

# SC C4 2017 Meeting

29 May 2017 – Dublin

**Zia Emin**

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# CIGRE Antitrust Guidelines

- <http://www.cigre.org/News/CIGRE-Compliance-Regulations>

## Antitrust Guidelines for CIGRE Meetings (summary)

**WHY.** The antitrust laws and other business laws apply to CIGRE, its members and respective employees, and advisers; violations can lead to civil and criminal liability.

**WHEN AND WHERE.** These guidelines apply before, during, and after CIGRE meetings, including in the hallways, over cocktails and at dinner.

**CIGRE'S PRIMARY PURPOSE.** Is to allow engineers and specialists from all around the world to exchange information and enhance their knowledge related to power systems.

**YOUR ROLE.** You are acting unbiasedly in the interest of CIGRE. Follow the meeting agenda; provide advice on CIGRE's technical program and how to make CIGRE most useful.

**DO NOT DISCUSS.** Pricing, production capacity or cost information which is not publicly available; confidential market strategies or business plans; and other competitively sensitive information.

**WE WILL NOT RECOMMEND.** Your use of particular vendors, contractors or consultants, and we will not promote or endorse commercial products or services of third parties. You must draw your own conclusions and make your own choices independently.

**BE ACCURATE, OBJECTIVE, AND FACTUAL.** In any discussions of goods and services offered in the market by others, including your competitors, suppliers, and customers.

**DO NOT AGREE WITH OTHERS.** To discriminate against or refuse to deal with (i.e. "boycott") a supplier; or to do business only on certain terms and conditions; or to set price, divide markets, or allocate customers.

**DO NOT TRY TO INFLUENCE.** Or advise others on their business decisions, and do not discuss yours (except to the extent that they are already public).

**ASK.** For advice from your own legal Department if you have questions about any aspect of these guidelines or about a particular situation or activity at CIGRE; or ask the responsible CIGRE manager to contact CIGRE Legal Counsel.

**BE INFORMED.** Read the Compliance Guide of CIGRE available on the CIGRE website for reference.

### General, Scope of Policy

1. The purpose of CIGRE, International Council on Large Electric System, 21 Rue d 'Artois, 75008, Paris, France, ("CIGRE"), is to allow engineers and specialists from all around the world to exchange information and enhance their knowledge related to power systems.
2. The representatives of the members of CIGRE are acting in the interest of CIGRE (and not in the interest of their respective employer having nominated them into the body, as the case may be).
3. CIGRE has adopted this Compliance Guide ("Guide") by resolution of the Steering Committee on 27<sup>th</sup> January 2014. CIGRE shall ensure that its members and their representatives comply with this Guide.

This Guide is intended for the authorized representatives ("Representatives") of the Members of CIGRE (hereinafter the "Members") that participate at discussions and at the meetings that are held. **Each of the Members warrants that he/she has carefully read this Guide and acknowledges that by signing the present Guide, he/she agrees to fully comply with its terms and conditions.** In case of doubts about the implementation of this Guide or on the meaning of some of its terms, prohibitions or recommendations, the Members and their Representatives shall consult with their respective legal counsel or the legal counsel of CIGRE.

### I. APPLICABLE RULES SUMMARY

Discussions between Members and their Representatives and subsequent exchanges of information may give rise to antitrust risks, in particular if such exchange of information allows, directly or indirectly, the Members and their Representatives to set up a cartel or more generally to coordinate their competitive behaviors in order to restrict competition.

This is why it is essential that each Member and their Representatives remain extremely attentive and warrant a strict compliance with the rules stated below, as any breach of these rules is likely to expose Members and their Representatives that are responsible for such breach, **either in an active or passive way (i.e. by merely agreeing to decisions or orientations taken by other Members or their Representatives), to serious sanctions.**

**The rules laid down by competition law must be complied with during the discussions and the meetings organized by CIGRE.**

Under French and international laws, agreements, decisions by associations or undertakings or concerted practices between undertakings, which may have an effect on the French or other relevant markets and which have the object or effect of retaining, restricting or distorting competition, are prohibited; this is the case in particular of any agreement that:

- fix purchase prices, selling prices or any other trading conditions, limit or control production, markets, technical developments or investments;
- share markets or sources of supply;
- limit the access to the market by another undertaking (competitor or trading partner).

As a consequence, and unless with respect to the matters described below and within the limits mentioned below, **the Members and their Representatives shall not at any time exchange**

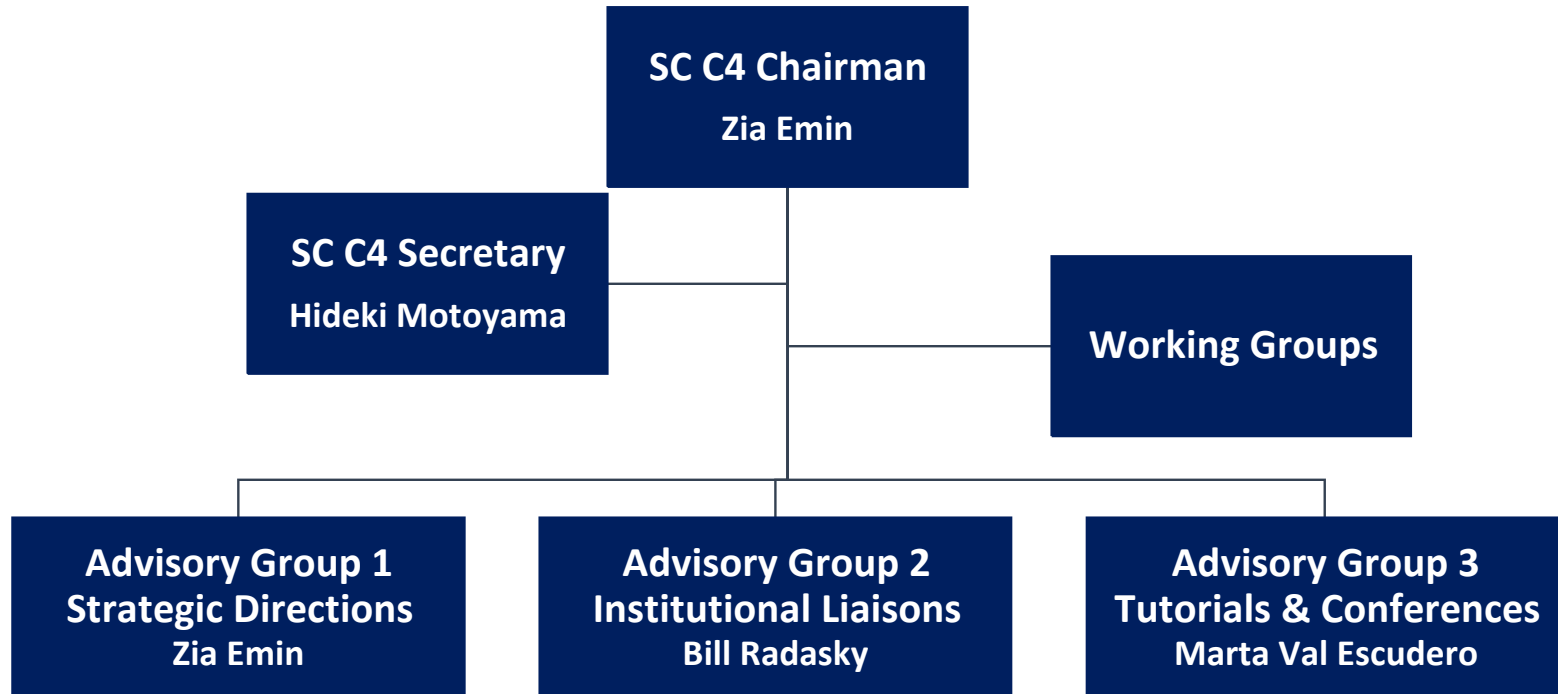
COMPLIANCE GUIDE of CIGRE-Revised\_2014-07-25.doc

# Agenda

1	Welcome and introductions	09:00 – 09:15
2	CIGRE Antitrust guidelines	09:15 – 09:20
3	Approval of Agenda (additions/changes)	09:20 – 09:25
4	Review of SC C4 membership & structure	09:25 – 09:35
5	Study Committee Chairman's report	09:35 – 10:15
6	Morning coffee break	10:15 – 10:45
7	Advisory Group 1 – Strategic Directions	10:45 – 11:30
8	Advisory Group 2 – Institutional Liaison	11:30 – 12:00
9	Lunch break	12:00 – 13:15
10	Advisory Group 3 – Tutorials & Conferences	13:15 – 14:00
11	Publications	14:00 – 14:30
12	Review of SC C4 Website and KMS	14:30 – 15:15
13	Afternoon coffee break	15:15 – 15:45
14	CIGRE Paris 2018 Session: Preferential Subjects	15:45 – 16:00
15	Next SC C4 Meeting	16:00 – 16:15
16	Any Other Business (comments/questions/concerns/suggestions)	16:15 – 17:30
17	Final remarks and close of the meeting	17:30 – 18:00

# SC C4 Structure

# SC C4 Structure



# SC C4 Membership

Name	Country	NC	e-mail	Nomination	Status
Zia EMIN	United Kingdom	GB	zia.emin@ieee.org	2016	Chairman
Hideki MOTOYAMA	Japan	JP	hideki.motoyama@ieee.org	2012	Secretary
Andrew HALLEY	Australia	AU	andrew.halley@tasnetworks.com.au	2016	Regular
Stephan PACK	Austria	AT	pack@tugraz.at	2012	Regular
Dalton BRASIL	Brazil	BR	docb@ons.org.br	2010	Regular
David JACOBSON	Canada	CA	dajacobson@hydro.mb.ca	2016	Regular
Ruijin LIAO	China	CN	rjliao@cqu.edu.cn	2012	Regular
Ivo UGLEŠIĆ	Croatia	HR	ivo.uglesic@fer.hr	2010	Regular
Filipe Miguel FÁRIA da SILVA	Denmark	DK	ffs@et.aau.dk	2016	Regular
Liisa Christina HAARLA	Finland	FI	liisa.haarla@fingrid.fi	2016	Regular
Alain XEMARD	France	FR	alain.xemard@edf.fr	2010	Regular
Christoph DORNEMANN	Germany	DE	christoph.doernemann@amprion.net	2010	Regular
Evangelos DIALYNAS	Greece	GR	dialynas@power.ece.ntua.gr	2010	Regular
Marta VAL ESCUDERO	Ireland	IE	marta.valescudero@eirgrid.com	2014	Regular
Evgeni VOLPOV	Israel	IL	evgeni.volpov@gmail.com	2014	Regular
Giorgio GIANNUZZI	Italy	IT	giorgio.giannuzzi@terna.it	2016	Regular
Yoshihiro BABA	Japan	JP	ybaba@mail.doshisha.ac.jp	2016	Regular
Hans Kristian HOIDALEN	Norway	NO	hans.hoidalen@elkraft.ntnu.no	2012	Regular
Yury KUCHEROV	Russia	RU	kuchеров@so-ups.ru	2014	Regular
Brandon PETERSON	South Africa	ZA	brandon.peterson@eskom.co.za	2016	Regular
Angel DE LA PEÑA	Spain	ES	angel.delapena@enel.com	2016	Regular
Anders HOLM	Sweden	SE	anders.holm@vattenfall.com	2012	Regular
Farhad RACHIDI	Switzerland	CH	farhad.rachidi@epfl.ch	2010	Regular
Ertugrul PARTAL	Turkey	TR	ertugrul.partal@teias.gov.tr	2016	Regular
Leong KOO	United Kingdom	GB	lkoo@theiet.org	2014	Regular
Theo LAUGHNER	United States	US	tlaughner@tva.gov	2014	Regular

- Chair & Secretary
- 24 Regular Members
- 17 Observer Members
- 41 countries represented
- Of 43 members
  - 16 are from R&D+Uni
  - 18 from Utilities
  - 9 from Regulators, Manufacturers or other entities.

# SC C4 Working Groups

WG #	Title	Convener	Dates (Creation - Disbanding)
WG C4.503	Numerical techniques for the computation of power systems, from steady-state to switching transients	J. Mahseredjian (Canada)	2010 - 2013
WG C4.23	Guide to Procedures for Estimating the Lightning Performance of Transmission Lines	C. Engelbrecht (Netherlands)	2012 - 2015
JWG C4.24/CIREC	Power Quality and EMC Issues associated with future electricity networks	F. Zavoda (Canada)	2013 - 2016
WG C4.25	Issues related to ELF Electromagnetic Field exposure and transient contact currents	K. Kopsidas (UK)	2011 - 2017
WG C4.26	Evaluation of Lightning Shielding Analysis Methods for EHV and UHV DC and AC Transmission-lines	JL. He (China) - bio	2011 - 2014
WG C4.27	Benchmarking of Power Quality Performance in Transmission Systems	D. Vujelovic (UK)	2012 - 2016
WG C4.28	Extrapolation of measured values of power frequency magnetic fields in the vicinity of power links	Patricio E. Munhoz Rojas (Brazil) - bio	2016 - 2018
WG C4.30	EMC in Wind Generation Systems	WH Siew (UK) - bio	2013 - 2015
WG C4.31/CIREC	EMC between Communication Circuits and Power Systems	D. Thomas (UK)	2012 - 2016
WG C4.32	Understanding of the Geomagnetic Storm Environment for High Voltage Power Grids	W. A. Radzsky (USA) - bio	2013 - 2015
WG C4.33	Impact of Soil-Parameter Frequency Dependence on the Response of Grounding Electrodes and on the Lightning Performance of Electrical Systems	S. Visacro (Brazil)	2013 - 2016
WG C4.34	Application of Phasor Measurement Units for monitoring power system dynamic performance	U. D. Annakdiage (Canada)	2013 - 2016
JWG C4/C6.35/CIREC	Modelling and dynamic performance of inverter based generation in power system transmission and distribution studies	K. Yamashita (Japan) - bio	2013 - 2017
WG C4.36	Winter Lightning - Parameters and Engineering Consequences for Wind Turbines	M. Ishii (Japan) - bio	2014 - 2017
WG C4.37	Electromagnetic Computation Methods for Lightning Surge Studies with Emphasis on the FDTD Method	Y. Baba (Japan) - bio	2014 - 2018
JWG C4/B4.38	Network Modelling for Harmonic Studies	M. Val Escudero (Ireland) - bio	2014 - 2017
WG C4.39	Effectiveness of line surge arresters for lightning protection of overhead transmission lines	K. Tsuge (Japan)	2015 - 2017
JWG C4.40/CIREC	Revisions to IEC Technical Reports 61000-3-6, 61000-3-7, 61000-3-13, and 61000-3-14	M. Halpin (USA)	2015 - 2018
JWG C4/B5.41	Challenges with series compensation application in power systems when overcompensating lines	L. Haarla (Finland)	2015 - 2017
JWG C4.42/CIREC	Continuous assessment of low-order harmonic emissions from customer installations	I. Papič (Slovenia)	2015 - 2018
WG C4.43	Lightning problems and lightning risk management for nuclear power plants	T. Shindo (Japan) - bio	2017 - 2020
JWG A2/C4.52	High-frequency transformer and reactor models for network studies	B. Gustavsen (Norway)	2014 - 2018
JWG A3/B5/C4.37	System conditions for and probability of Out-of-Phase	A. Janssen (Netherlands) - bio	2014 - 2017
JWG A1/C4.52	Wind generators and frequency-active power control of power systems	N. Miller (USA)	2015 - 2018
JWG C2/C4.37	Recommendations for Systematic Framework Design of Power System Stability Control	Y. Fang (China)	2015 - 2017
JWG B4/B1/C4.73	Surge and extended overvoltage testing of HVDC Cable Systems	M. Saltzer (Sweden)	2016 - 2017
WG C4.44	EMC for Large Photovoltaic Systems	E. Salinas (Sweden)	2017 - 2019
JWG B5/C4.61	Impact of Low Inertia Network on Protection and Control	R. Zhang (UK)	2017- 2020
JWG C1/C4.36	Review of Large City & Metropolitan Area power system development trends taking into account new generation, grid and information technologies.	Valdeon Jesus (Brazil) Stanislav Utkin (Russia)	2017 - 2019
WG C4.45	Measuring techniques and characteristics of fast and very fast transient overvoltages in substations and converter stations	Shijun Xie (China)	2017 - 2021

- 29 JWG/WG
- 5 on PQ
- 5 on EMC
- 2 IC
- 7 L
- 11 PMNA

# SC Chairman's Report



# TC Meetings

- Paris, August 2016
- Philadelphia, USA, November 2016
- Arnhem, The Netherlands, March 2017

# TC Highlights - 1

- 2018 Session plans
  - Climate change – relation to power systems
  - Tutorials by SCs – volunteers?
- Network of the Future document being finalised
- Technical strategy – transmission vs distribution
  - TC & SC joint meeting
- Guidelines on engagements with other organisations being drafted

# TC Highlights - 2

- Sustainability – TC project (SC C3)
- Access to Electricity
- WG expert nominations
- CIGRE technical reference papers
- Desire to have Webinars
- WG management tool
- E-cigre upgrade

# Statistics on WGs

01/01/2015

**+41**

01/01/2016

**+37**

01/01/2017

226

**2015-2016**

230

**2016-2017**

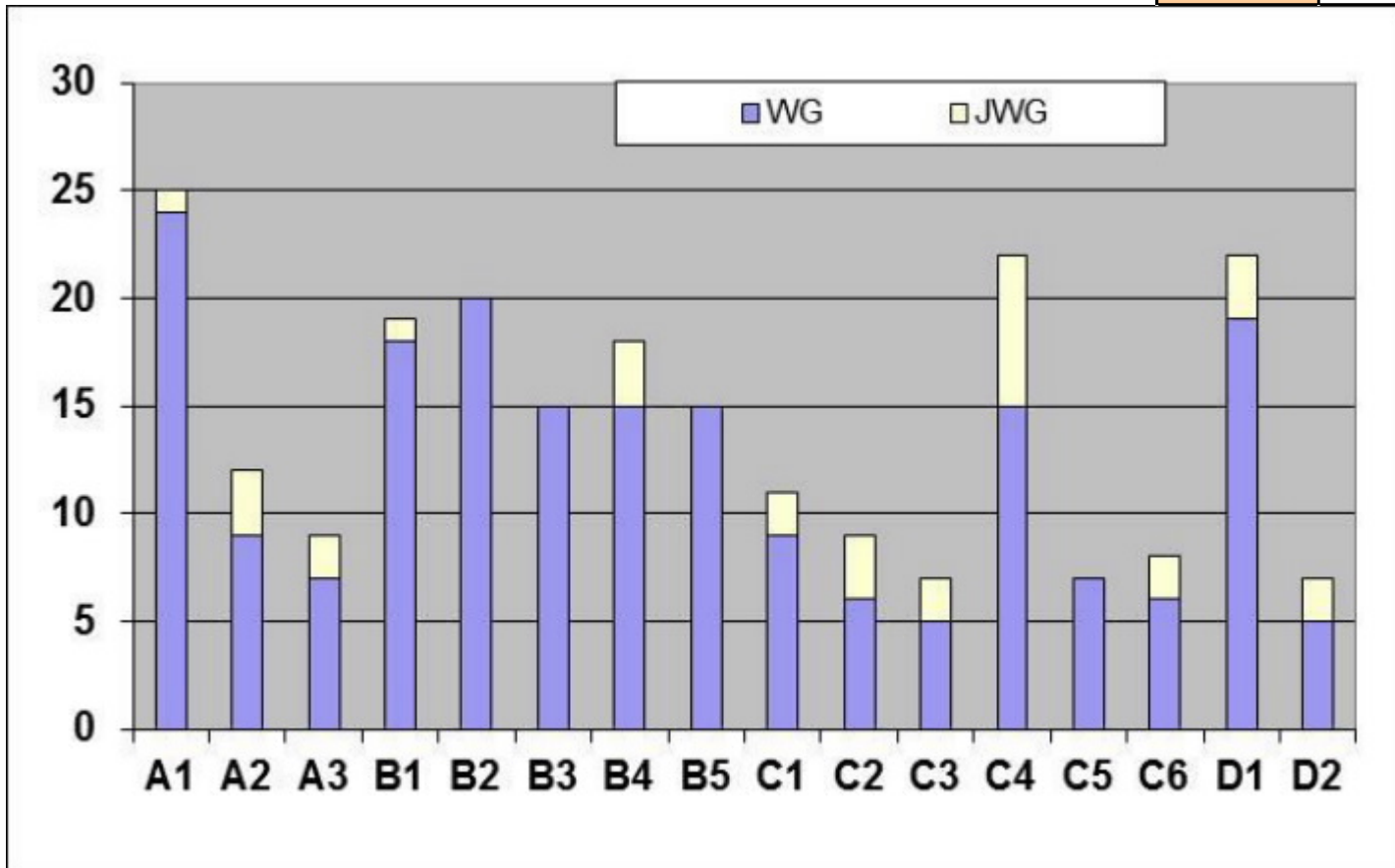
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**-37**

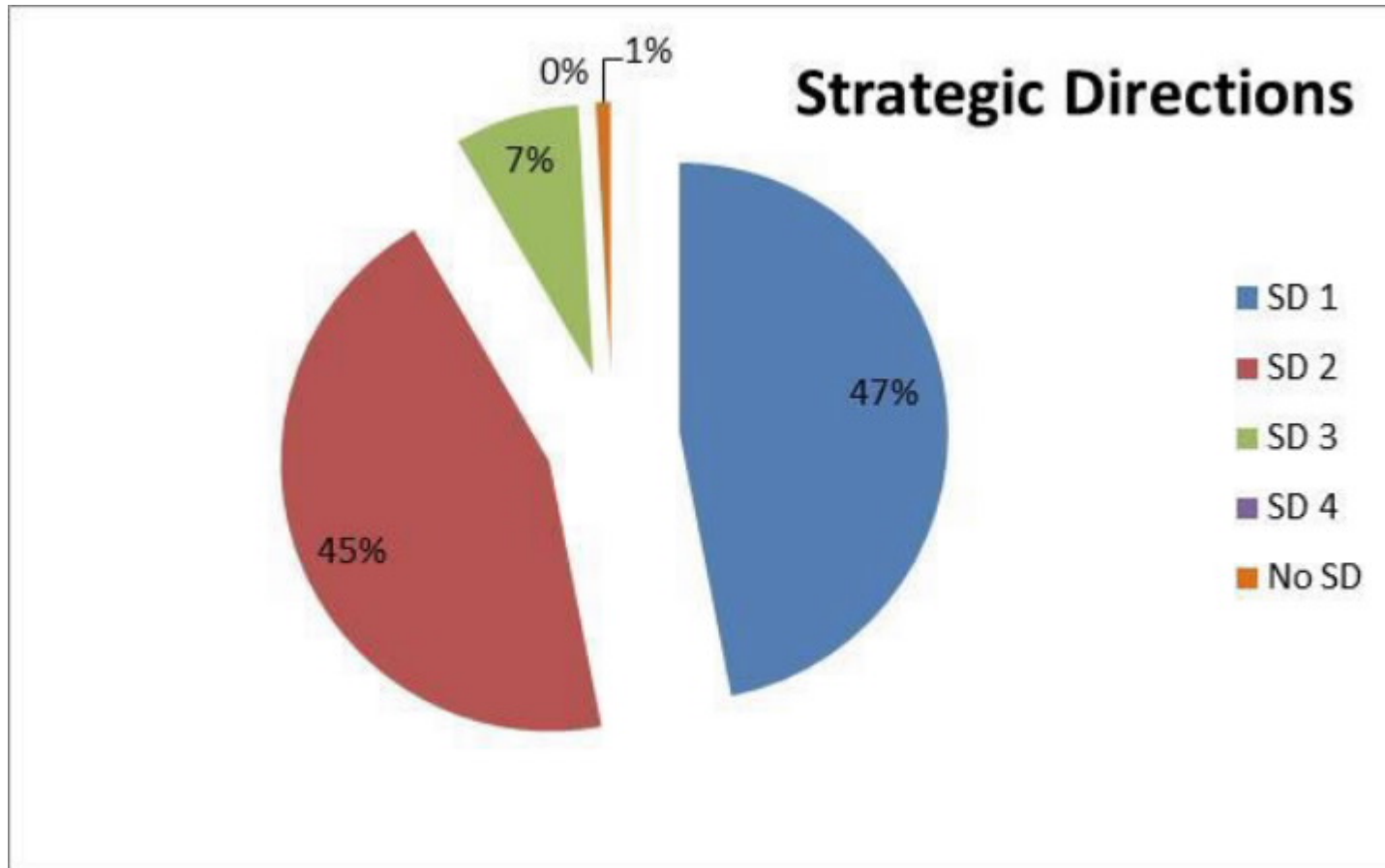
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# Distribution of WGs on SCs

SCs	WG	JWG	WB Total
All	195	31	226

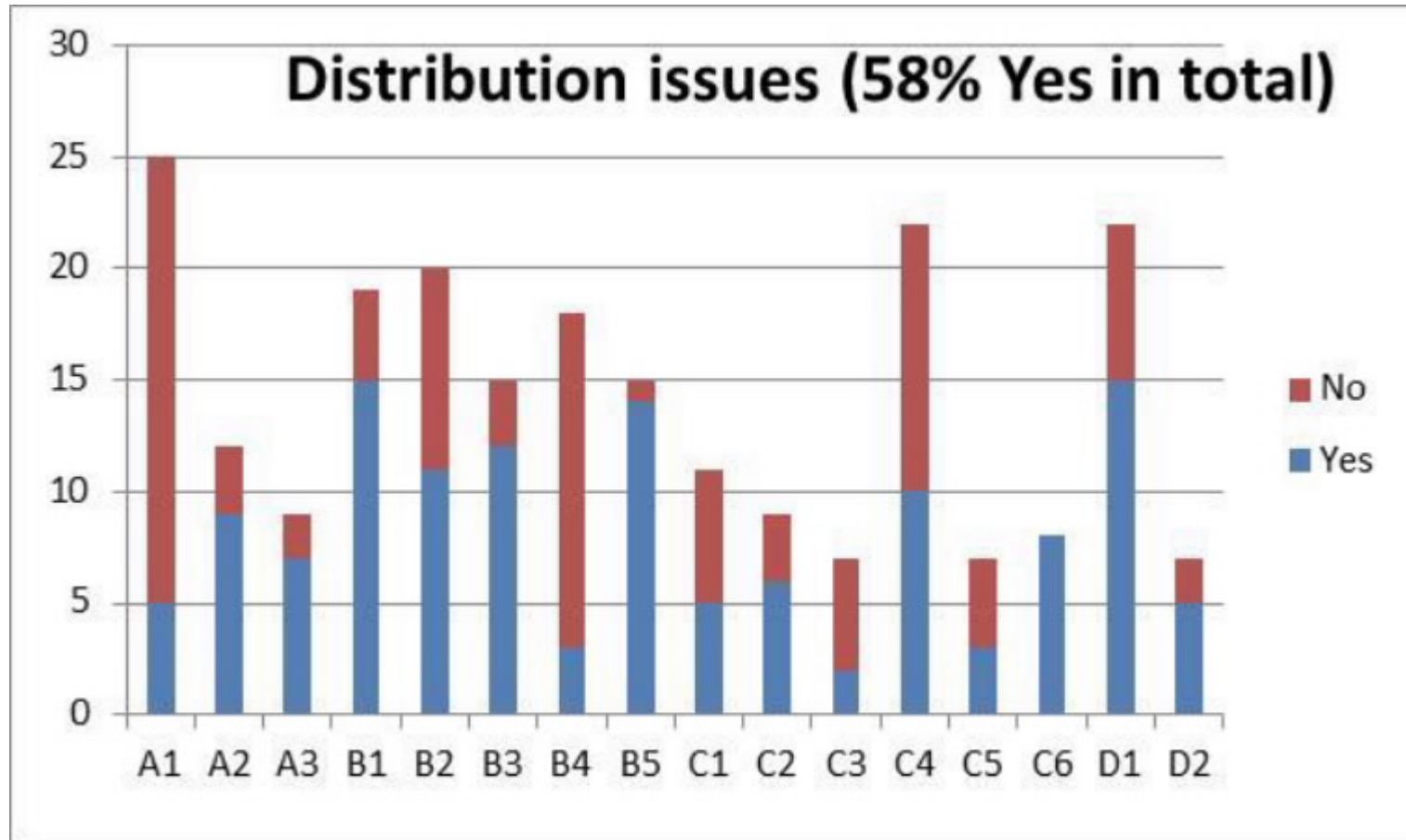


# WGs on Strategic Directions



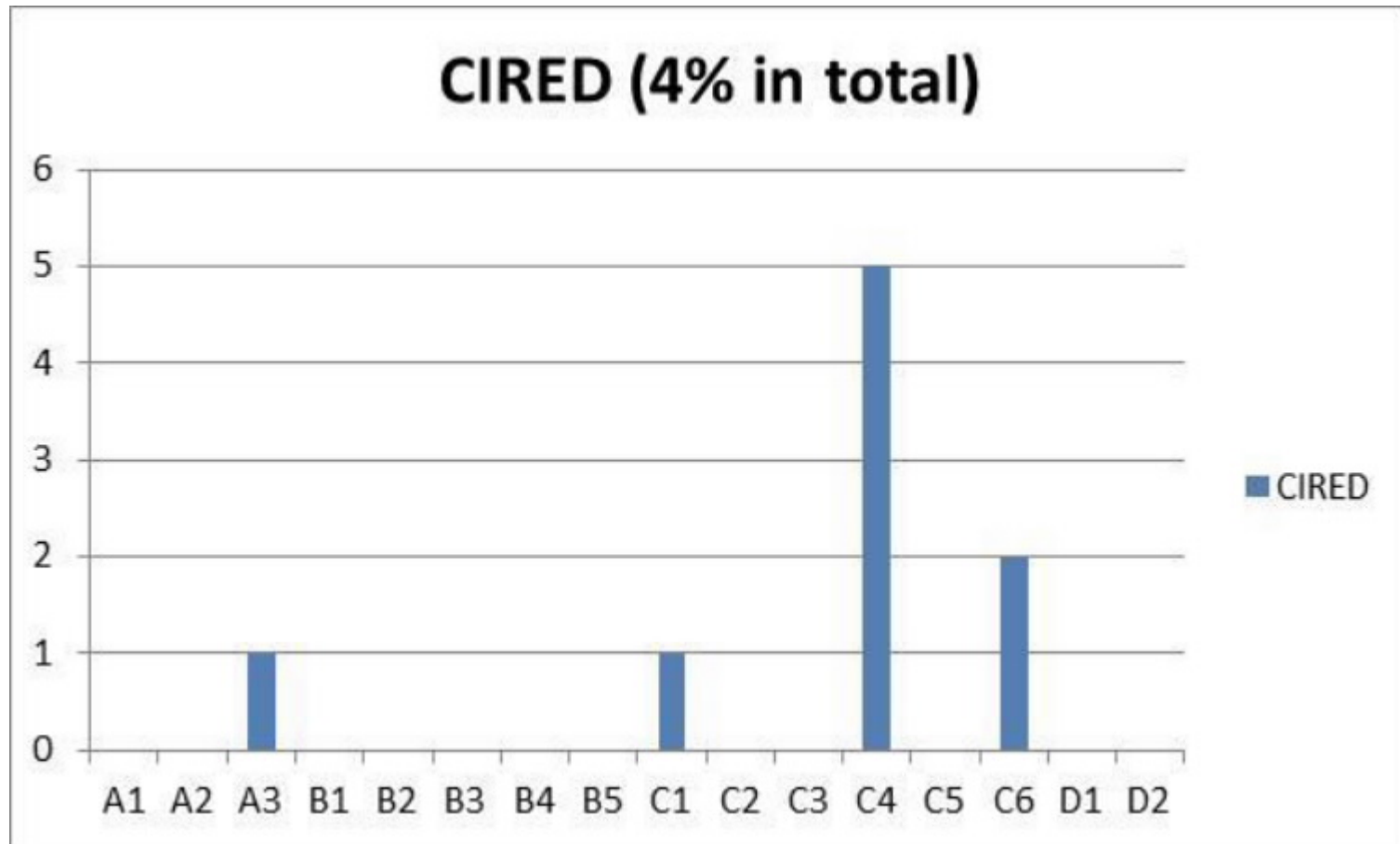
SD 1: Network of the future. SD2: Existing System, SD3: Environment, SD4: Communication

# Distribution Issues



Last year 57%

# JWG with CIRED



Last year 4%

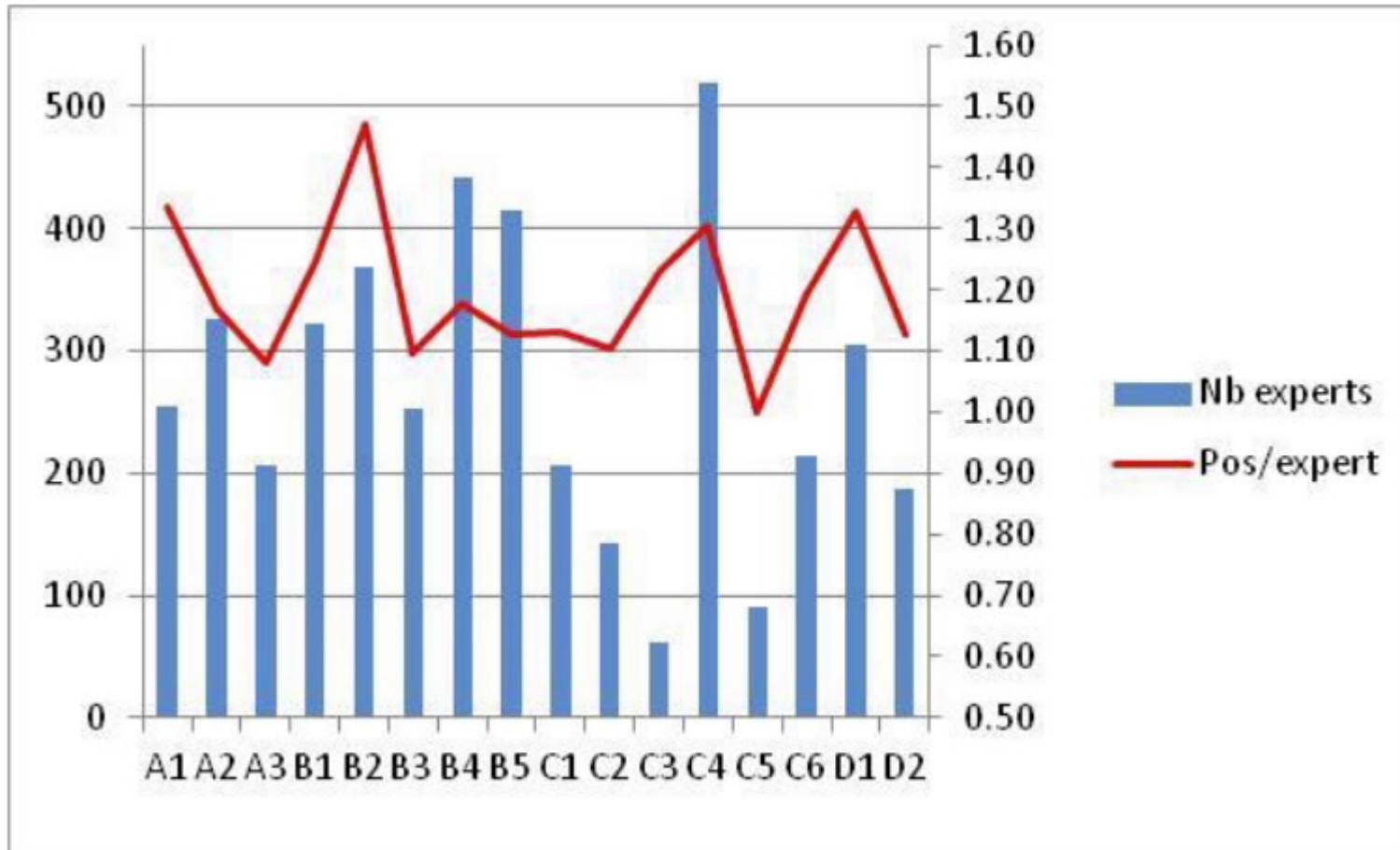


# Synthesis of WGs (2016)

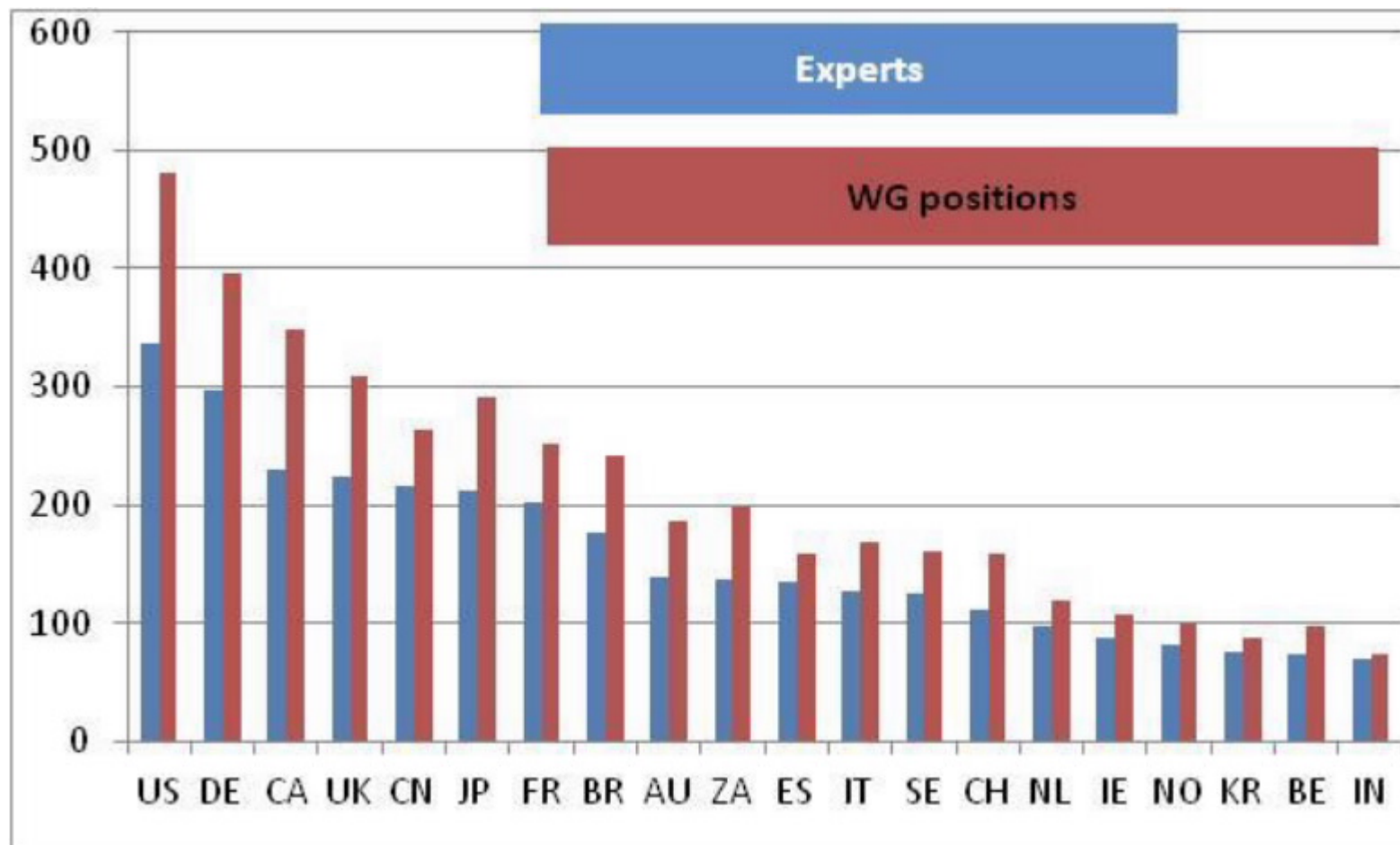
				Nb Experts			
SC	Nb WG	Nb countries	Nb Positions	Nb experts	of which Nb Ladies	Pos/expert	Ladies/ experts
A1	25	38	341	255	1	1.34	0%
A2	14	40	383	327	29	1.17	9%
A3	11	27	224	207	15	1.08	7%
B1	27	33	403	323	30	1.25	9%
B2	19	42	543	369	21	1.47	6%
B3	16	38	277	253	21	1.09	8%
B4	21	33	520	442	36	1.18	8%
B5	21	40	466	414	18	1.13	4%
C1	17	38	234	207	35	1.13	17%
C2	9	34	158	143	12	1.10	8%
C3	5	25	75	61	18	1.23	30%
C4	27	50	678	520	27	1.30	5%
C5	8	29	90	90	19	1.00	21%
C6	9	37	255	214	18	1.19	8%
D1	18	36	405	305	24	1.33	8%
D2	7	35	211	187	18	1.13	10%
All SC	243	67	4973	3766	299	1.32	8%

More countries involved: 67 against 64. Slight decrease of experts: 1%, slight increase of ladies

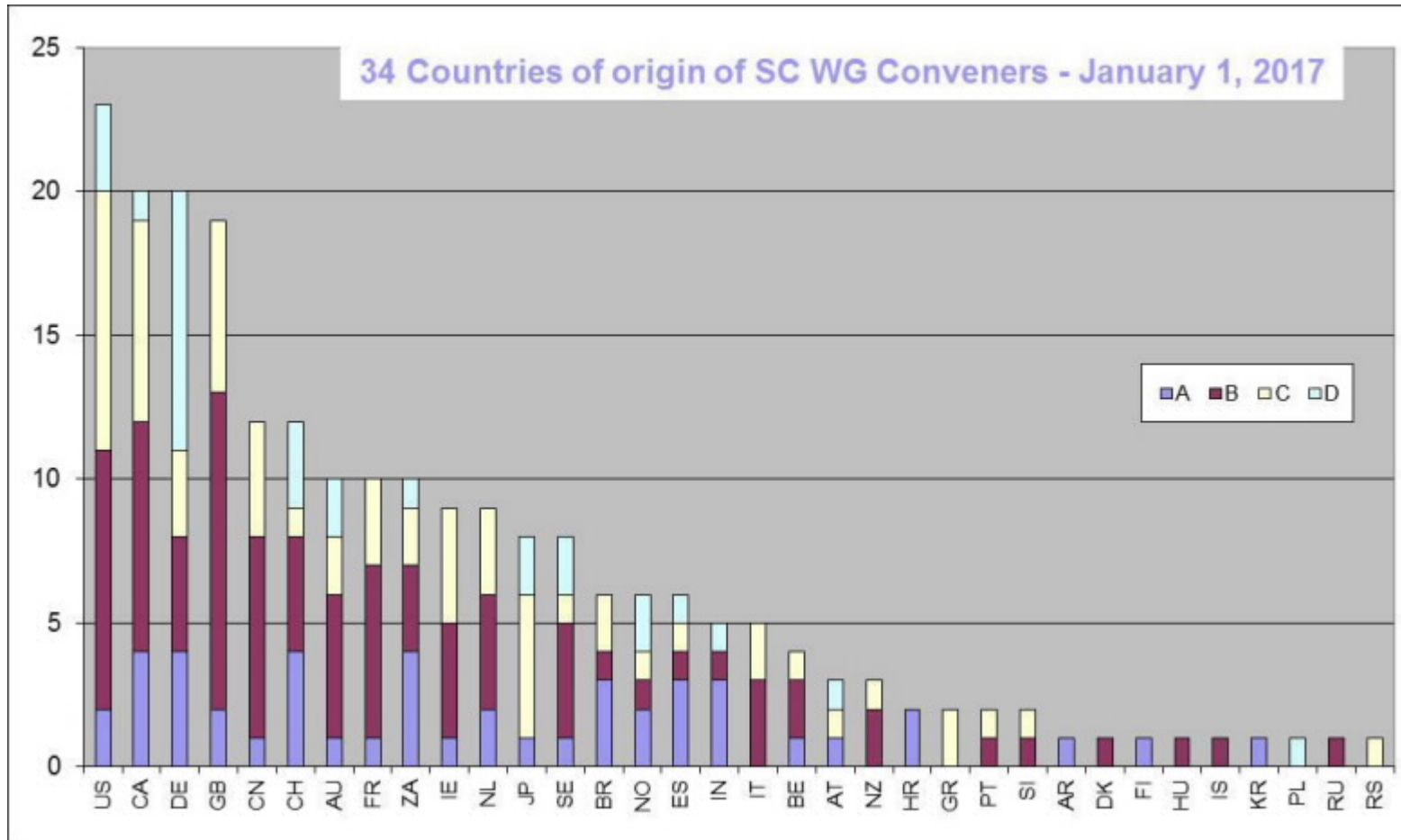
# Experts in WGs (2016)



# Experts from Countries (2016)



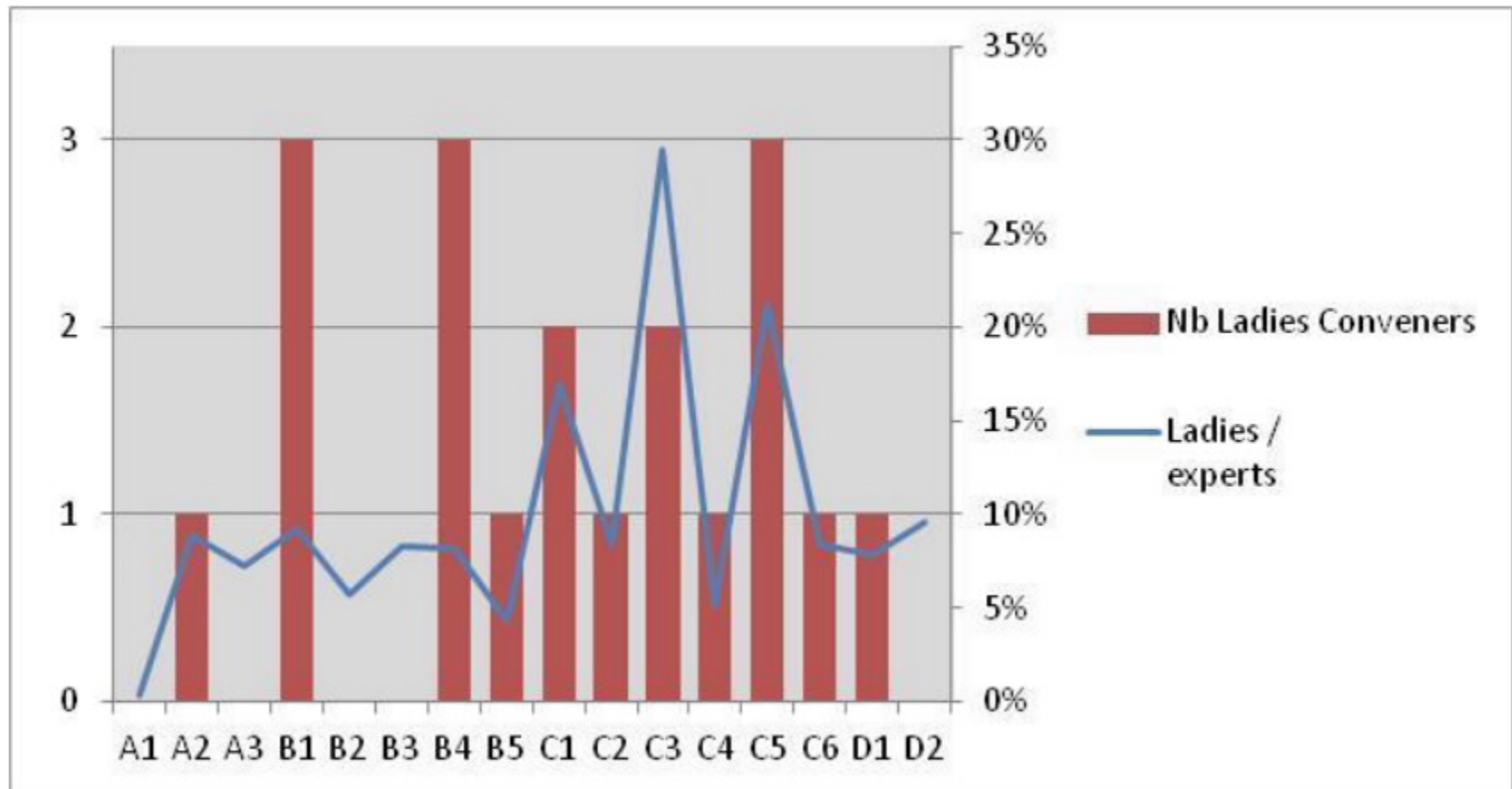
# WG Conveners' NC



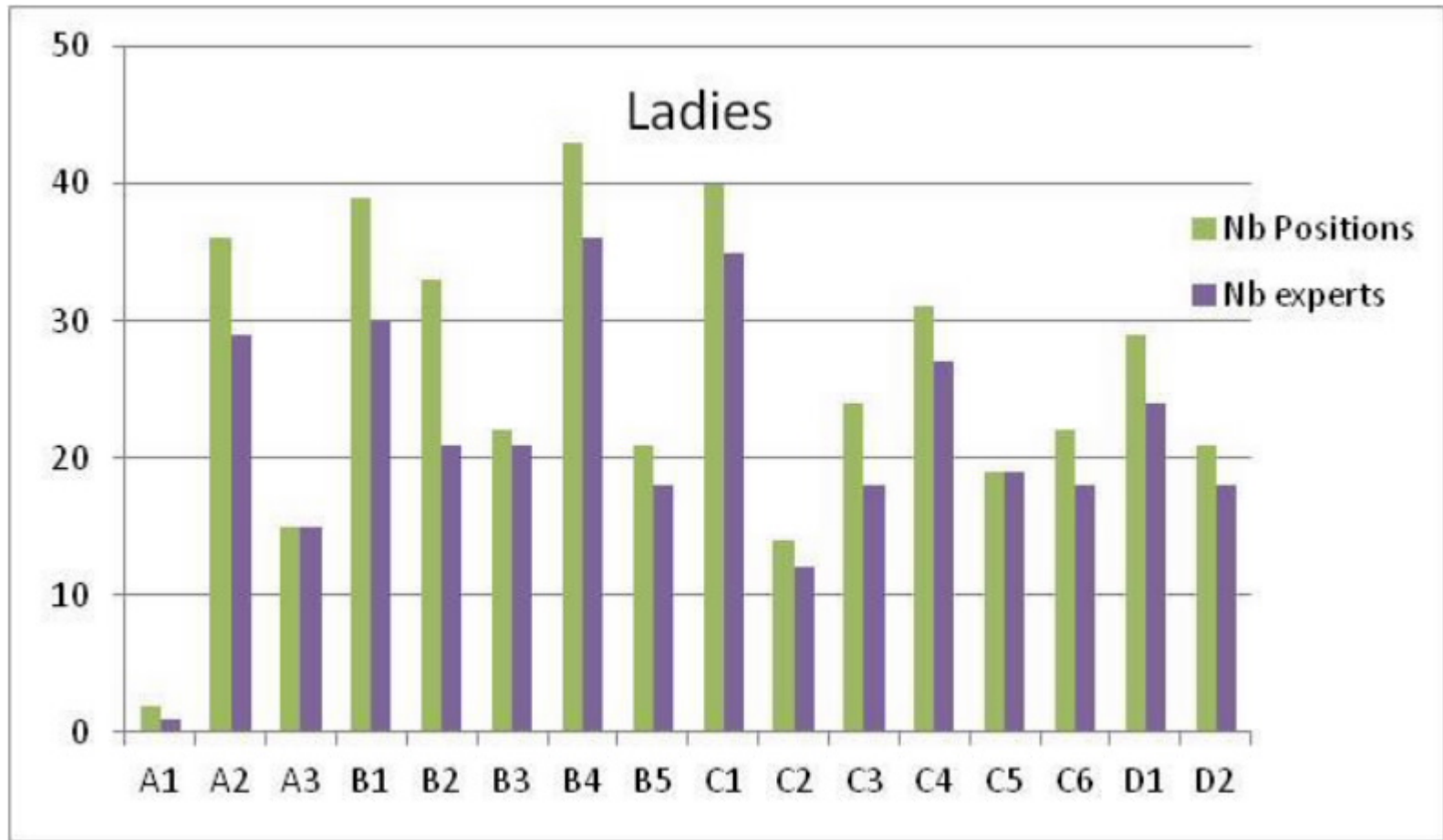
# Place of Women in CIGRE

- 2 SC Chairs (C2 & C6)
- 3 SC Secretaries (B4, B5 & C3) (4 in 2015)
- 19 WG Convenors (8%, 16 in 2015)
- 299 Experts (8%, 295 in 2015)
- 394 Positions (8%, 389 in 2015)

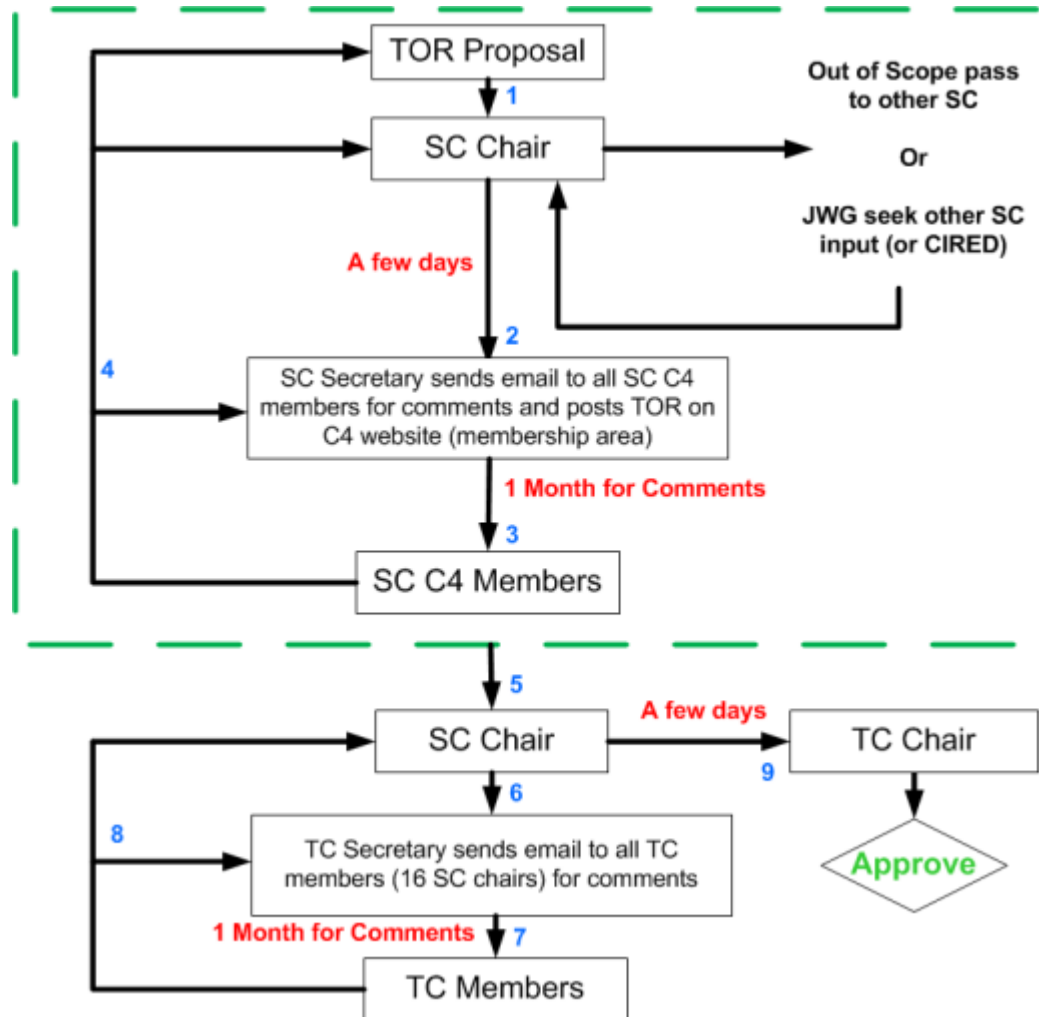
# Women Conveners



# Women Experts in CIGRE



# New Working Group Creation





# CIGRE Awards & Recognitions

- CIGRE Medal.....anyone can nominate
- CIGRE Fellow.....anyone can nominate
- Honorary Member.....AC or TC Chair
- Distinguished Member.....NC
- TC Award.....SC Chair
- Thesis Award.....submission of abstract

# SC C4 Awards & Recognitions (2016)

- Carlo Alberto Nucci.....Fellow
- Pouyan Pourbeik.....Honorary Member
- Alain Xemard.....TC Award

# New Members

- Provide biography to the Secretary
- Update Expertise Spreadsheet
- Keep contact details updated
- Update Liaison Activities

# Advisory Groups

## AG1 – Strategic Directions

# AG1 Membership

Name	Surname	Expertise	Ind/Ac	
Alberto	Borgetti	L/PMNA	A	Member
Dalton	Brasil	PQ/IC/PMNA	I	Member
Zia	Emin	PQ/IC/PMNA	I	Convener
Liisa	Haarla	IC/PQ/PMNA	I	Member
Andrew	Halley	PQ/IC	I	Member
David	Jacobson	PQ/IC/PMNA	I	Member
Claus	Let Bak	PQ/IC	A	Member
Hideki	Motoyama	IC/L/PMNA	I	Secretary
Stephen	Pack	IC/PMNA	A	Member
Sarath	Perera	PQ/PMNA	A	Member
Farhad	Rachidi	L/PMNA	A	Member
Bill	Radasky	EMC	I	Member
W.H	Siew	EMC	A	Member
Ivo	Uglesic	IC/L/PMNA	A	Member
Marta	Val Escudero	PQ/IC/PMNA	I	Member
Alain	Xemard	IC/L/PMNA	I	Member

# SC C4 Current Strategic Plan- 1

CONSEIL INTERNATIONAL DES GRANDS RÉSEAUX ÉLECTRIQUES  
INTERNATIONAL COUNCIL ON LARGE ELECTRIC SYSTEMS



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<http://www.cigre.org/>

**Comité d'études C4 /  
Study Committee C4**

**Analyse Technique des Réseaux /  
System Technical Performance**

Chairman:  
Dr. Zia Emin  
PSC - Power Systems Consultants UK Ltd  
Lakeview House  
Wilton Drive  
Warwick CV34 6RG  
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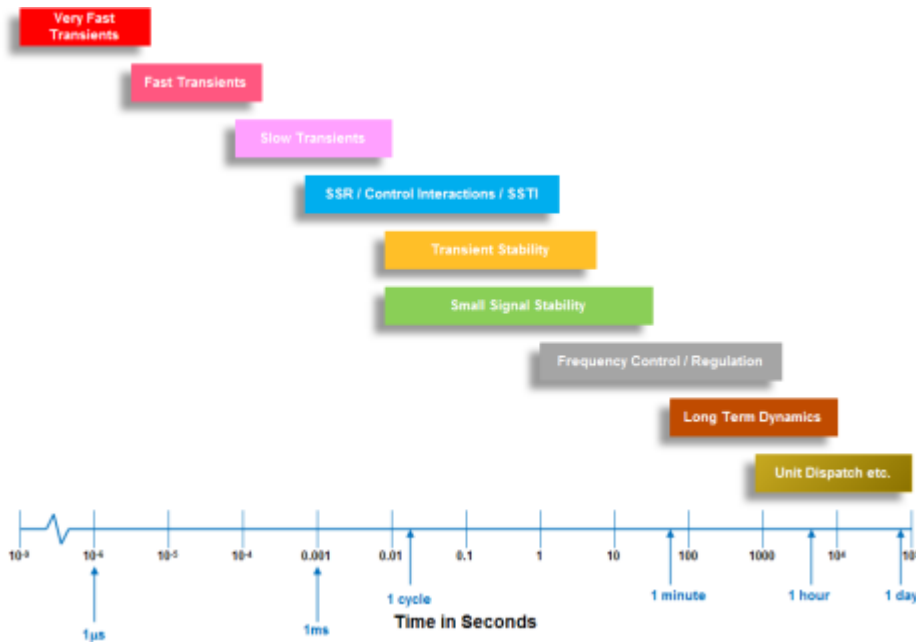
Secretary:  
Dr. Hideki Motoyama  
Electric Power Engineering Research  
CRIEPI  
2-6-1, Nagasaka, Yokoshuka-shi  
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Tel: +81-(0)46-856-2121  
Fax : +81-(0)46-857-5829  
Email: [hideki.motoyama@ieee.org](mailto:hideki.motoyama@ieee.org)

**STRATEGIC PLAN FOR 2012 TO 2018  
APPROVED BY TC IN OCTOBER 2013**

**MINOR REVISIONS – JANUARY 15, 2017<sup>1</sup>**

- All SC strategic plans reviewed during last TC meeting
- SC C4 valid until 2018
- Initiate a review during AG1
- Have a revised final plan by March 2018 TC meeting

# SC C4 Current Strategic Plan- 2



- SC C4 Scope: Focus is on developing data, references, tools and methods for assessment and study of system technical performance
- Power Quality
- Electromagnetic Compatibility and Electromagnetic Interference
- Insulation co-ordination
- Lightning
- Power systems performance models and numerical analysis

# WG Status Reports- 1

- Copy of reports provided to you all
- Generally all WG are progressing well
- Two conveners were changed since August 2016
  - WG C4.25 “Issues related to ELF Electromagnetic Field exposure and transient contact currents” is now led by Konstantinos Kopsidas.
  - WG C4.28 “Extrapolation of measured values of power frequency magnetic fields in the vicinity of power links” is now led by Patricio Rojas.
- Two WGs & two JWGs since August 2016:
  - WG C4.44 “EMC for Large Photovoltaic Systems” (Ener Salinas)
  - WG C4.45 “Measuring Techniques for Fast & Very Fast Transients....” (Shijun Xie)
  - JWG C1/C4.36 “Review of Large City & Metropolitan Area Power System Development” (Stanislav Utts & Valdson Jesus)
  - JWG B5/C4.61 “Impact of Low Inertia Network on Protection and Control” (Ray Zhang)
- Some WGs completion extended due to delays



# WG Status Reports- 2

		Original Formation- Completion	Expected date to submit TB to SC Chair
WG C4.503	Numerical techniques for the computation of power systems, from steady-state to switching transients	2010 - 2013	30 June 2017
WG C4.23	Guide to Procedures for Estimating the Lightning Performance of Transmission Lines	2012 - 2015	31/12/2017 complete work 31/12/2018 submission of TB
JWG C4.24/CIRED	Power Quality and EMC Issues associated with future electricity networks	2013 - 2016	31 July 2017
WG C4.26	Evaluation of Lightning Shielding Analysis Methods for EHV and UHV DC and AC Transmission-lines	2011 - 2014	30 June 2017
WG C4.27	Benchmarking of Power Quality Performance in Transmission Systems	2012 - 2016	31 July 2017
WG C4.30	EMC in Wind Generation Systems	2013 - 2015	30 June 2017
WG C4.31/CIRED	EMC between Communication Circuits and Power Systems	2012 - 2016	April 2018
WG C4.32	Understanding of the Geomagnetic Storm Environment for High Voltage Power Grids	2013 - 2015	31 December 2017
WG C4.33	Impact of Soil-Parameter Frequency Dependence on the Response of Grounding Electrodes and on the Lightning Performance of Electrical Systems	2013 - 2016	31 October 2017
WG C4.34	Application of Phasor Measurement Units for monitoring power system dynamic performance	2013 - 2016	31 May 2017

# Proposed WGToR

- C4.46 “Evaluation of Temporary Overvoltages in Transmission Systems due to Low Order Harmonic Resonances” – Convener required
- C4.47 “Power System Resilience” – Malcolm Van Harte (South Africa)
- C4.XX “Overvoltage Withstand Characteristics of HV Transmission Equipment” – Ivan Dudurych (Ireland)

# Advisory Groups

## AG2 – Institutional Liaisons

# IEC, EMC & CISPR Liaison

## IEC Liaison Report

# Advisory Groups

## AG3 – Tutorial & Conferences

# Supported Events

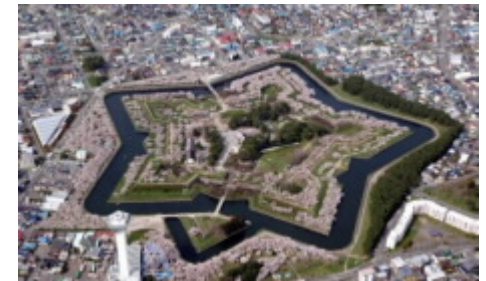
- International Colloquium on Lightning & Power Systems, 27-29 June 2016, Bologna - Italy. Profs Carlo Alberto Nucci & Alberto Borghetti, Prof Maks Babuder and Dr Alain Xemard.
- International Colloquium on EMC, Lightning and Power Quality Considerations for Renewable Energy Systems, 28-30 March 2016, Curitiba - Brazil. Dr WH Siew.

# Tutorials

- Modeling and Dynamic Performance of Renewable Energy Systems by Pouyan Pourbeik & Nick Miller, August 2016, Paris.
- Power Quality associated with Future Electricity Networks by Francis Zavoda, May 2017, Dublin.

# Upcoming Events

- Dublin Symposium, May/June 2017.
- International Colloquium on ‘Lightning and Power Systems’, 18-22 September 2017, Ljubljana, Slovenia.
- CIGRE-IEC Colloquium on EHV & UHV (AC&DC), “New Trend of Advanced Technology for Efficient, economical and Resilient Power Systems, April 2019, Hakodate, Japan (SC C4 supporting).
- Danish Symposium 2019, Aalborg (C4 lead)





# Publications

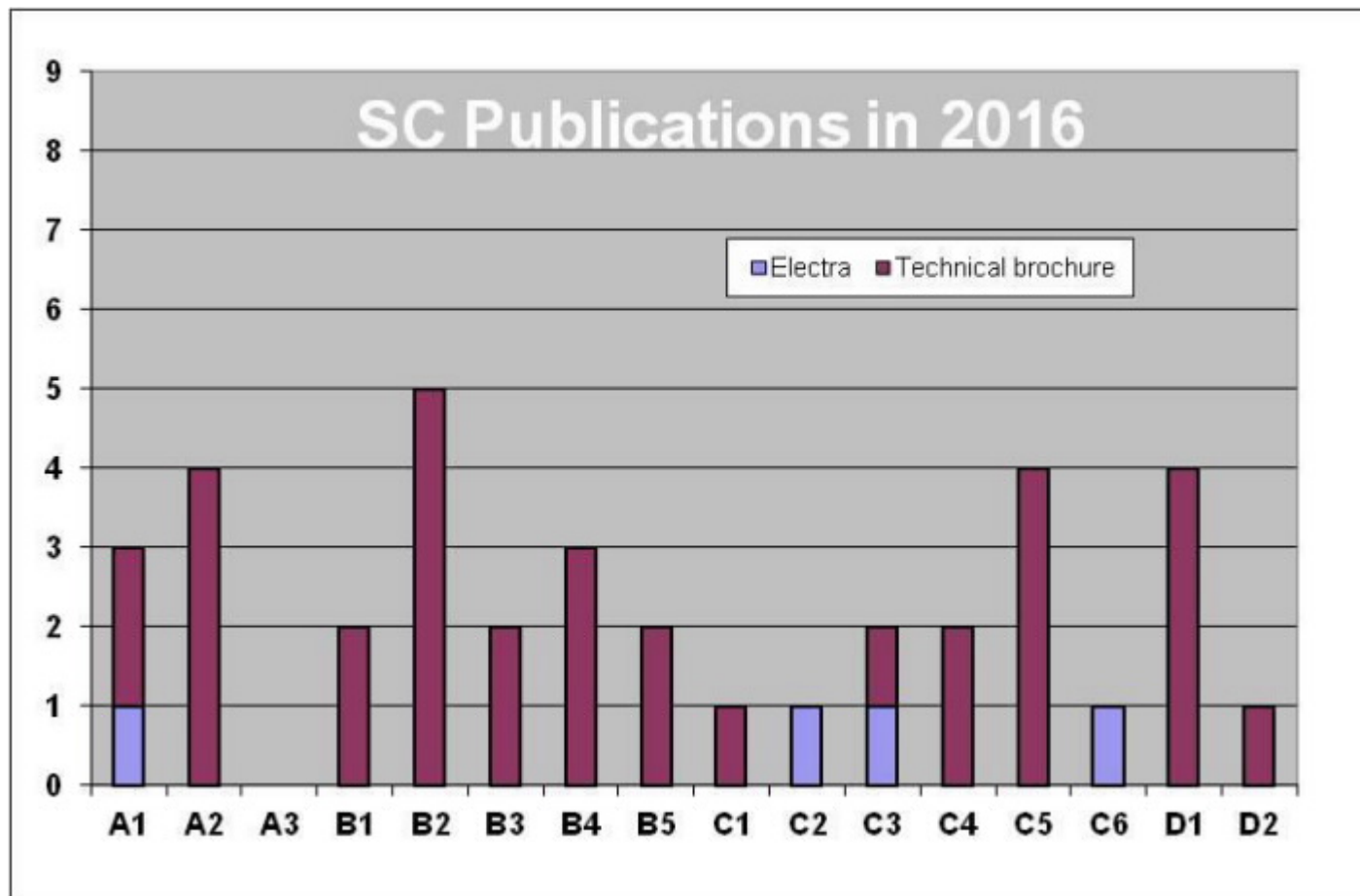
# SC C4 Recent Publications

- Technical Brochure 656 “Review of LV and MV Compatibility Levels for Voltage Fluctuations, May 2016, WG C4.111.
- Technical Brochure 672 “Power Quality Aspects of Solar Power”, December 2016, JWG C4/C6.29.

# SC C4 Upcoming Publications

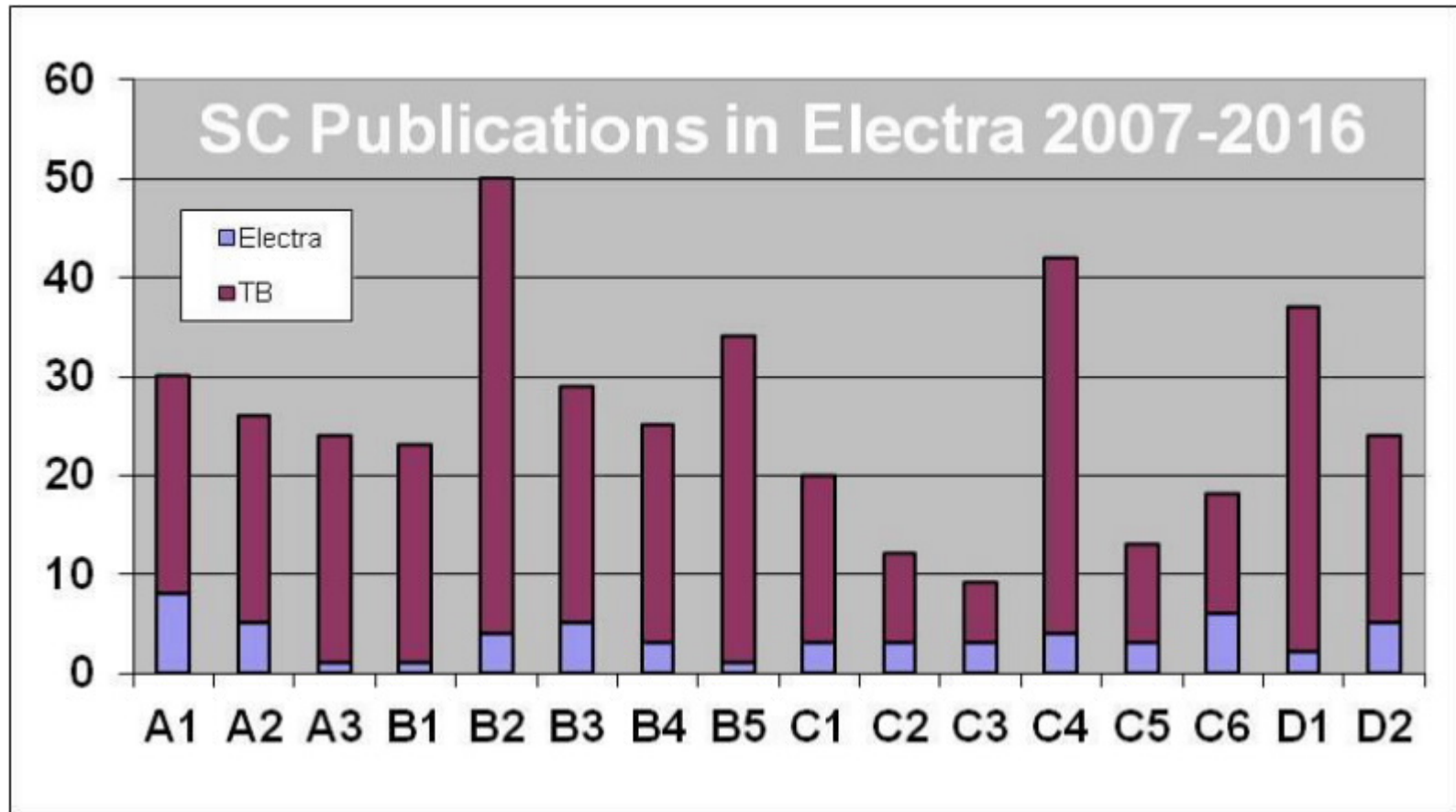
- Within 2017 TB submission expected from:
  - WG C4.503 JWG C4/C6.35/CIRED
  - JWG C4.24/CIRED JWG C4/B4.38
  - WG C4.26 WG C4.25
  - WG C4.27 JWG B4/B1/C4.73
  - WG C4.30 JWG A3/B5/C4.37
  - WG C4.33 JWG C2/C4.37
  - WG C4.34

# WG Publications in 2016



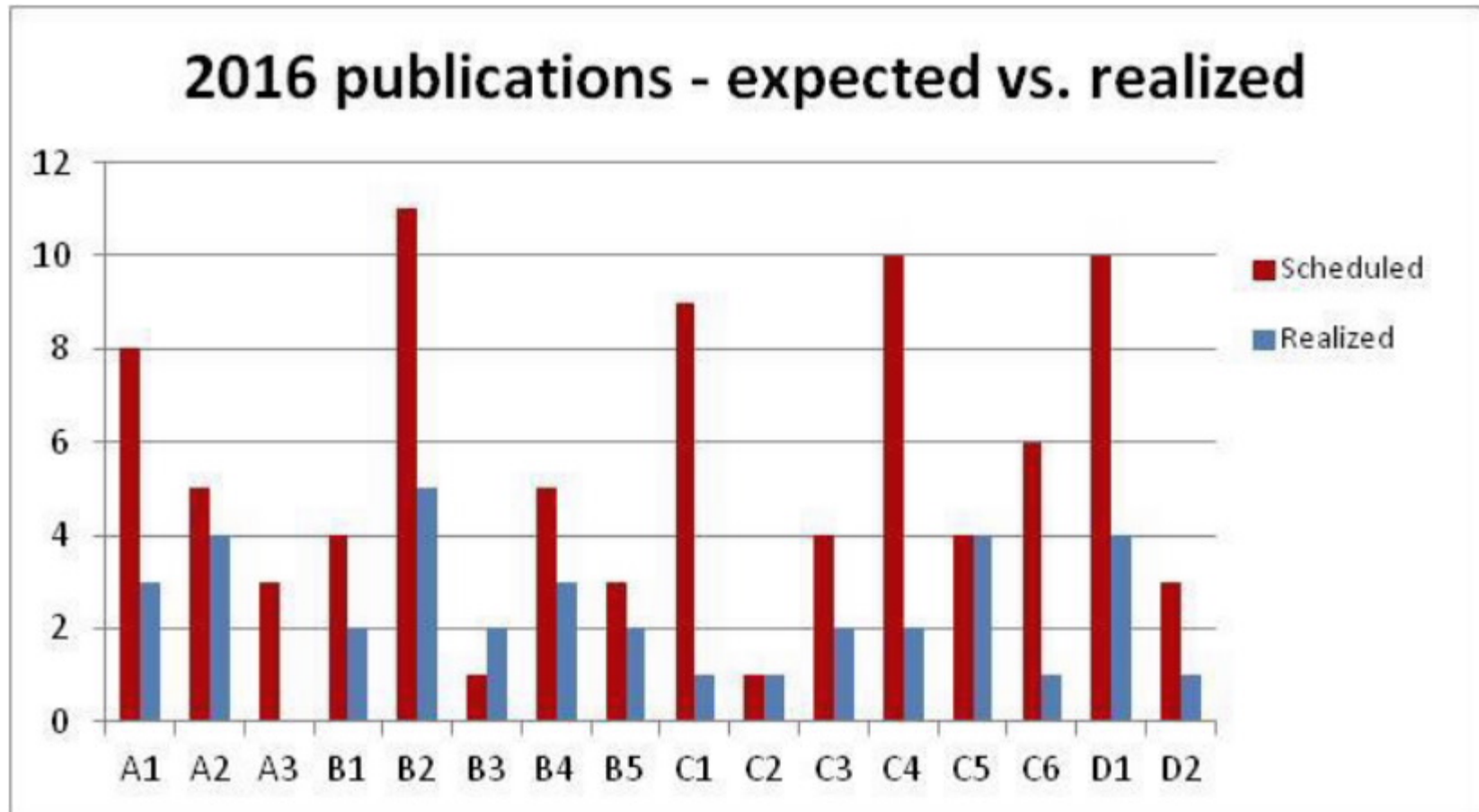
From Electra, upto TB 668

# WG Publications Historic Data

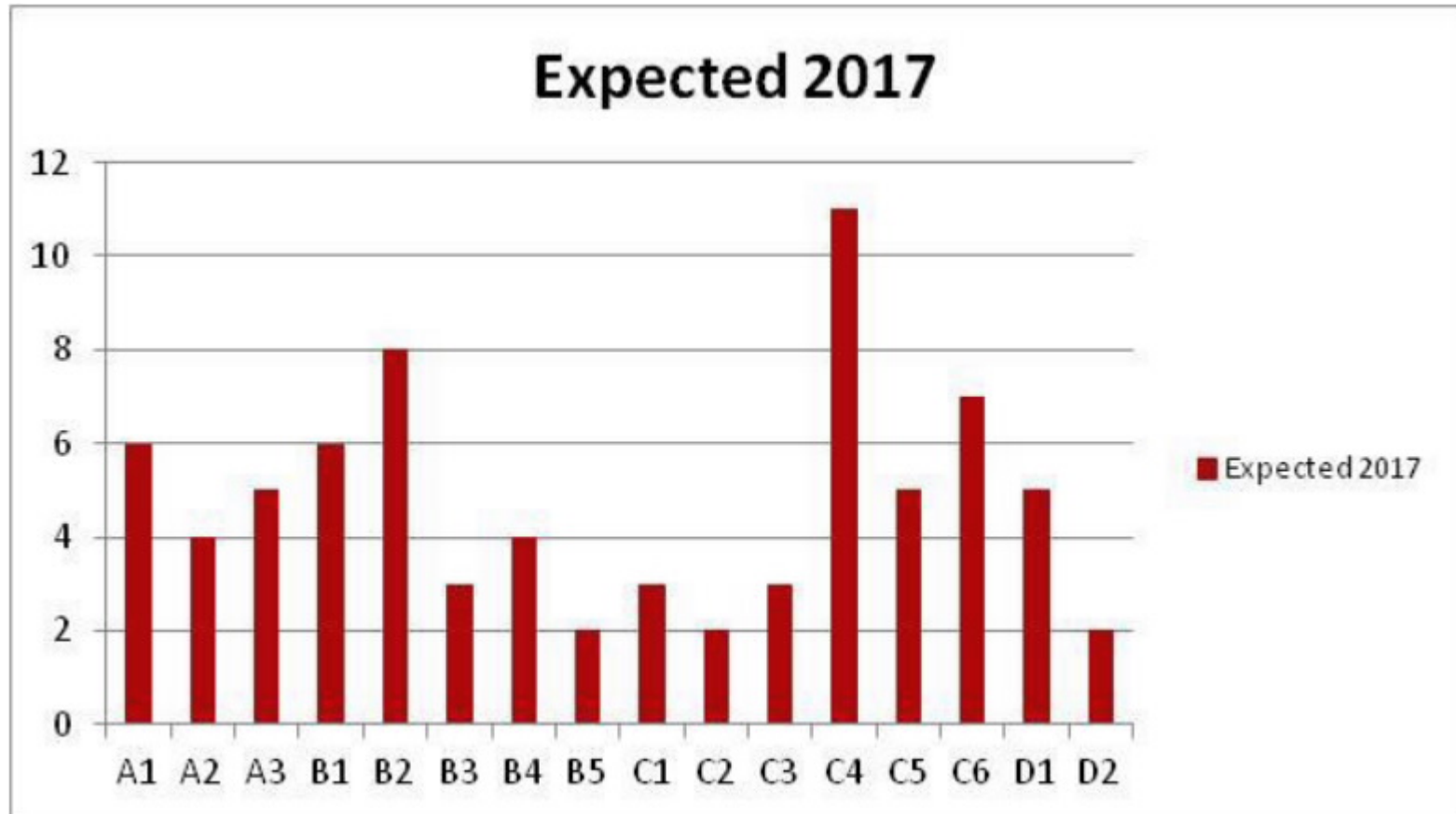


From 2007 (TB 310) to 2016 (TB 668).

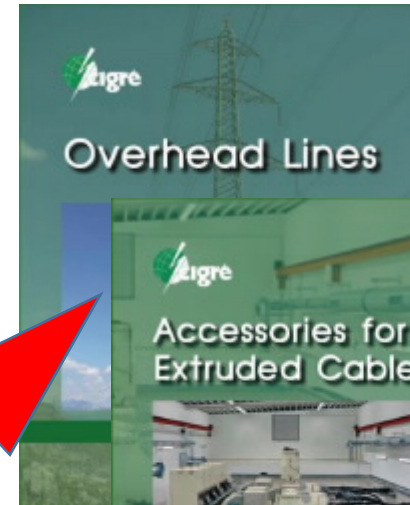
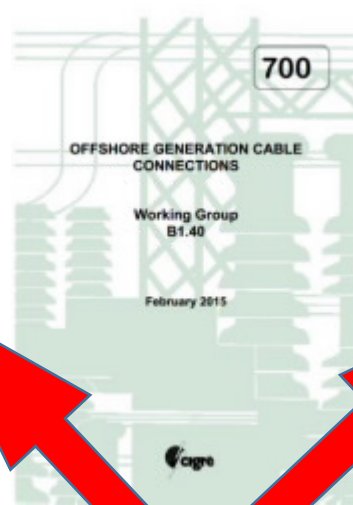
# Publications Expected vs Realized



# 2017 Expected Publications



# Other CIGRE Publications



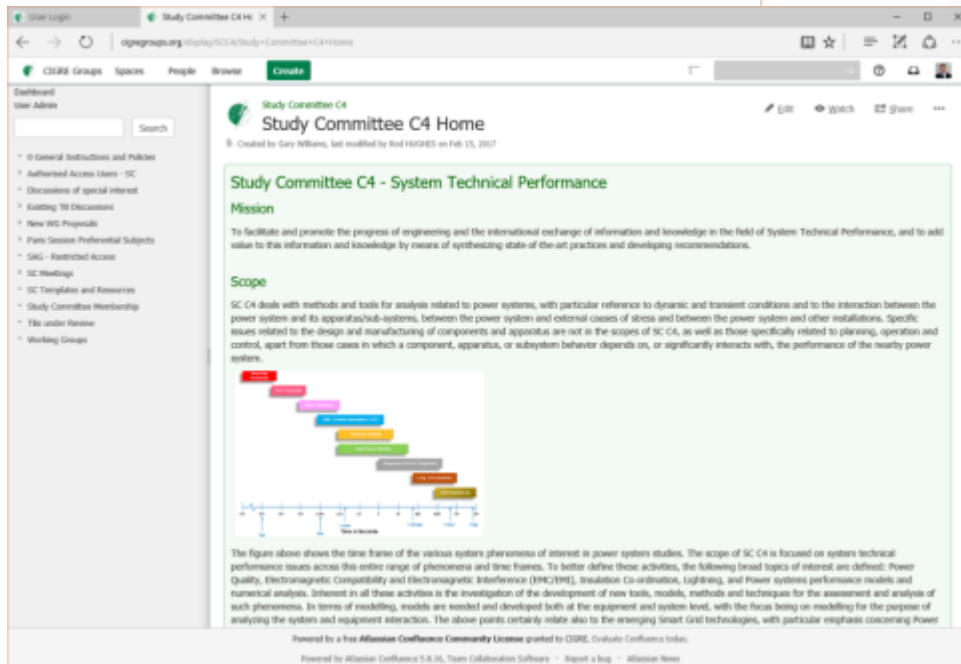
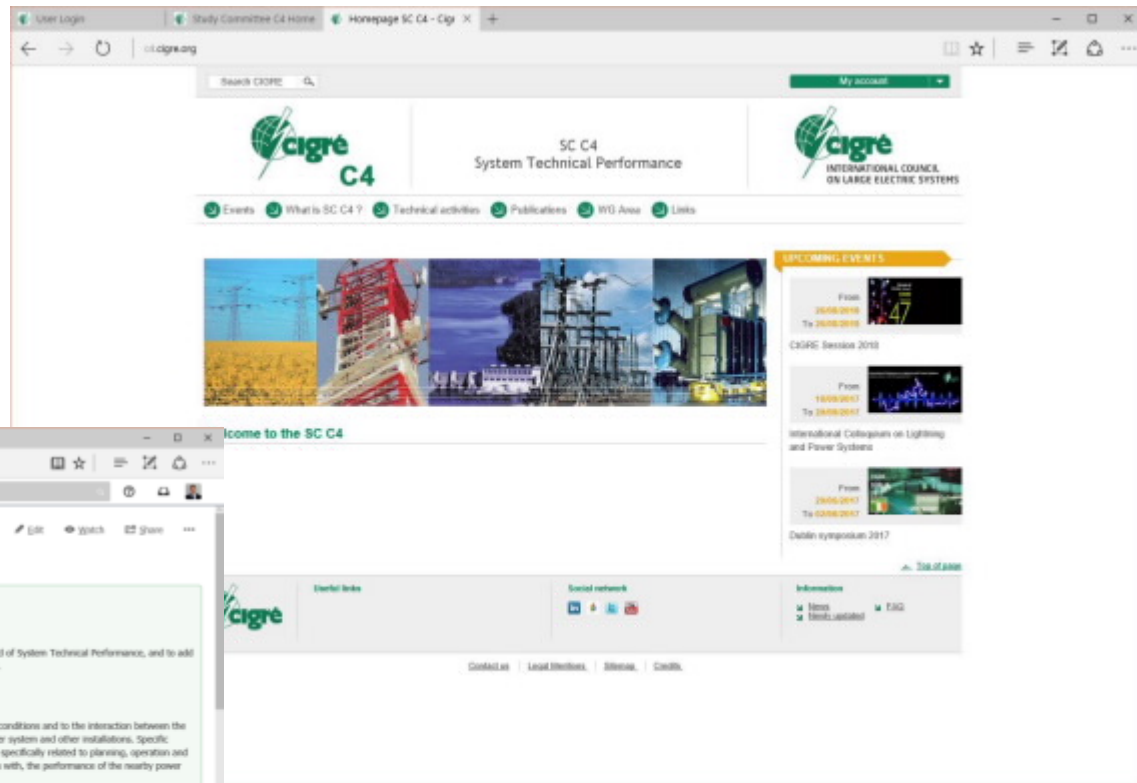
**CIGRE Newsletter January 2015**





# SC C4 Website & KMS

# SC C4 Webpages vs KMS

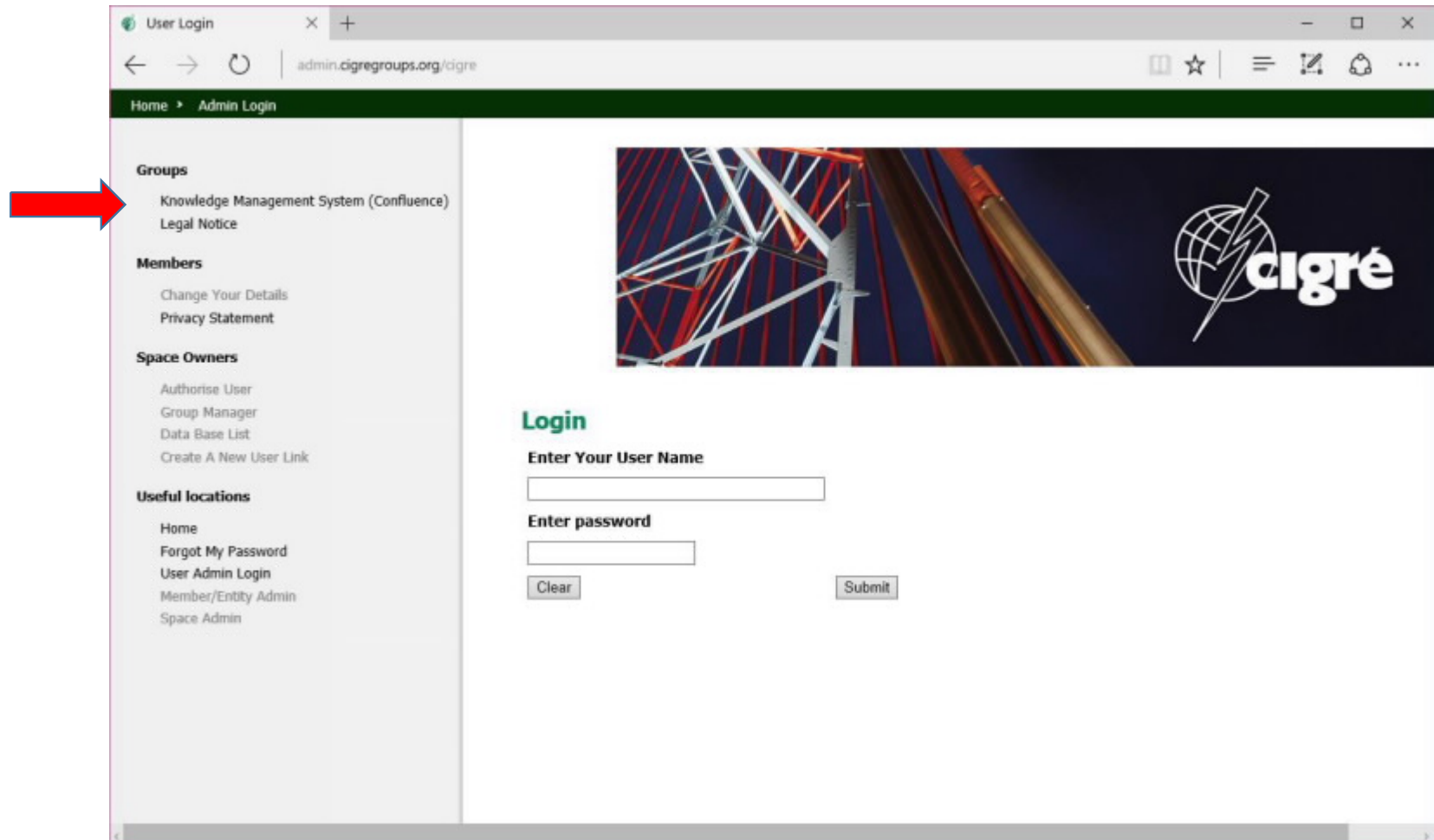


SC C4 MEETING

— DUBLIN, IRELAND

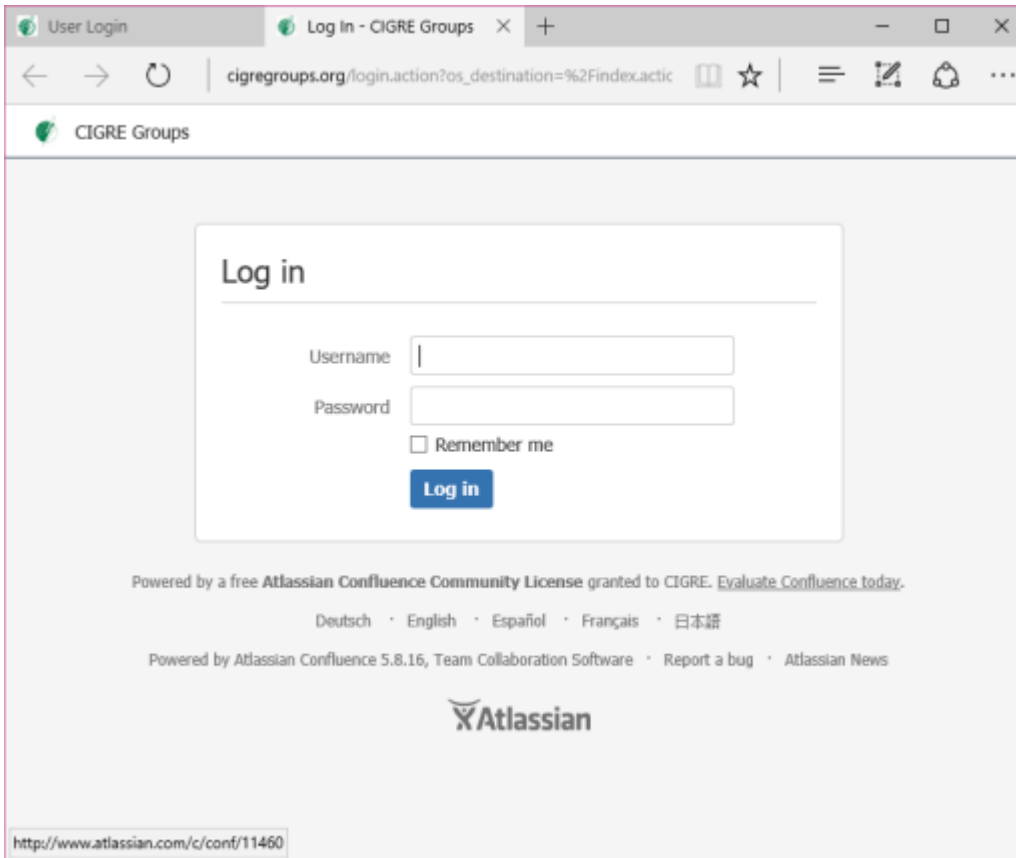
— MAY 2017

# KMS – the Admin side



<http://admin.cigregrgroups.org/cigre/>

# KMS itself



The screenshot shows a web browser window with the title "Log in - CIGRE Groups". The address bar displays the URL `cigregroups.org/login.action?os_destination=%2Findex.action`. The page header includes the "CIGRE Groups" logo. The main content area features a "Log in" form with the following elements:

- A "Log in" heading.
- A "Username" label followed by a text input field.
- A "Password" label followed by a password input field.
- A checkbox labeled "Remember me".
- A blue "Log in" button.

Below the form, the text reads: "Powered by a free Atlassian Confluence Community License granted to CIGRE. [Evaluate Confluence today.](#)".

Language options are listed: "Deutsch · English · Español · Français · 日本語".

Footer text includes: "Powered by Atlassian Confluence 5.8.16, Team Collaboration Software · [Report a bug](#) · [Atlassian News](#)".

The Atlassian logo is centered at the bottom.

A small text box at the bottom left contains the URL: `http://www.atlassian.com/c/conf/11460`.

[http://cigregroups.org/login.action?os\\_destination=%2Findex.action&permissionViolation=true](http://cigregroups.org/login.action?os_destination=%2Findex.action&permissionViolation=true)

# KMS – Where/What Next?

- Hideki and me intend to use the KMS for all relevant information exchange from now on.
- Get an account if you don't have one. It is more intuitive compared to the previous system.
- Start using it.
- You will no longer receive ToR, TB, minutes or meeting agenda for review or as final. There will be a copy on the SC C4 space.

# 2018 Preferential Subjects

# 2018 Preferential Subjects

## PS 1 : System technical performance issues focusing on the effects of high level integration of power electronics based technologies:

- Power system stability control with particular emphasis on frequency and voltage control systems of converter based energy sources including their modelling and performance and challenges on series compensation and impact of microgrids.
- Analysis, measurement, benchmarking and standardisation of power quality.
- EMC aspects of future power networks including ELF exposures.

## PS 2: Developments and advances in modelling and evaluation of lightning performance and insulation coordination including:

- Estimation of lightning performance of transmission lines including detection, evaluation of shielding analysis methods and effectiveness of line surge arresters.
- Lightning protection of renewable and nuclear power plants including seasonal variations and risk management.
- Evaluation of surges and overvoltages on OHL/cable systems, impact of harmonic resonances on temporary overvoltages.

## PS 3: Computational advances in tools, models, methodology and analysis of power system technical performance related issues:

- Frequency dependent modelling techniques for high frequency electrical transients and power quality assessments.
- Developments in lightning surge studies with particular emphasis on FDTD method and advances in grounding electrode modelling.
- Hybrid and real time simulation of system dynamic behaviour.

# SC C4 Meetings



# Next SC C4 Meetings

- 2018 – Paris, France during 2018 Session
- 2019 – Aalborg, Denmark attached to Danish Symposium.
- 2020 – Paris, France.
- 2021 - ??

# AOB

# Any Other Business

- Comments
- Questions
- Concerns
- Suggestions
- Constructive criticism

# Final Remarks

- Please be active in the SC.
- Please start using the KMS as a matter of urgency.
- We will stop sending files for review via e-mails and instead will use the KMS.
- THANK YOU.