+energy+scenario+uncertainty.pdf</a>
2	WG C1-38	<a href="http://www.cigre.org/content/download/72159/3295793/version/1/file/TOR-WG+C1.38_Valuation+as+a+comprehensive+approach+to+asset+management+in+view+of+emerging+developments.pdf">http://www.cigre.org/content/download/72159/3295793/version/1/file/TOR-WG+C1.38_Valuation+as+a+comprehensive+approach+to+asset+management+in+view+of+emerging+developments.pdf</a>
3	WG C1-39	<a href="http://www.cigre.org/content/download/71661/3279292/version/1/file/TOR-WG+C1.39_Optimal+power+system+planning+under+growing+uncertainty.pdf">http://www.cigre.org/content/download/71661/3279292/version/1/file/TOR-WG+C1.39_Optimal+power+system+planning+under+growing+uncertainty.pdf</a>
4	WG C1-40	<a href="http://www.cigre.org/content/download/71662/3279295/version/1/file/TOR-WG+C1.40_Planning+Coordination+between+Sys+Op+T%26D-Frameworks%2C+Methods%2C+and+Allocation+of+Costs+and+Benefits.pdf">http://www.cigre.org/content/download/71662/3279295/version/1/file/TOR-WG+C1.40_Planning+Coordination+between+Sys+Op+T%26D-Frameworks%2C+Methods%2C+and+Allocation+of+Costs+and+Benefits.pdf</a>
5	JWG C1/C4-36	<a href="http://www.cigre.org/content/download/71133/3260336/version/1/file/TOR-JWG+C1_C4.36_Review+of+Large+City+%26+Metropolitan+Area+power+system+development+trends+taking+into+account+new+generation%2C+grid+and+inform.pdf">http://www.cigre.org/content/download/71133/3260336/version/1/file/TOR-JWG+C1_C4.36_Review+of+Large+City+%26+Metropolitan+Area+power+system+development+trends+taking+into+account+new+generation%2C+grid+and+inform.pdf</a>
6	WG C1-35	<a href="http://www.cigre.org/content/download/65594/3100733/version/1/file/TOR-WG+C1.35_Global+electricity+network+feasibility+study.pdf">http://www.cigre.org/content/download/65594/3100733/version/1/file/TOR-WG+C1.35_Global+electricity+network+feasibility+study.pdf</a>
7	WG C1-34	<a href="http://www.cigre.org/content/download/63160/2828248/version/1/file/TOR-WG+C1.34_ISO+Series+55000+Standards+General+Process+Assessment+Steps+and+Information+Requirements+for+Utilities.pdf">http://www.cigre.org/content/download/63160/2828248/version/1/file/TOR-WG+C1.34_ISO+Series+55000+Standards+General+Process+Assessment+Steps+and+Information+Requirements+for+Utilities.pdf</a>
8	WG C1-33	<a href="http://www.cigre.org/content/download/59842/2734830/version/1/file/TOR-WG+C1.33+Interface+%26+Allocation+Issues+in+multi-party+and+cross-jurisdiction+.+power+infrastructures+projects.pdf">http://www.cigre.org/content/download/59842/2734830/version/1/file/TOR-WG+C1.33+Interface+%26+Allocation+Issues+in+multi-party+and+cross-jurisdiction+.+power+infrastructures+projects.pdf</a>
9	JWG C1/C3-31	<a href="http://www.cigre.org/content/download/59760/2732104/version/1/file/TOR-JWG+C1-C3+31+including+stakeholders+in+the+investment+planning+process.pdf">http://www.cigre.org/content/download/59760/2732104/version/1/file/TOR-JWG+C1-C3+31+including+stakeholders+in+the+investment+planning+process.pdf</a>
10	WG C1-21	<a href="http://www.cigre.org/content/download/58542/2699823/version/1/file/TOR-WG+C1-21+What+advanced+components+and+technologies+are+needed.pdf">http://www.cigre.org/content/download/58542/2699823/version/1/file/TOR-WG+C1-21+What+advanced+components+and+technologies+are+needed.pdf</a>
11	WG C1-23	<a href="http://www.cigre.org/content/download/58540/2699817/version/1/file/TOR-WG+C1-23+Transmission+investment+decision+points+and+trees.pdf">http://www.cigre.org/content/download/58540/2699817/version/1/file/TOR-WG+C1-23+Transmission+investment+decision+points+and+trees.pdf</a>
12	WG C1-22	<a href="http://www.cigre.org/content/download/58541/2699820/version/1/file/TOR-WG+C1-22+New+investment+decision+processes+required+to+deal+with+changing+economic+drivers.pdf">http://www.cigre.org/content/download/58541/2699820/version/1/file/TOR-WG+C1-22+New+investment+decision+processes+required+to+deal+with+changing+economic+drivers.pdf</a>
13	WG C1-12	<a href="http://www.cigre.org/content/download/58560/2699877/version/1/file/TOR-WG+C1-12+The+Impact+of+Transmission+Codes+on+the+Planning+of+Systems.pdf">http://www.cigre.org/content/download/58560/2699877/version/1/file/TOR-WG+C1-12+The+Impact+of+Transmission+Codes+on+the+Planning+of+Systems.pdf</a>
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## CIGRE WORKING GROUPS LISTS

### SC      C2      System Operation and Control

	Type	Number	Title	Name of convener	Date of approval
1	WG	C2-39	Operator Training at Different Control Levels and for Different Participants/Actors in the New Environment	Jayne Darriba-Macedo (BR)	19/03/2018
2	WG	C2-24	System Operations impact of Fire and Weather Risk for Transmission and Distribution Systems	Frank CRISCI (AU)	20/11/2017
3	JWG	C2/B4-38	Capabilities and requirements definition for Power Electronics based technology for secure and efficient system operation	Jan van_Putten (NL)	09/02/2017
4	WG	C2-17	Wide Area Monitoring Systems – Support for Control Room Applications	Walter Sattinger (CH)	07/10/2016
5	JWG	C2/C4-37	Recommendations for Systematic Framework Design of Power System Stability Control	Yongjie Fang (CN)	09/10/2015
6	JWG	C2/C6-36	System Operation Emphasising DSO/TSO Interaction and Co-Ordination	Michael POWER (IE)	24/06/2015
7	WG	C2-22	Application of resilience engineering to safety management principles in Control Centers, ensuring and enhancing power system reliability	Teresa Carolin (ZA)	07/07/2009
8	JWG	C2/C5-5	Developments and changes in the Business of System Operators	Ole Gjerde (NO)	01/09/2012

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# CIGRE WORKING GROUPS LISTS

## SC      C2      System Operation and Control

Type	Number	Links to the Terms of Reference
1	WG C2-39	<a href="http://www.cigre.org/content/download/75643/3428834/version/1/file/TOR-WG+C2.39_Operator+Training+in+Electricity+Grids+at+Different+Control+Levels+and+for+Different+ParticipantsActors+in+the+New+Environment.pdf">http://www.cigre.org/content/download/75643/3428834/version/1/file/TOR-WG+C2.39_Operator+Training+in+Electricity+Grids+at+Different+Control+Levels+and+for+Different+ParticipantsActors+in+the+New+Environment.pdf</a>
2	WG C2-24	<a href="http://www.cigre.org/content/download/74554/3388232/version/1/file/TOR-WG+C2.24_Mitigating+the+risk+of+fire+starts+and+the+consequences+of+fires+near+overhead+lines+for+System+Operations.pdf">http://www.cigre.org/content/download/74554/3388232/version/1/file/TOR-WG+C2.24_Mitigating+the+risk+of+fire+starts+and+the+consequences+of+fires+near+overhead+lines+for+System+Operations.pdf</a>
3	JWG C2/B4-38	<a href="http://www.cigre.org/content/download/71196/3261158/version/1/file/TOR-JWG+C2_B4.38_Capabilities+and+requirements+definition+for+Power+Electronics+based+technology+for+secure+and+efficient+system+operation+an.pdf">http://www.cigre.org/content/download/71196/3261158/version/1/file/TOR-JWG+C2_B4.38_Capabilities+and+requirements+definition+for+Power+Electronics+based+technology+for+secure+and+efficient+system+operation+an.pdf</a>
4	WG C2-17	<a href="http://www.cigre.org/content/download/69780/3221363/version/1/file/TOR-WG+C2.17_Wide+Area+Monitoring+Systems+%E2%80%93+Support+for+Control+Room+Applications.pdf">http://www.cigre.org/content/download/69780/3221363/version/1/file/TOR-WG+C2.17_Wide+Area+Monitoring+Systems+%E2%80%93+Support+for+Control+Room+Applications.pdf</a>
5	JWG C2/C4-37	<a href="http://www.cigre.org/content/download/63137/2827177/version/1/file/TOR-JWG+C2-C4.37_Recommendations+for+Systematic+Framework+Design+of+Power+System+Stability+Control.pdf">http://www.cigre.org/content/download/63137/2827177/version/1/file/TOR-JWG+C2-C4.37_Recommendations+for+Systematic+Framework+Design+of+Power+System+Stability+Control.pdf</a>
6	JWG C2/C6-36	<a href="http://www.cigre.org/content/download/61016/2766324/version/1/file/TOR-JWG+C2-C6.36+_System+Operation+Emphasising+DSOTSO+Interaction+and+Co-Ordination.pdf">http://www.cigre.org/content/download/61016/2766324/version/1/file/TOR-JWG+C2-C6.36+_System+Operation+Emphasising+DSOTSO+Interaction+and+Co-Ordination.pdf</a>
7	WG C2-22	<a href="http://www.cigre.org/content/download/58539/2699814/version/1/file/TOR+WG+C2-22+Application+of+resilience+engineering+to+safety+management+principles.pdf">http://www.cigre.org/content/download/58539/2699814/version/1/file/TOR+WG+C2-22+Application+of+resilience+engineering+to+safety+management+principles.pdf</a>
8	JWG C2/C5-5	<a href="http://www.cigre.org/content/download/75056/3407862/version/1/file/TOR-JWG+C2_C5.05_Development+and+Changes+in+the+Business+of+System+Operators+updated+230118.pdf">http://www.cigre.org/content/download/75056/3407862/version/1/file/TOR-JWG+C2_C5.05_Development+and+Changes+in+the+Business+of+System+Operators+updated+230118.pdf</a>
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## CIGRE WORKING GROUPS LISTS

### SC      C3      System Environmental Performance

	Type	Number	Title	Name of convener	Date of approval
1	WG	C3-19	Responsible management of the Electric and Magnetic Field Issue	James Hart (AU)	11/02/2018
2	WG	C3-18	Eco-friendly approaches in Transmission and Distribution	Anne-Sophie Desaleux (FR)	16/08/2017
3	WG	C3-17	Interactions between Wildlife and Emerging Renewable Energy Sources and Submarine Cables	Katherine Palmquist (US)	12/05/2017
4	WG	C3-16	Interactions between Electrical Infrastructure and Wildlife	Cecile Saint-Simon (FR)	01/06/2016
5	WG	C3-15	Best environmental and socio-economic practices for improving public acceptance of high voltage substations	Marijke Wassens (NL)	12/12/2015
6	WG	C3-14	Impact of Environmental liability on transmission and distribution activities	Vincent Du Four (BE)	24/04/2014
7	WG	C3-12	Methodologies for Greenhouse gas inventory and reporting for T&D utilities	Francisco Parada (PT)	01/09/2010
8	WG	C3-9	Sustainable corridor management	Aleš Kregar (SI)	20/03/2018
9	JWG	C3/B2/B1-13	Environmental issues of HV transmission lines for rural and urban areas	Hector Pearson (GB)	20/05/2010
10	WG	C3-1	Power frequency electric and magnetic fields and health	M. Plante (CA)	04/04/2006

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# CIGRE WORKING GROUPS LISTS

## SC C3 System Environmental Performance

Type	Number	Links to the Terms of Reference
1	WG C3-19	<a href="http://www.cigre.org/content/download/75151/3411829/version/1/file/TOR-WG+C3.19_Responsible+management+of+the+Electric+and+Magnetic+Field+Issue.pdf">http://www.cigre.org/content/download/75151/3411829/version/1/file/TOR-WG+C3.19_Responsible+management+of+the+Electric+and+Magnetic+Field+Issue.pdf</a>
2	WG C3-18	<a href="http://www.cigre.org/content/download/73346/3337222/version/1/file/TOR-WG+C3.18_Eco-friendly+approaches+in+Transmission+and+Distribution.pdf">http://www.cigre.org/content/download/73346/3337222/version/1/file/TOR-WG+C3.18_Eco-friendly+approaches+in+Transmission+and+Distribution.pdf</a>
3	WG C3-17	<a href="http://www.cigre.org/content/download/72687/3315986/version/1/file/TOR-WG+C3.17_Interactions+between+Wildlife+and+Emerging+Renewable+Energy+Sources+and+associated+Insulated+Cables.pdf">http://www.cigre.org/content/download/72687/3315986/version/1/file/TOR-WG+C3.17_Interactions+between+Wildlife+and+Emerging+Renewable+Energy+Sources+and+associated+Insulated+Cables.pdf</a>
4	WG C3-16	<a href="http://www.cigre.org/content/download/67483/3158892/version/1/file/TOR-WG+C3.16_Interactions+between+Electrical+Infrastructure+and+Wildlife.pdf">http://www.cigre.org/content/download/67483/3158892/version/1/file/TOR-WG+C3.16_Interactions+between+Electrical+Infrastructure+and+Wildlife.pdf</a>
5	WG C3-15	<a href="http://www.cigre.org/content/download/64595/3072260/version/1/file/TOR-WG+C3.15+Best+environmental+and+socio-economic+practices+for+improving+public+acceptance+of+high+voltage+substations.pdf">http://www.cigre.org/content/download/64595/3072260/version/1/file/TOR-WG+C3.15+Best+environmental+and+socio-economic+practices+for+improving+public+acceptance+of+high+voltage+substations.pdf</a>
6	WG C3-14	<a href="http://www.cigre.org/content/download/56192/2637147/version/1/file/TOR-WG+C3.14_Impact+of+Environmental+liability+on+transmission+and+distribution+activities.pdf">http://www.cigre.org/content/download/56192/2637147/version/1/file/TOR-WG+C3.14_Impact+of+Environmental+liability+on+transmission+and+distribution+activities.pdf</a>
7	WG C3-12	<a href="http://www.cigre.org/content/download/58504/2699709/version/1/file/TOR-WG+C3.12+Methodologies+for+Greenhouse+gas+inventory+and+reporting+for+T%26D+utilities.pdf">http://www.cigre.org/content/download/58504/2699709/version/1/file/TOR-WG+C3.12+Methodologies+for+Greenhouse+gas+inventory+and+reporting+for+T%26D+utilities.pdf</a>
8	WG C3-9	<a href="http://www.cigre.org/content/download/76400/3461907/version/1/file/TOR-WG+C3.09_Sustainable+corridor+management.pdf">http://www.cigre.org/content/download/76400/3461907/version/1/file/TOR-WG+C3.09_Sustainable+corridor+management.pdf</a>
9	JWG C3/B2/B1-13	<a href="http://www.cigre.org/content/download/58519/2699754/version/1/file/TOR-WG+C3.13+The+relationship+between+HV+transmission+lines+and+built+development.pdf">http://www.cigre.org/content/download/58519/2699754/version/1/file/TOR-WG+C3.13+The+relationship+between+HV+transmission+lines+and+built+development.pdf</a>
10	WG C3-1	<a href="http://www.cigre.org/content/download/58581/2700429/version/1/file/TOR-WG+C3-01+Power+frequency+electric+and+magnetic+fields+and+health.pdf">http://www.cigre.org/content/download/58581/2700429/version/1/file/TOR-WG+C3-01+Power+frequency+electric+and+magnetic+fields+and+health.pdf</a>
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# CIGRE WORKING GROUPS LISTS

## SC C4 System Technical Performance

	Type	Number	Title	Name of convener	Date of approval
1	WG	C4-50	Evaluation of Transient Performance of Grounding Systems in Substations and Its Impact on Primary and Secondary Systems	Bo Zhang (CN)	01/03/2018
2	WG	C4-49	Multi-frequency stability of converter-based modern power systems	Lukasz Kocewiak (DK)	01/03/2018
3	WG	C4-47	Power System Resilience	Malcolm van-Harte (ZA)	11/10/2017
4	WG	C4-48	Overvoltage Withstand Characteristics of Power System Equipment 35-1200 kV	Ivan Dudurych (IE)	18/09/2017
5	WG	C4-46	Evaluation of Temporary Overvoltages in Power Systems due to Low Order Harmonic Resonances	Filipe Faria_da_Silva (DK)	18/09/2017
6	WG	C4-45	Measuring techniques and characteristics of fast and very fast transient overvoltages in substations and converter stations	Shjun XIE (CN)	06/02/2017
7	WG	C4-44	EMC for Large Photovoltaic Systems	Ener Salinas (SE)	29/11/2016
8	WG	C4-43	Lightning problems and lightning risk management for nuclear power plants	Takatoshi Shindo (JP)	17/02/2016
9	JWG	C4-42/CIRED	Continuous assessment of low-order harmonic emissions from customer installations	Igor PAPIC (SI)	10/02/2015
10	JWG	C4/B5-41	Challenges with series compensation application in power systems when overcompensating lines	Liisa HAARLA (FI)	08/01/2015
11	WG	C4-39	Effectiveness of line surge arresters for lightning protection of overhead transmission lines	Kenji Tsuge (JP)	10/12/2014
12	JWG	C4-40/CIRED	Revisions to IEC Technical Reports 61000-3-6, 61000-3-7, 61000-3-13, and 61000-3-14	Mark HALPIN (US)	21/11/2014
13	JWG	C4/B4-38	Network Modelling for Harmonic Studies	Marta Val Escudero (IE)	23/05/2014
14	WG	C4-37	Electromagnetic Computation Methods for Lightning Surge Studies with Emphasis on the FDTD Method	Yoshihiro Baba (JP)	09/05/2014
15	WG	C4-36	Winter Lightning – Parameters and Engineering Consequences for Wind Turbines	Masaru Ishii (JP)	09/02/2014
16	JWG	C4/C6-35/CIRED	Modelling and dynamic performance of inverter based generation in power system stability studies	Koji Yamashita (JP)	19/11/2013
17	WG	C4-33	Impact of Soil-Parameter Frequency Dependence on the Response of Grounding Electrodes and on the Lightning Performance of Electrical Systems	Silverio Visacro (BR)	28/02/2013
18	JWG	C4-31/CIRED	EMC between communication circuits and power systems	David Thomas (GB)	23/10/2012
19	WG	C4-32	Understanding of the geomagnetic storm environment for high voltage power grids	WA Radasky (US)	23/10/2012
20	WG	C4-28	Extrapolation of measured values of power frequency magnetic fields in the vicinity of power links	Patricio Munoz Rojas (ES)	09/10/2016
21	WG	C4-23	Guide to procedures for estimating the lightning performance of transmission lines	Christiaan Engelbrecht (NL)	13/06/2012
22	WG	C4-25	Issues related to ELF Electromagnetic Field exposure and transient contact currents	Konstantinos Kopsidas (GB)	01/06/2011
23	WG	C4-503	Numerical techniques for the computation of power systems, from steady-state to switching transients	Jean MAHSEREDJIAN (CA)	18/08/2010
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# CIGRE WORKING GROUPS LISTS

## SC      C4      System Technical Performance

	Type	Number	Links to the Terms of Reference
1	WG	C4-50	<a href="http://www.cigre.org/content/download/75449/3419827/version/1/file/TOR-WG+C4.50_Evaluation+of+Transient+Performance+of+Grounding+Systems+in+Substations+%26+Its+Impact+on+Primary+%26+Secondary+Systems.pdf">http://www.cigre.org/content/download/75449/3419827/version/1/file/TOR-WG+C4.50_Evaluation+of+Transient+Performance+of+Grounding+Systems+in+Substations+%26+Its+Impact+on+Primary+%26+Secondary+Systems.pdf</a>
2	WG	C4-49	<a href="http://www.cigre.org/content/download/75448/3419824/version/1/file/TOR-WG+C4.49_Multi-frequency+stability+of+converter-based+modern+power+systems.pdf">http://www.cigre.org/content/download/75448/3419824/version/1/file/TOR-WG+C4.49_Multi-frequency+stability+of+converter-based+modern+power+systems.pdf</a>
3	WG	C4-47	<a href="http://www.cigre.org/content/download/73893/3360700/version/1/file/TOR-WG+C4.47_Power+System+Resilience+(PSR+WG).pdf">http://www.cigre.org/content/download/73893/3360700/version/1/file/TOR-WG+C4.47_Power+System+Resilience+(PSR+WG).pdf</a>
4	WG	C4-48	<a href="http://www.cigre.org/content/download/73599/3346666/version/1/file/TOR-WG+C4.48_Overvoltage+Withstand+Characteristics+of+Power+System+Equipment+35-1200+kV.pdf">http://www.cigre.org/content/download/73599/3346666/version/1/file/TOR-WG+C4.48_Overvoltage+Withstand+Characteristics+of+Power+System+Equipment+35-1200+kV.pdf</a>
5	WG	C4-46	<a href="http://www.cigre.org/content/download/73598/3346663/version/1/file/TOR-WG+C4.46_Evaluation+of+Temporary+Overvoltages+in+Power+Systems+due+to+Low+Order+Harmonic+Resonances.pdf">http://www.cigre.org/content/download/73598/3346663/version/1/file/TOR-WG+C4.46_Evaluation+of+Temporary+Overvoltages+in+Power+Systems+due+to+Low+Order+Harmonic+Resonances.pdf</a>
6	WG	C4-45	<a href="http://www.cigre.org/content/download/71152/3260423/version/1/file/TOR-WG+C4.45_Measuring+techniques+and+characteristics+of+fast+and+very+fast+transient+overvoltages+in+substations+and+converter+stations.pdf">http://www.cigre.org/content/download/71152/3260423/version/1/file/TOR-WG+C4.45_Measuring+techniques+and+characteristics+of+fast+and+very+fast+transient+overvoltages+in+substations+and+converter+stations.pdf</a>
7	WG	C4-44	<a href="http://www.cigre.org/content/download/70495/3243832/version/1/file/TOR-WG+C4_44_EMC+for+Large+Photovoltaic+Systems.pdf">http://www.cigre.org/content/download/70495/3243832/version/1/file/TOR-WG+C4_44_EMC+for+Large+Photovoltaic+Systems.pdf</a>
8	WG	C4-43	<a href="http://www.cigre.org/content/download/65454/3097528/version/1/file/TOR-WG+C4.43_Lightning+problems+and+lightning+risk+management+for+nuclear+power+plants.pdf">http://www.cigre.org/content/download/65454/3097528/version/1/file/TOR-WG+C4.43_Lightning+problems+and+lightning+risk+management+for+nuclear+power+plants.pdf</a>
9	JWG	C4-42/CIRED	<a href="http://www.cigre.org/content/download/58292/2695878/version/1/file/TOR-JWG+C4.42-CIRED_Continuous+assessment+of+low-order+harmonic+emissions+from+customer+installations.pdf">http://www.cigre.org/content/download/58292/2695878/version/1/file/TOR-JWG+C4.42-CIRED_Continuous+assessment+of+low-order+harmonic+emissions+from+customer+installations.pdf</a>
10	JWG	C4/B5-41	<a href="http://www.cigre.org/content/download/57730/2676711/version/1/file/TOR-JWG+C4_B5.41_Challenges+with+series+compensation+application+in+power+systems+when+overcompensating+lines.pdf">http://www.cigre.org/content/download/57730/2676711/version/1/file/TOR-JWG+C4_B5.41_Challenges+with+series+compensation+application+in+power+systems+when+overcompensating+lines.pdf</a>
11	WG	C4-39	<a href="http://www.cigre.org/content/download/57311/2665497/version/1/file/TOR-WG+C4.39_Effectiveness+of+line+surge+arresters+for+lightning+protection+of+transmission+OHL.pdf">http://www.cigre.org/content/download/57311/2665497/version/1/file/TOR-WG+C4.39_Effectiveness+of+line+surge+arresters+for+lightning+protection+of+transmission+OHL.pdf</a>
12	JWG	C4-40/CIRED	<a href="http://www.cigre.org/content/download/56735/2648834/version/1/file/TOR-JWG+C4.40-CIRED_Revisions+to+IEC+Technical+Reports+61000-3-X.pdf">http://www.cigre.org/content/download/56735/2648834/version/1/file/TOR-JWG+C4.40-CIRED_Revisions+to+IEC+Technical+Reports+61000-3-X.pdf</a>
13	JWG	C4/B4-38	<a href="http://www.cigre.org/content/download/56197/2637162/version/1/file/TOR-JWG+C4-B4.38_Network+Modelling+for+Harmonic+Studies.pdf">http://www.cigre.org/content/download/56197/2637162/version/1/file/TOR-JWG+C4-B4.38_Network+Modelling+for+Harmonic+Studies.pdf</a>
14	WG	C4-37	<a href="http://www.cigre.org/content/download/56195/2637156/version/1/file/TOR-WG+C4.37_Electromagnetic+Computation+Methods+for+Lightning+Surge+Studies+with+Emphasis+on+the+FTD+Method.pdf">http://www.cigre.org/content/download/56195/2637156/version/1/file/TOR-WG+C4.37_Electromagnetic+Computation+Methods+for+Lightning+Surge+Studies+with+Emphasis+on+the+FTD+Method.pdf</a>
15	WG	C4-36	<a href="http://www.cigre.org/content/download/53551/2554640/version/1/file/TOR-WG+C4.36_Winter+Lightning+%E2%80%93+Parameters+and+Engineering+Consequences+for+Wind+Turbines.pdf">http://www.cigre.org/content/download/53551/2554640/version/1/file/TOR-WG+C4.36_Winter+Lightning+%E2%80%93+Parameters+and+Engineering+Consequences+for+Wind+Turbines.pdf</a>
16	JWG	C4/C6-35/CIRED	<a href="http://www.cigre.org/content/download/53566/2554863/version/1/file/TOR-JWG+C4-C6-CIRED.35_Modelling+and+dynamic+performance+of+inverter+based+generation.pdf">http://www.cigre.org/content/download/53566/2554863/version/1/file/TOR-JWG+C4-C6-CIRED.35_Modelling+and+dynamic+performance+of+inverter+based+generation.pdf</a>
17	WG	C4-33	<a href="http://www.cigre.org/content/download/58415/2699442/version/1/file/TOR-WG+C4.33_Impact+of+Soil+Parameter+Frequency+Dependence+on+the+Response+of.pdf">http://www.cigre.org/content/download/58415/2699442/version/1/file/TOR-WG+C4.33_Impact+of+Soil+Parameter+Frequency+Dependence+on+the+Response+of.pdf</a>
18	JWG	C4-31/CIRED	<a href="http://www.cigre.org/content/download/58426/2699475/version/1/file/TOR-JWG+C4.31+EMC+between+communication+circuits+and+power+systems.pdf">http://www.cigre.org/content/download/58426/2699475/version/1/file/TOR-JWG+C4.31+EMC+between+communication+circuits+and+power+systems.pdf</a>
19	WG	C4-32	<a href="http://www.cigre.org/content/download/58428/2699481/version/1/file/TOR-WG+C4.32+Understanding+of+the+geomagnetic+storm+environment+for+high+voltage+power+grids.pdf">http://www.cigre.org/content/download/58428/2699481/version/1/file/TOR-WG+C4.32+Understanding+of+the+geomagnetic+storm+environment+for+high+voltage+power+grids.pdf</a>
20	WG	C4-28	<a href="http://www.cigre.org/content/download/69778/3221357/version/1/file/TOR-WG+C4.28_Extrapolation+of+measured+values+of+power+frequency+magnetic+fields+in+the+vicinity+of+power+links.pdf">http://www.cigre.org/content/download/69778/3221357/version/1/file/TOR-WG+C4.28_Extrapolation+of+measured+values+of+power+frequency+magnetic+fields+in+the+vicinity+of+power+links.pdf</a>
21	WG	C4-23	<a href="http://www.cigre.org/content/download/58629/2701638/version/1/file/TOR-WG+C4.23+Guide+to+procedures+for+estimating+the+lightning+performance+of+transmission+lines.pdf">http://www.cigre.org/content/download/58629/2701638/version/1/file/TOR-WG+C4.23+Guide+to+procedures+for+estimating+the+lightning+performance+of+transmission+lines.pdf</a>
22	WG	C4-25	<a href="http://www.cigre.org/content/download/58468/2699601/version/1/file/TOR-WG+C4-25+Issues+related+to+ELF+Electromagnetic+Field+exposure+and+transient+contact+currents.pdf">http://www.cigre.org/content/download/58468/2699601/version/1/file/TOR-WG+C4-25+Issues+related+to+ELF+Electromagnetic+Field+exposure+and+transient+contact+currents.pdf</a>
23	WG	C4-503	<a href="http://www.cigre.org/content/download/58507/2699718/version/1/file/TOR-WG+C4-503+Numerical+techniques+for+the+computation+of+power+systems%2C+from+steady-state+to+switching+transients.pdf">http://www.cigre.org/content/download/58507/2699718/version/1/file/TOR-WG+C4-503+Numerical+techniques+for+the+computation+of+power+systems%2C+from+steady-state+to+switching+transients.pdf</a>
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# CIGRE WORKING GROUPS LISTS

## SC      C5      Electricity Markets and Regulation

	Type	Number	Title	Name of convener	Date of approval
1	WG	C5-27	Market Design for Short-Term Flexibility	Gerard Doorman (NO)	18/09/2017
2	WG	C5-26	Auction Markets and Other Procurement Mechanisms for Demand Response Services	Kankar Bhattacharya (CA)	11/08/2017
3	WG	C5-25	Regulation & Market design perspectives raised by new storage technologies	David Game (FR)	17/01/2017
4	WG	C5-23	Wholesale Market Price Caps	Adrien Ford (US)	01/12/2016
5	WG	C5-24	Exploring the Market-based value of Smart Grid developments	Elizabeth LaRose (US)	01/12/2016
6	WG	C5-22	The Management of Systemic Market Risk in Electricity Markets	David Bowker (AU)	01/12/2016
7	WG	C5-16	Costs of Electric Service, Cost Allocation Methods, and Residential Rate Trends	Angela Chuang (US)	14/10/2013
8					
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# CIGRE WORKING GROUPS LISTS

## SC      C5      Electricity Markets and Regulation

Type	Number	Links to the Terms of Reference
1	WG C5-27	<a href="http://www.cigre.org/content/download/73597/3346660/version/1/file/TOR-WG+C5.27_Market+Design+for+Short-Term+Flexibility.pdf">http://www.cigre.org/content/download/73597/3346660/version/1/file/TOR-WG+C5.27_Market+Design+for+Short-Term+Flexibility.pdf</a>
2	WG C5-26	<a href="http://www.cigre.org/content/download/73302/3335336/version/1/file/TOR-WG+C5.26_Auction+Markets+and+Other+Procurement+Mechanisms+for+Demand+Response+Services.pdf">http://www.cigre.org/content/download/73302/3335336/version/1/file/TOR-WG+C5.26_Auction+Markets+and+Other+Procurement+Mechanisms+for+Demand+Response+Services.pdf</a>
3	WG C5-25	<a href="http://www.cigre.org/content/download/70918/3253260/version/1/file/TOR-WG+C5.25_Regulation+%26+Market+design+perspectives+raised+by+new+storage+technologies.pdf">http://www.cigre.org/content/download/70918/3253260/version/1/file/TOR-WG+C5.25_Regulation+%26+Market+design+perspectives+raised+by+new+storage+technologies.pdf</a>
4	WG C5-23	<a href="http://www.cigre.org/content/download/70499/3243844/version/1/file/TOR-WG+C5.23_Wholesale+Market+Price+Caps.pdf">http://www.cigre.org/content/download/70499/3243844/version/1/file/TOR-WG+C5.23_Wholesale+Market+Price+Caps.pdf</a>
5	WG C5-24	<a href="http://www.cigre.org/content/download/70500/3243847/version/1/file/TOR-WG+C5.24_Exploring+the+Market-based+value+of+Smart+Grid+developments.pdf">http://www.cigre.org/content/download/70500/3243847/version/1/file/TOR-WG+C5.24_Exploring+the+Market-based+value+of+Smart+Grid+developments.pdf</a>
6	WG C5-22	<a href="http://www.cigre.org/content/download/70498/3243841/version/1/file/TOR-WG+C5.22_The+Management+of+Systemic+Market+Risk+in+Electricity+Markets.pdf">http://www.cigre.org/content/download/70498/3243841/version/1/file/TOR-WG+C5.22_The+Management+of+Systemic+Market+Risk+in+Electricity+Markets.pdf</a>
7	WG C5-16	<a href="http://www.cigre.org/content/download/53574/2555154/version/1/file/TOR-WG+C5.16_Costs+of+Electric+Service_Cost+Allocation+Methods_and+Residential+Rate.pdf">http://www.cigre.org/content/download/53574/2555154/version/1/file/TOR-WG+C5.16_Costs+of+Electric+Service_Cost+Allocation+Methods_and+Residential+Rate.pdf</a>
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# CIGRE WORKING GROUPS LISTS

## SC      C6      Distribution Systems and Dispersed Generation

	Type	Number	Title	Name of convener	Date of approval
1	WG	C6-31	MVDC Grid Feasibility Study	Zhao MA (CN)	07/07/2015
2	JWG	C6/D2-32	Utilization of data from smart meter system	Yasuo MATSUURA (JP)	07/07/2015
3	WG	C6-28	Hybrid Systems for off-grid power supply	Ravi Seethapathy (CA)	17/06/2014
4	WG	C6-30	The Impact of Battery Energy Storage Systems on Distribution Networks	Nikos Hatzargyriou (GR)	01/07/2014
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# CIGRE WORKING GROUPS LISTS

## SC      C6      Distribution Systems and Dispersed Generation

Type	Number	Links to the Terms of Reference
1	WG C6-31	<a href="http://www.cigre.org/content/download/61265/2775075/version/1/file/TOR-WG+C6.31_Medium+Voltage+Direct+Current+%28MVDC%29+Grid+Feasibility+Study.pdf">http://www.cigre.org/content/download/61265/2775075/version/1/file/TOR-WG+C6.31_Medium+Voltage+Direct+Current+%28MVDC%29+Grid+Feasibility+Study.pdf</a>
2	JWG C6/D2-32	<a href="http://www.cigre.org/content/download/61266/2775078/version/1/file/TOR-JWG+C6_D2.32_Utilization+of+data+from+smart+meter+system.pdf">http://www.cigre.org/content/download/61266/2775078/version/1/file/TOR-JWG+C6_D2.32_Utilization+of+data+from+smart+meter+system.pdf</a>
3	WG C6-28	<a href="http://www.cigre.org/content/download/56198/2637165/version/1/file/TOR-WG+C6.28_Hybrid+Systems+for+off-grid+power+supply.pdf">http://www.cigre.org/content/download/56198/2637165/version/1/file/TOR-WG+C6.28_Hybrid+Systems+for+off-grid+power+supply.pdf</a>
4	WG C6-30	<a href="http://www.cigre.org/content/download/56203/2637180/version/1/file/TOR-WG+C6.30_The+Impact+of+Battery+Energy+Storage+Systems+on+Distribution+Networks.pdf">http://www.cigre.org/content/download/56203/2637180/version/1/file/TOR-WG+C6.30_The+Impact+of+Battery+Energy+Storage+Systems+on+Distribution+Networks.pdf</a>
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# CIGRE WORKING GROUPS LISTS

## SC      D1      Materials and Emerging Test Techniques

	Type	Number	Title	Name of convener	Date of approval
1	WG	D1-73	Nanostructured dielectrics: Multi-functionality at the service of the electric power industry	Michel Frechette (CA)	13/12/2017
2	WG	D1-71	Understanding and mitigating corrosion	Joe Tusek (AU)	02/08/2017
3	WG	D1-69	Guidelines for test techniques of High Temperature Superconducting (HTS) systems	Richard Taylor (AU)	09/02/2017
4	WG	D1-68	Natural and synthetic esters – Evaluation of the performance under fire and the impact on environment	Massimo Pompili (IT)	17/01/2017
5	WG	D1-70	Functional Properties of modern insulating liquids	Ivanka Atanasova-Höhlein (DE)	05/12/2016
6	WG	D1-66	Requirements for partial discharge monitoring systems for gas insulated systems	Wojciech Koltunowicz (AT)	18/08/2016
7	WG	D1-67	Dielectric performance of new non-SF6 gases and gas mixtures for gas-insulated systems	Christian FRANCK (CH)	18/08/2016
8	WG	D1-64	Electrical insulation systems at cryogenic temperatures	Naoki HAYAKAWA (JP)	08/12/2015
9	WG	D1-65	Mechanical properties of insulating materials and insulated conductors for oil insulated power transformers	Lars SCHMIDT (DE)	08/12/2015
10	WG	D1-63	Partial discharge detection under DC voltage stress	Ronald PLATH (DE)	15/04/2015
11	WG	D1-62	Surface Degradation of Polymeric Insulating Materials for Outdoor Applications	Bernd Komanschek (DE)	03/10/2014
12	WG	D1-61	Optical corona detection and measurement	Nishal Mahatho (ZA)	26/09/2014
13	WG	D1-60	Traceable measurement techniques for very fast transients	Yi Li (AU)	26/09/2014
14	WG	D1-59	Methods for dielectric characterisation of polymeric insulating materials for outdoor applications	Jens Seifert (DE)	30/01/2014
15	WG	D1-58	Evaluation of dynamic hydrophobicity of polymeric insulating materials under AC and DC voltage stress	Stefan KORNHUBER (DE)	08/01/2014
16	JWG	D1/B3-57	Dielectric Testing of gas-insulated HVDC Systems	Claus Neumann (DE)	20/12/2013
17	WG	D1-56	Field grading in electrical insulation systems	Volker Hinrichsen (DE)	17/03/2013
18	WG	D1-54	Basic principles and practical methods to measure the AC and DC resistance of conductors of power cables and overhead lines	Boris Dardel (CH)	21/01/2013
19	WG	D1-53	Ageing of upgraded cellulose and cellulose impregnated in ester liquids and other liquids (Revision of Technical Brochure No 323)	Lars Lundgaard (NO)	01/10/2012
20	WG	D1-52	Moisture measurement in insulating fluids and transformer insulation - An evaluation of solid state sensors and chemical methods	Ivanaka Atanasova-Höhlein (DE)	01/10/2012
21	WG	D1-51	Dielectric performance of eco-friendly gas insulated systems	Hiroyuki Hama (JP)	01/10/2012
22	WG	D1-50	Atmospheric and altitude correction factors for air gaps and clean insulators	Johannes Rickmann (US)	15/04/2012
23	JWG	D1/B1-49	Harmonised test for the measurement of residual inflammable gases in insulating materials by gas chromatography	John-Peter Mattmann (CH)	12/04/2012
24	WG	D1-48	Properties of insulating materials under VLF voltages	Erling ILDSTAD (NO)	24/10/2011
25	JWG	D1/A2-47	New frontiers of Dissolved Gas Analysis (DGA) interpretation for power transformers and their accessories	Michel Duval (CA)	21/06/2011
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# CIGRE WORKING GROUPS LISTS

## SC      D1      Materials and Emerging Test Techniques

Type	Number	Links to the Terms of Reference	
1	WG	D1-73	<a href="http://www.cigre.org/content/download/74723/3394395/version/1/file/TOR-WG+D1.73_Nanostructured+dielectrics+Multi-functionality+at+the+service+of+the+electric+power+industry.pdf">http://www.cigre.org/content/download/74723/3394395/version/1/file/TOR-WG+D1.73_Nanostructured+dielectrics+Multi-functionality+at+the+service+of+the+electric+power+industry.pdf</a>
2	WG	D1-71	<a href="http://www.cigre.org/content/download/73285/3334724/version/1/file/TOR-WG+D1.71_Understanding+and+mitigating+corrosion.pdf">http://www.cigre.org/content/download/73285/3334724/version/1/file/TOR-WG+D1.71_Understanding+and+mitigating+corrosion.pdf</a>
3	WG	D1-69	<a href="http://www.cigre.org/content/download/71194/3261152/version/1/file/TOR-WG+D1.69_Guidelines+for+test+techniques+of+High+Temperature+Superconducting+(HTS)+systems.pdf">http://www.cigre.org/content/download/71194/3261152/version/1/file/TOR-WG+D1.69_Guidelines+for+test+techniques+of+High+Temperature+Superconducting+(HTS)+systems.pdf</a>
4	WG	D1-68	<a href="http://www.cigre.org/content/download/70920/3253266/version/1/file/TOR-WG+D1.68_Natural+and+synthetic+esters+-+Evaluation+of+the+performance+under+fire+and+the+impact+on+environment.pdf">http://www.cigre.org/content/download/70920/3253266/version/1/file/TOR-WG+D1.68_Natural+and+synthetic+esters+-+Evaluation+of+the+performance+under+fire+and+the+impact+on+environment.pdf</a>
5	WG	D1-70	<a href="http://www.cigre.org/content/download/70497/3243838/version/1/file/TOR-WG+D1.70_Functional+properties+of+modern+insulating+liquids+for+transformers+and+similar+electrical+equipment.pdf">http://www.cigre.org/content/download/70497/3243838/version/1/file/TOR-WG+D1.70_Functional+properties+of+modern+insulating+liquids+for+transformers+and+similar+electrical+equipment.pdf</a>
6	WG	D1-66	<a href="http://www.cigre.org/content/download/68990/3202258/version/1/file/TOR-WG+D1.66+Requirements+for+PDM+for+gas-insulated+systems+-+approved.pdf">http://www.cigre.org/content/download/68990/3202258/version/1/file/TOR-WG+D1.66+Requirements+for+PDM+for+gas-insulated+systems+-+approved.pdf</a>
7	WG	D1-67	<a href="http://www.cigre.org/content/download/68983/3202237/version/1/file/TOR-WG+D1.67+Dielectric+performance+of+non-SF6+gases+for+gas-insulated+systems.pdf">http://www.cigre.org/content/download/68983/3202237/version/1/file/TOR-WG+D1.67+Dielectric+performance+of+non-SF6+gases+for+gas-insulated+systems.pdf</a>
8	WG	D1-64	<a href="http://www.cigre.org/content/download/64495/3070341/version/1/file/TOR-WG+D1.64+Electrical+insulation+systems+at+cryogenic+temperatures.pdf">http://www.cigre.org/content/download/64495/3070341/version/1/file/TOR-WG+D1.64+Electrical+insulation+systems+at+cryogenic+temperatures.pdf</a>
9	WG	D1-65	<a href="http://www.cigre.org/content/download/64494/3070338/version/1/file/TOR-WG+D1.65+Mechanical+properties+of+insulating+materials+and+insulated+conductors+for+oil+insulated+power+transformers.pdf">http://www.cigre.org/content/download/64494/3070338/version/1/file/TOR-WG+D1.65+Mechanical+properties+of+insulating+materials+and+insulated+conductors+for+oil+insulated+power+transformers.pdf</a>
10	WG	D1-63	<a href="http://www.cigre.org/content/download/59640/2728862/version/1/file/TOR-WG+D1.63+Partial+discharge+detection+under+DC+stress.pdf">http://www.cigre.org/content/download/59640/2728862/version/1/file/TOR-WG+D1.63+Partial+discharge+detection+under+DC+stress.pdf</a>
11	WG	D1-62	<a href="http://www.cigre.org/content/download/56213/2637210/version/1/file/TOR-WG+D1.62+Surface+degradation+of+polymeric+insulating+materials.pdf">http://www.cigre.org/content/download/56213/2637210/version/1/file/TOR-WG+D1.62+Surface+degradation+of+polymeric+insulating+materials.pdf</a>
12	WG	D1-61	<a href="http://www.cigre.org/content/download/56210/2637201/version/1/file/TOR-WG+D1.61+Corona+Detection+and+Measurement.pdf">http://www.cigre.org/content/download/56210/2637201/version/1/file/TOR-WG+D1.61+Corona+Detection+and+Measurement.pdf</a>
13	WG	D1-60	<a href="http://www.cigre.org/content/download/56211/2637204/version/1/file/TOR-WG+D1.60+Traceable+measurement+techniques+for+very+fast+transients.pdf">http://www.cigre.org/content/download/56211/2637204/version/1/file/TOR-WG+D1.60+Traceable+measurement+techniques+for+very+fast+transients.pdf</a>
14	WG	D1-59	<a href="http://www.cigre.org/content/download/53552/2554643/version/1/file/TOR-WG+D1.59+Methods+for+dielectric+characterisation+of+polymeric+insulating+materials+for+outdoor+applications.pdf">http://www.cigre.org/content/download/53552/2554643/version/1/file/TOR-WG+D1.59+Methods+for+dielectric+characterisation+of+polymeric+insulating+materials+for+outdoor+applications.pdf</a>
15	WG	D1-58	<a href="http://www.cigre.org/content/download/53548/2554631/version/1/file/TOR-WG+D1.58+Evaluation+of+dynamic+hydrophobicity+under+AC+and+DC+Approved.pdf">http://www.cigre.org/content/download/53548/2554631/version/1/file/TOR-WG+D1.58+Evaluation+of+dynamic+hydrophobicity+under+AC+and+DC+Approved.pdf</a>
16	JWG	D1/B3-57	<a href="http://www.cigre.org/content/download/53555/2554652/version/1/file/TOR-JWG+D1_B3.57+Dielectric+Testing+of+gas-insulated+HVDC+Systems.pdf">http://www.cigre.org/content/download/53555/2554652/version/1/file/TOR-JWG+D1_B3.57+Dielectric+Testing+of+gas-insulated+HVDC+Systems.pdf</a>
17	WG	D1-56	<a href="http://www.cigre.org/content/download/58412/2699433/version/1/file/TOR-WG+D1.56+Field+grading+in+electrical+insulation+systems.pdf">http://www.cigre.org/content/download/58412/2699433/version/1/file/TOR-WG+D1.56+Field+grading+in+electrical+insulation+systems.pdf</a>
18	WG	D1-54	<a href="http://www.cigre.org/content/download/58420/2699457/version/1/file/TOR-WG+D1.54+Basic+principles+and+practical+methods+to+measure+the+AC+and+DC.pdf">http://www.cigre.org/content/download/58420/2699457/version/1/file/TOR-WG+D1.54+Basic+principles+and+practical+methods+to+measure+the+AC+and+DC.pdf</a>
19	WG	D1-53	<a href="http://www.cigre.org/content/download/58435/2699502/version/1/file/TOR-WG+D1.53+Ageing+of+upgraded+cellulose+and+cellulose+impregnated+in+ester+liquids.pdf">http://www.cigre.org/content/download/58435/2699502/version/1/file/TOR-WG+D1.53+Ageing+of+upgraded+cellulose+and+cellulose+impregnated+in+ester+liquids.pdf</a>
20	WG	D1-52	<a href="http://www.cigre.org/content/download/58434/2699499/version/1/file/TOR-WG+D1.52+Moisture+measurement+in+insulating+fluids+and+transformer+insulation.pdf">http://www.cigre.org/content/download/58434/2699499/version/1/file/TOR-WG+D1.52+Moisture+measurement+in+insulating+fluids+and+transformer+insulation.pdf</a>
21	WG	D1-51	<a href="http://www.cigre.org/content/download/58433/2699496/version/1/file/TOR-WG+D1.51+Dielectric+performance+of+eco-friendly+gas+insulated+systems.pdf">http://www.cigre.org/content/download/58433/2699496/version/1/file/TOR-WG+D1.51+Dielectric+performance+of+eco-friendly+gas+insulated+systems.pdf</a>
22	WG	D1-50	<a href="http://www.cigre.org/content/download/58597/2700525/version/1/file/TOR-WG+D1.50+Atmospheric+and+altitude+correction+factors+for+air+gaps+and+clean+insulators.pdf">http://www.cigre.org/content/download/58597/2700525/version/1/file/TOR-WG+D1.50+Atmospheric+and+altitude+correction+factors+for+air+gaps+and+clean+insulators.pdf</a>
23	JWG	D1/B1-49	<a href="http://www.cigre.org/content/download/58598/2700528/version/1/file/TOR-JWG_D1-B1.49+Harmonised+test+for+the+measurement+of+residual+flammable+gases.pdf">http://www.cigre.org/content/download/58598/2700528/version/1/file/TOR-JWG_D1-B1.49+Harmonised+test+for+the+measurement+of+residual+flammable+gases.pdf</a>
24	WG	D1-48	<a href="http://www.cigre.org/content/download/58449/2699544/version/1/file/TOR-WG+D1.48+Properties+of+insulating+materials+under+VLF+voltages.pdf">http://www.cigre.org/content/download/58449/2699544/version/1/file/TOR-WG+D1.48+Properties+of+insulating+materials+under+VLF+voltages.pdf</a>
25	JWG	D1/A2-47	<a href="http://www.cigre.org/content/download/58463/2699586/version/1/file/TOR-JWG+D1-A2-47.+New+frontiers+of+Dissolved+Gas+Analysis+%28DGA%29+interpretation+for+power+transformers+and+their+accessories.pdf">http://www.cigre.org/content/download/58463/2699586/version/1/file/TOR-JWG+D1-A2-47.+New+frontiers+of+Dissolved+Gas+Analysis+%28DGA%29+interpretation+for+power+transformers+and+their+accessories.pdf</a>
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## CIGRE WORKING GROUPS LISTS

### SC D2 Information Systems and Telecommunications

	Type	Number	Title	Name of convener	Date of approval
1	WG	D2-46	Cybersecurity future threats and impact on Electric Power Utilities organizations and operations	Dennis Holstein (US)	23/02/2018
2	WG	D2-45	Impact of governance regulations and constraints on EPU sensitive data distribution and location of data storage	Herwig Klima (AT)	13/12/2017
3	WG	D2-44	Usage of Public or Private Wireless Communication Infrastructures for Monitoring and Maintenance of Grid Assets and Facilities	Paddy Mulvey (IE)	20/03/2017
4	WG	D2-43	Enabling software defined networking for EPU telecom applications	Victor Tan (AU)	13/12/2016
5	WG	D2-42	Synchronization and time distribution in communication networks for time-sensitive distributed operational applications in the power grid	Roel De VRIES (NL)	02/08/2017
6	JWG	D2/C2-41	Advanced Utility Data Management and Analytics for Improved Situational Awareness of EPU Operations	Alberto Del_Rosso (US)	17/04/2015
7	JWG	D2/B2-39	Design, deployment and maintenance of Optical Cables associated to Overhead HV Transmission Lines	Sacha KWIK (ES)	22/01/2015
8	WG	D2-40	Cyber risks and cyber security for the next generation of digital systems in Electric Power Utilities (EPU)	Jens ZERBST (SE)	08/01/2015

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# CIGRE WORKING GROUPS LISTS

## SC      D2      Information Systems and Telecommunications

SC	D2	Information Systems and Telecommunications	Links to the Terms of Reference
Type	Number		
1	WG	D2-46	<a href="http://www.cigre.org/content/download/75337/3415733/version/1/file/TOR-WG+D2.46_Cybersecurity+future+threats+and+impact+on+Electric+Power+Utility.pdf">http://www.cigre.org/content/download/75337/3415733/version/1/file/TOR-WG+D2.46_Cybersecurity+future+threats+and+impact+on+Electric+Power+Utility.pdf</a>
2	WG	D2-45	<a href="http://www.cigre.org/content/download/74725/3394401/version/1/file/TOR-WG+D2.45_Impact+of+governance+regulations+and+constraints+on+EPU+sensitive+data+distribution+and+location+of+data+storage.pdf">http://www.cigre.org/content/download/74725/3394401/version/1/file/TOR-WG+D2.45_Impact+of+governance+regulations+and+constraints+on+EPU+sensitive+data+distribution+and+location+of+data+storage.pdf</a>
3	WG	D2-44	<a href="http://www.cigre.org/content/download/71690/3279729/version/1/file/TOR-WG+D2.44_Usage+of+Public+or+Private+Wireless+Communication+Infrastructures+for+Monitoring+and+Maintenance+of+Grid+Assets+and+Facilities.pdf">http://www.cigre.org/content/download/71690/3279729/version/1/file/TOR-WG+D2.44_Usage+of+Public+or+Private+Wireless+Communication+Infrastructures+for+Monitoring+and+Maintenance+of+Grid+Assets+and+Facilities.pdf</a>
4	WG	D2-43	<a href="http://www.cigre.org/content/download/70558/3245125/version/1/file/TOR-WG+D2.43_Enabling+software-defined+networking+for+Electric+Power+Utilities%E2%80%99+telecom+applications.pdf">http://www.cigre.org/content/download/70558/3245125/version/1/file/TOR-WG+D2.43_Enabling+software-defined+networking+for+Electric+Power+Utilities%E2%80%99+telecom+applications.pdf</a>
5	WG	D2-42	<a href="http://www.cigre.org/content/download/73261/3333849/version/1/file/TOR-WG+D2.42_Synchronization+and+time+distribution+in+communication+networks+for+time-sensitive+distributed+operational+applications.pdf">http://www.cigre.org/content/download/73261/3333849/version/1/file/TOR-WG+D2.42_Synchronization+and+time+distribution+in+communication+networks+for+time-sensitive+distributed+operational+applications.pdf</a>
6	JWG	D2/C2-41	<a href="http://www.cigre.org/content/download/59757/2732095/version/1/file/TOR-JWG+D2_C2.41-Advanced+Utility+Data+Management+and+Analytics+for+Improved+Situational+Awareness+of+EPU+Operations.pdf">http://www.cigre.org/content/download/59757/2732095/version/1/file/TOR-JWG+D2_C2.41-Advanced+Utility+Data+Management+and+Analytics+for+Improved+Situational+Awareness+of+EPU+Operations.pdf</a>
7	JWG	D2/B2-39	<a href="http://www.cigre.org/content/download/57914/2683194/version/1/file/TOR-JWG+D2-B2.39_Design%2C+deployment+and+maintenance+of+Optical+Cables+associated+to+Overhead+HV+Transmission+Lines.pdf">http://www.cigre.org/content/download/57914/2683194/version/1/file/TOR-JWG+D2-B2.39_Design%2C+deployment+and+maintenance+of+Optical+Cables+associated+to+Overhead+HV+Transmission+Lines.pdf</a>
8	WG	D2-40	<a href="http://www.cigre.org/content/download/57746/2676874/version/1/file/TOR-WG+D2.40_Cyber+risk+and+cyber+security+for+the+next+generation+of+digital+systems+in+EPUs.pdf">http://www.cigre.org/content/download/57746/2676874/version/1/file/TOR-WG+D2.40_Cyber+risk+and+cyber+security+for+the+next+generation+of+digital+systems+in+EPUs.pdf</a>
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