



**cigre**

Italy

# Relazione Annuale

Roma, 4 dicembre 2019



**cigre**

For power system expertise

# Struttura CIGRE







La risposta strategica al cambiamento:

- 16 comitati di studio
- più di 250 gruppi di lavoro
- oltre 3700 esperti



## Attività del Comitato Tecnico

- Paris (FR): September 1<sup>st</sup> 2018; 
- Medellin (CO): November 6<sup>th</sup> & 7<sup>th</sup> 2018; 
- Porto (PT): March 27<sup>th</sup> & 28<sup>th</sup> 2019; 
- Saint Petersburg (RU): October 8<sup>th</sup> & 9<sup>th</sup> 2019. 

### – Renewal of Study Committee Chairs for 2020-2022:

- Survey to SC Chairs: December 20<sup>th</sup> 2018;
- Survey to SC Members: January 14<sup>th</sup> 2019;
- Report on the surveys to the Technical Council Chair: March 15<sup>th</sup> 2019

### – Revision of Study Committee rules

## Comitato Tecnico CIGRE (Agosto 2020)

SC	Name	Last Ext.
A1	William Moore (US), Research	2026
A2	Pascal Mueller (CH), TSO	2026
A3	Nenad Uzelac (US), Manufacturer	2024
B1	Marco Marelli (IT), Manufacturer	2022
B2	Herbert Lugschitz (AT), TSO	2022
B3	Koji Kawakita (JP), Utility	2024
B4	Johanne Hu, CA, Consultant (W)	2026
B5	Rannveig Loken (NO), Utility (W)	2024
C1	Antonio Iliceto (IT), TSO	2026
C2	Jayme Darriba (BR), TSO	2026
C3	Henk Sanders (NL), TSO	2022
C4	Zia Emin (UK), Consultant	2022
C5	Alex Cruickshank (AU), Consultant	2024
C6	Christine Schwaegerl(DE), University (W)	2024
D1	Ralf Pietsch (DE), Manufacturer	2022
D2	Olga Sinenko (RU), Consultant (W)	2024

## Comitato Tecnico CIGRE (Agosto 2020)

- **Bill Moore** (EPRI) is the Regular Member of A1 for the USA since 2014 when he received the TC Award. Bill works for EPRI as the Generator Technical Executive in Program P65 – Generators and Turbines. He was the Convener for WG A1.05. He also has vast power plant experience.
- **Pascal Müller** (EWZ the network operator in Zürich) on transformer procurement and life management. He was previously regular member for Switzerland in A2, he was on the organizing committee for the A2/C4 joint colloquium in Zurich in 2013, and he is currently convenor of WG A2-55 on transformer life extension.
- **Johanne Hu** (Consultant in Canada) is the current SC B4 Secretary, communicative and experienced in WGs of CIGRE SC B4.
- **Antonio Iliceto** (TERNA) is convenor of WG C1.33 on interface and allocation issues in multi-party and/or cross-jurisdiction projects. He is a very active contributor to three other active CIGRE WGs, and was a special reporter for SC C1's session in Paris 2018. He liaises for CIGRE with the IEC on global interconnections. He also chairs a WG with 12 stakeholder groups in the European Technology & Innovation Platform "Smart Networks for Energy Transition" which prioritizes smart grid and sector coupling R&D programs in the European Union.
- **Jayme Darriba Macedo** (ONS Brazilian Transmission System Operator). He comes from system operations with control room experience, in the field of C2.



# Opening Panel (Parigi, lunedì 24 Agosto 2020)

- **Monday Morning August 24<sup>th</sup>** Opening Panel, with a proposed title: **“Electrification for Decarbonization: Long-Term Technical Challenges and Opportunities”**; this Panel is intended to be a lively discussion on timely and relevant topics; Konstantin Staschus will act at Coordinator and Moderator with the following structure:

- Invited Speaker: SGCC (China) by Mr. Kou Wei, Executive Chairman of SGSS on the topic “e-IoT Open and Share Energy Platform”
- Part I Panel Session 1: Keynote speech on Main challenges and solutions for electrification and renewable energy system integration on all continents; followed by reactions from Experts Asia, Middle East, Europe, Latin America, North America and Africa

**Keynote speech on main challenges and solutions for electrification and renewable energy system integration on all continents** (sent to other panelists beforehand so they know what to react to with their single slide, perhaps address briefly education requirements)

Reactions to keynote speech and view from North America, Latin America, Africa, Asia, Middle East and Europe on what the grid will be like in the future (1 slide) –

• **Francesco La Camera, DG IRENA/AE**  
(20 minutes presentation)

• Invited speakers from each region,  
around 5-6 minutes each

Invitato da Enrico Carlini il 25.8.19 su richiesta di Marcio Szechtman (Chairman TC Cigre)

- Part II Panel Session: Three topics (30 minutes each) with coordination of relevant SC Chairs in managing Q&A:
  - Growing role of electricity, security of supply, costs, risks and benefits of electrification
  - Distribution, smart grids and digitalization
  - Daily and seasonal flexibilities/storage, sector coupling, and electricity systems as the backbone of a decarbonized energy system

## Direzioni strategiche CIGRE



Future power  
systems

Environment and  
sustainability

Best use of  
existing systems

Unbiased information  
for all stakeholders

# Comitati di studio Cigre



## Group A – Equipment:

- A1 Rotating electrical machines
- A2 Power transformers and reactors
- A3 Transmission and distribution equipment

## Group B – Technologies:

- B1 Insulated cables
- B2 Overhead lines
- B3 Substations and electrical installations
- B4 DC systems and power electronics
- B5 Protection and automation

## Group C – Systems:

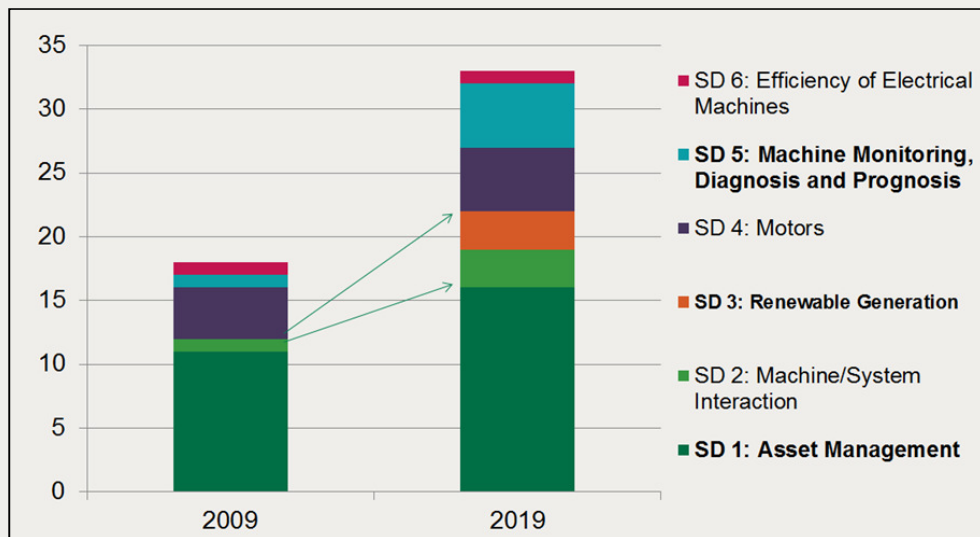
- C1 Power system development and economics
- C2 Power system operation and control
- C3 Power system environmental performance
- C4 Power system technical performance
- C5 Electricity markets and regulation
- C6 Active distribution systems and distributed energy resources

## Group D – New materials & IT:

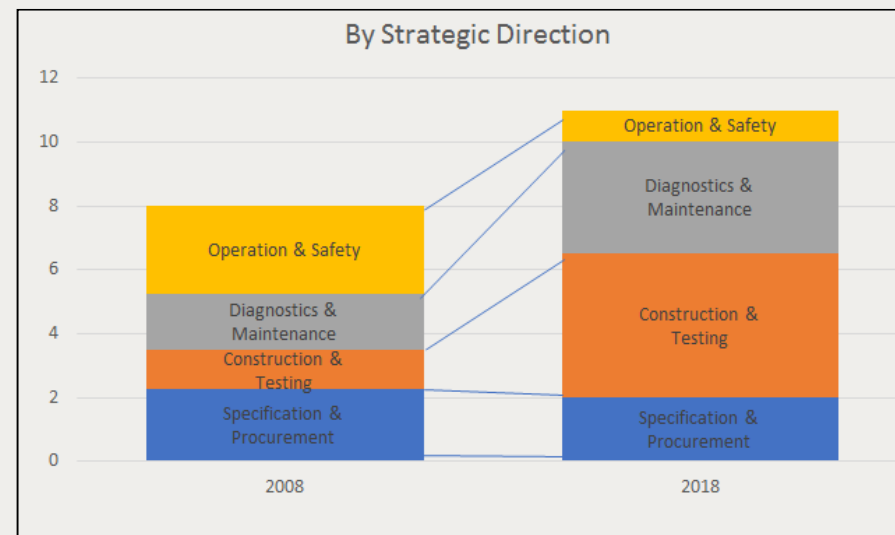
- D1 Materials and emerging test techniques
- D2 Information systems and telecommunication



# Evoluzione strategica dei comitati di studio A (WG 2009-2019)



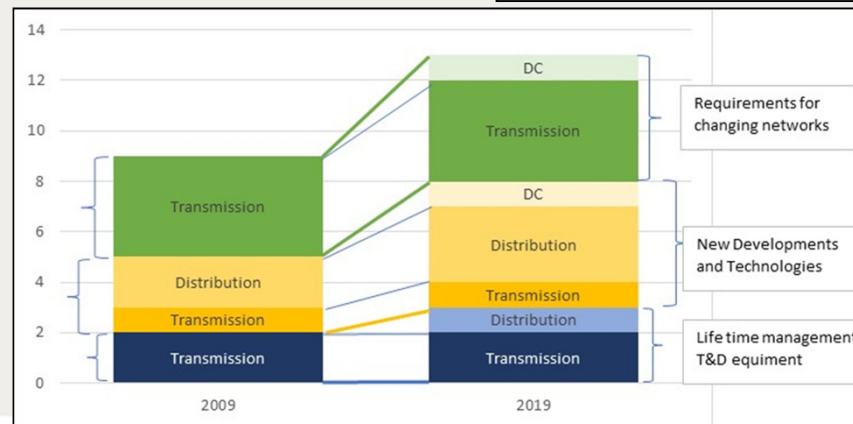
A1 Rotating electrical machines



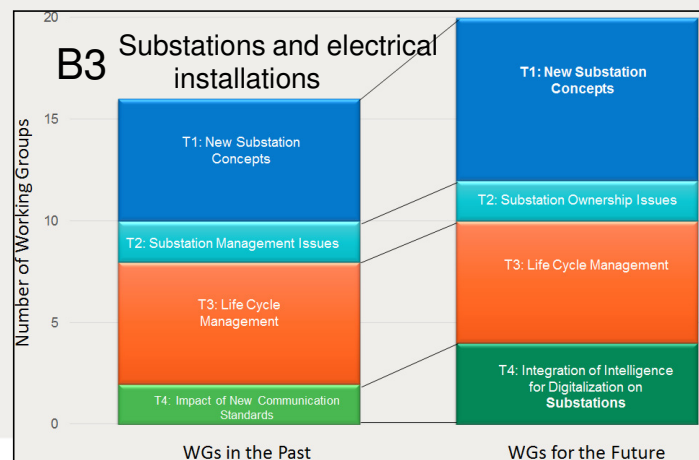
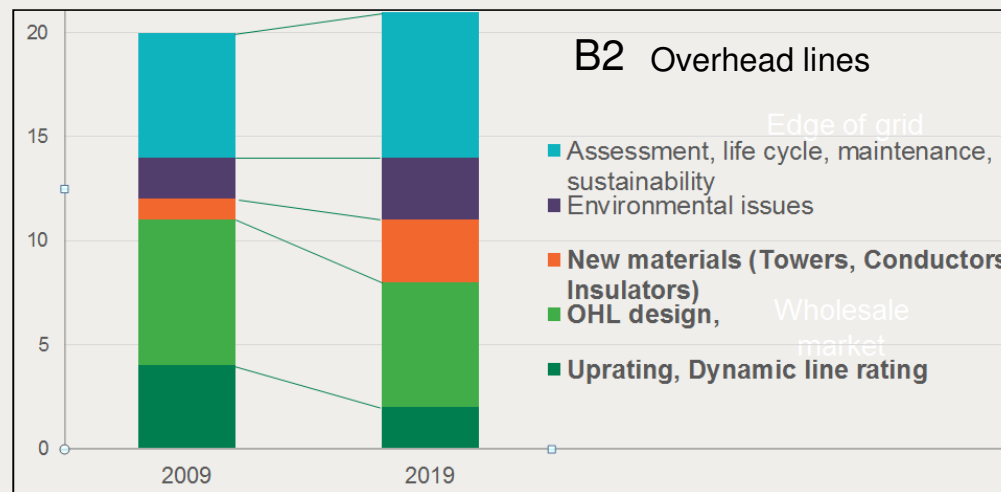
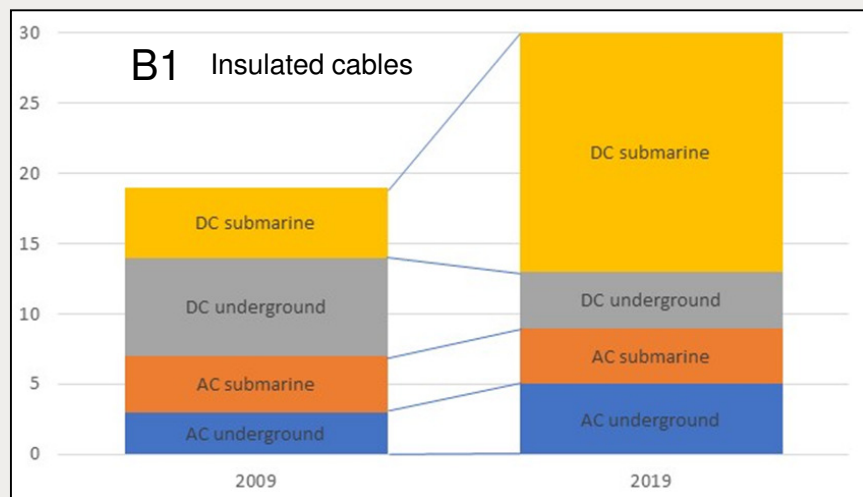
Power transformers and reactors

A2

A3 Transmission and distribution equipment



## Evoluzione strategica dei comitati di studio B (WG 2009-2019)



### B4 DC systems and power electronics

1. More application of VSC HVDC
2. More feasibility and development on HVDC grids
3. More PE applications in other areas with joint effort with other SCs
4. Application of DC technologies started to extend to distribution

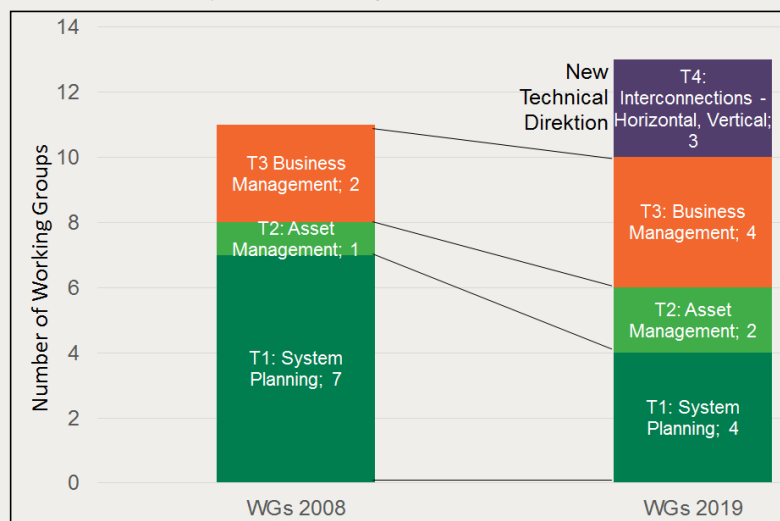
### B5 Protection and automation

- Increased activity on digital substation based on IEC 61850 process bus in addition to cybersecurity issues.
- Investigation on how changes in the power system, like low inertia, affects the protection, monitoring.
- Focus towards covering the whole power system, end-to-end related to this topic, from transmission systems, to distribution systems.

# Evoluzione strategica dei comitati di studio C (WG 2009-2019)

Power system development and economics

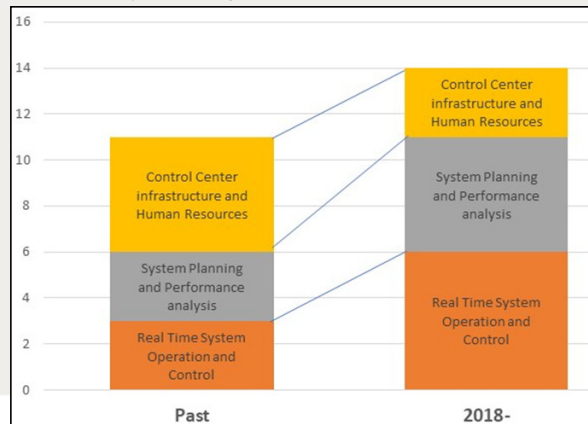
C1



- **T1. System planning:** enhancing transmission capacity e.g. by risk-based and other innovative methods.
- **T2. Asset management:** growing inter-relationships between asset management, digitalization and system planning; value-based asset management and monetization.
- **T3. Business management:** increased non-utility stakeholders involvement.
- **T4. Interconnections – horizontal, vertical:** System planning related to long-distance/continental-scale systems (e.g. UHV lines), coordinated planning with “smart” and evolving distribution systems; planning methodologies for sector coupling and electrification of heating/cooling and transport.

C2

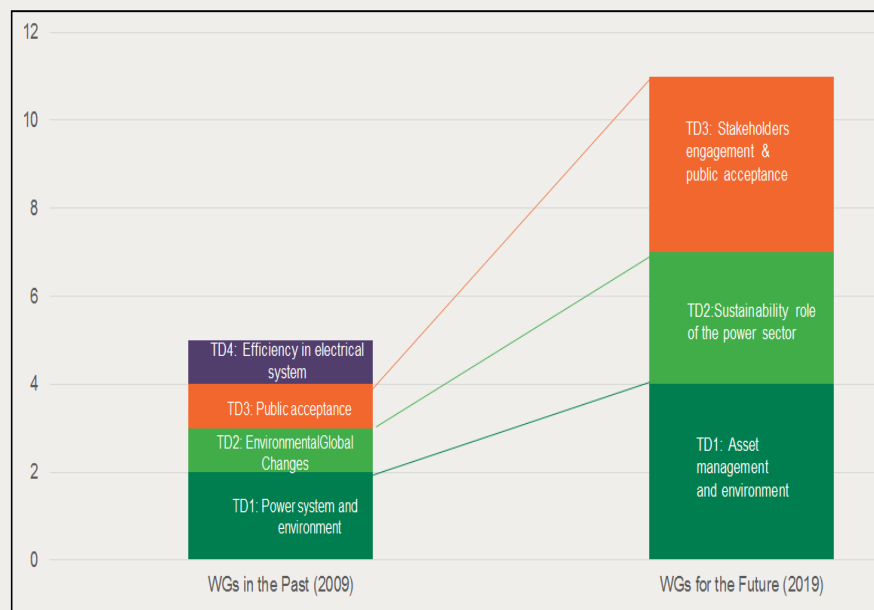
Power system operation and control



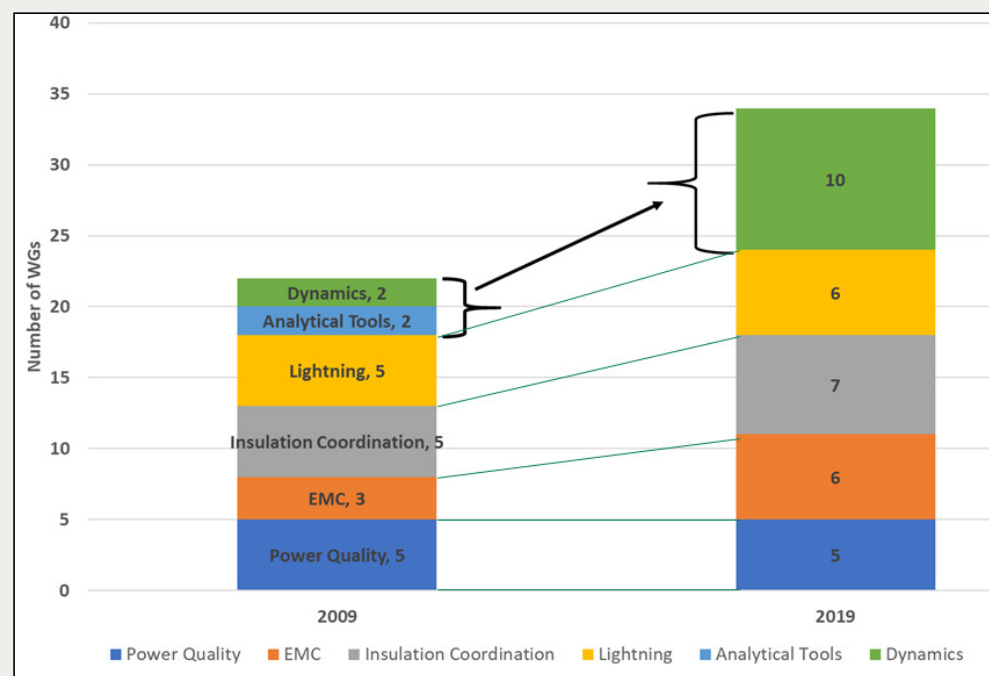
Real-time System Operation and Control	System Operational Planning and Performance Analysis	Control Centre Infrastructure and Human Resources for System Operation
+ Increased coordination	+ Impact on system operations from new generation mix (e.g. C2 Reference Paper 2018)	+ Connection with cyber security and vulnerability aspects in control centers
+ PMU based Wide Area Control	+ Impact assessment on integration of new technologies	+ WAMS system requirements and their integration within control centres
+ Operation and control of new technologies	+ Restoration in evolving environment (e.g. C2 Reference Paper in 2019)	+ New tools for decision support and situational awareness
+ Information and data exchange in real-time operation	+ Operational Resilience	
+ observability, controllability and flexibility (new ancillary services and congestion management schemes)	+ Harmonization and preparation of operational requirements in new grid codes	

# Evoluzione strategica dei comitati di studio C (WG 2009-2019)

## C3 Power system environmental performance

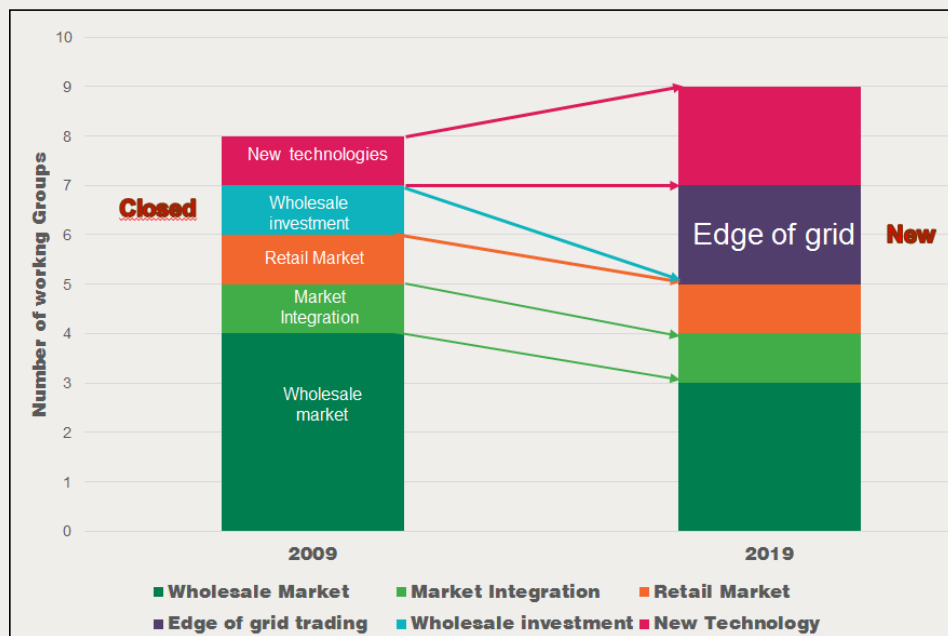


## C4 Power system technical performance



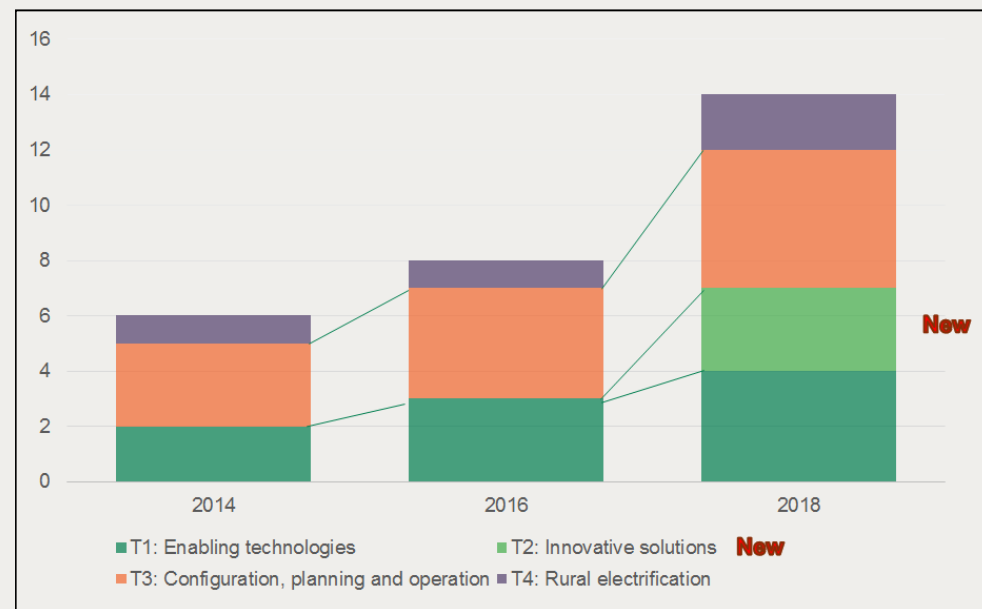
# Evoluzione strategica dei comitati di studio C (WG 2009-2019)

## C5 Electricity markets and regulation



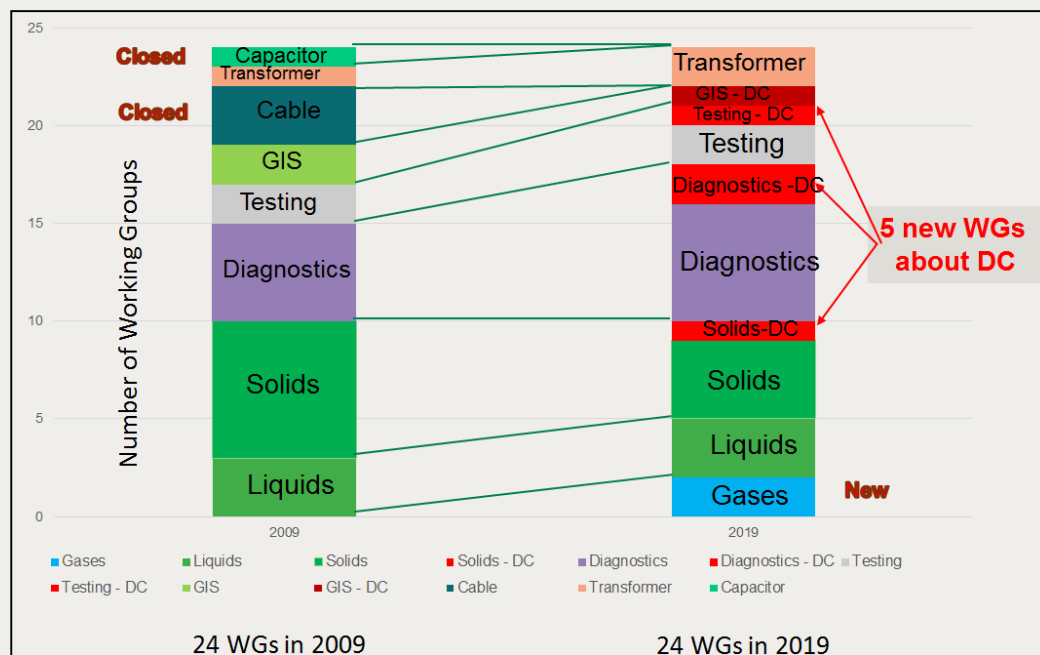
In 2019, C5 has three working groups on Local Energy Communities, Impact of demand response on pricing and the application of Block chain. In 2018, working groups reported on smart grids and integration of new technologies. During the period, SC C5 has also examined Demand Response and Capacity Remuneration.

## C6 Active distribution systems and distributed energy resources

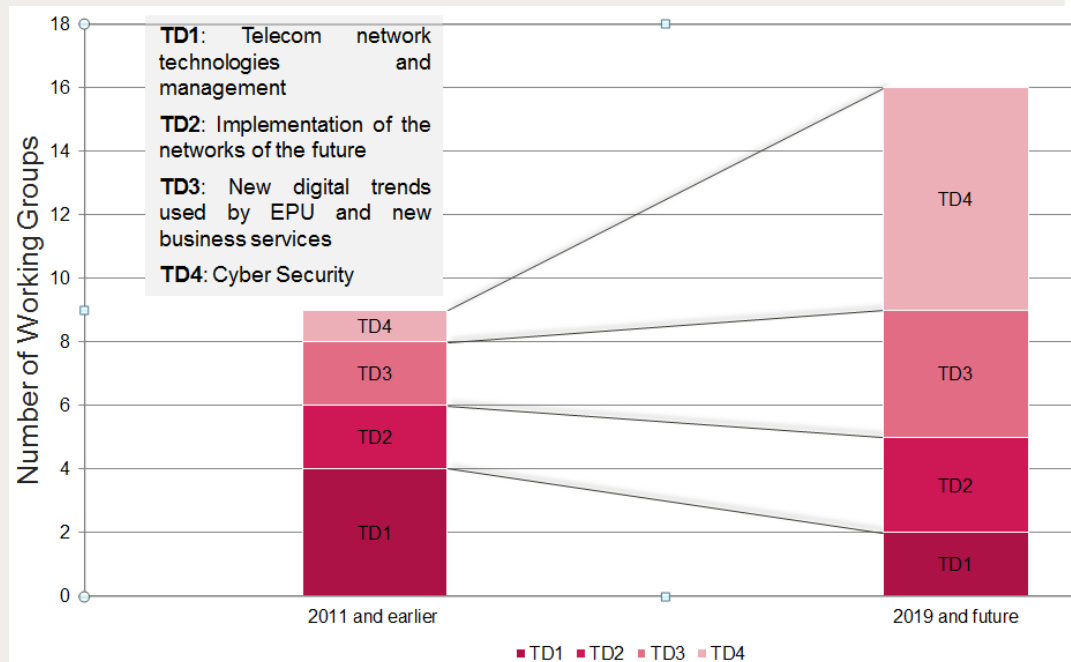


# Evoluzione strategica dei comitati di studio D (WG 2009-2019)

## D1 Materials and emerging test techniques



## D2 Information systems and telecommunication





## Attività del Comitato Esecutivo

- In Brasilia (BR) on 6<sup>th</sup> and 7<sup>th</sup> December 2018
- In Hakodate (JP) on 27<sup>th</sup> and 28<sup>th</sup> April 2019



### Meetings

Future meetings:

- Saint Petersburg (RU) on October 7<sup>th</sup> 2019
- Saint Petersburg (RU) on October 8<sup>th</sup> 2019, joint with the Technical Council
- Zurich (CH) on May 12<sup>th</sup> and 13<sup>th</sup> 2020
- Goa (India) in November or December 2020
- Shenzhen (CN) in May 2021

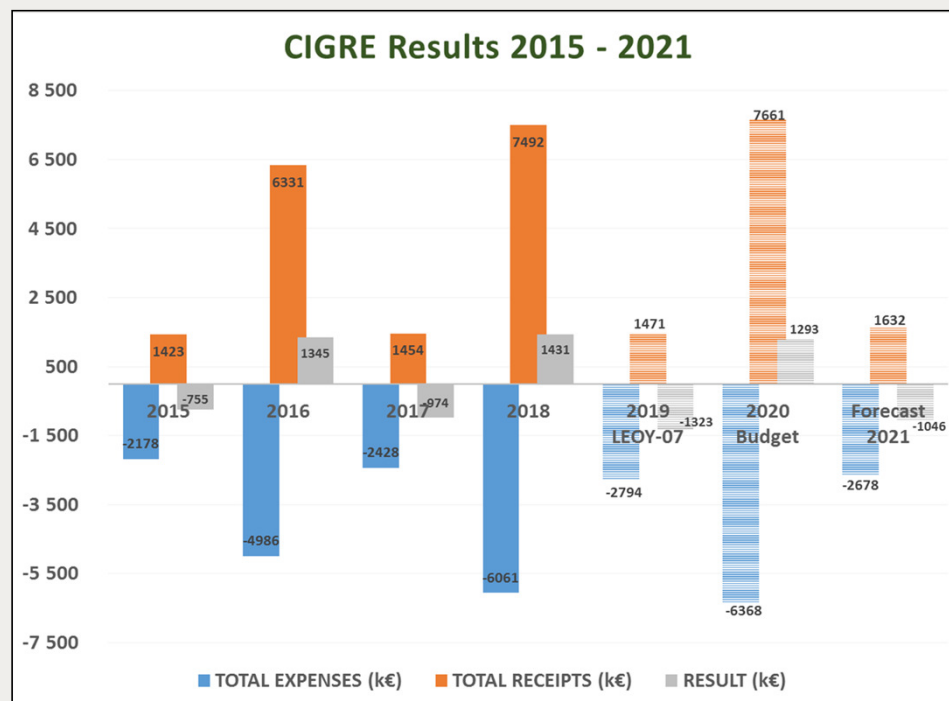


### Activities

- Finances
- CIGRE strategy
- CEO event follow up
- Marketing & communication project
- Electra editorial board
- Relations with the TC/CO/Other organisations
- Preparation of the 2020 Paris Session
- Reports from NGN and WiE

## Finances

# Attività del Comitato Esecutivo



Nel 2020 le quote rimangono uguali a quelle del 2019.


Members	2010	2011-2012	2013-2014	2015-2016	2017-2018	2019-2020	Increase (proposition)	2021-2022
Individual member I fee	72 €	74 €	76 €	78 €	80 €	84 €	4.8%	88 €
Individual member II fee	36 €	37 €	38 €	39 €	40 €	42 €	4.8%	44 €
Collective member I fee	480 €	500 €	514 €	524 €	534 €	560 €	3.6%	580 €
Collective member II fee	240 €	250 €	257 €	257 €	267 €	280 €	3.7%	290 €

# Attività del Comitato Esecutivo


## CEO event follow up

During Paris Session 2018, 150 Chief Executives participated to the first CEO event and led to the following recommendations made to CIGRE:

- rapid responses to address and issue solutions within a short period of time;
  - expand the membership to include the involvement of regulators and policy makers;
  - leadership Circle Publication: a communication channel between the CIGRE chairman and CEOs.
- Prossimo evento: Lunedì 24 Agosto 2020 ore 12 –  
Durata 1h 30' (ADL Consulting, Prysmian, CESI, Terna, RSE)



July 2019 - Edition 3



### Introduction

Dear industry leaders,

It gives me great pleasure to write this editorial for the third edition of CIGRE's "Leadership Circle" but its first edition by email newsletter. At the last Paris Session in 2018, we held a CEO event where leaders in industry gave input and comments as to how to improve the relationship between CIGRE and themselves to our mutual benefit. One aspect raised was that there needs to be more sharing of information between industry leaders and CIGRE members. This will better educate the Technical Committee of CIGRE in providing timeous technical information to members to better conduct their work. It will also educate leaders as to the prevalent technical issues of the day as well as possible solutions.

This edition includes two articles from CEO's of large utilities in USA and Europe. They are based on specific questions relevant to the industry at present. The articles indicate similarities and differences between the two continents and provide readers with an important oversight as to issues and solutions facing the industry today.

I am sure you will find this edition and subsequent editions a "must read" for yourself and your colleagues.

## Attività del Comitato Esecutivo



- The Electra editorial board (EB) was established after the decision of the Steering Committee in **January 2019**
- The **members** of the EB have been nominated: Mike HEYECK (convener - US), Adam Middleton (GB), Mathias Zwicky (CH), Marcio Szechtman (TC Chair – BR), Alex Cruickshank (SC C5 Chair - AU), Nikos Hatzigiorgiou (past SC C6 Chair - GR), Khayakazi Dioka (ZA), Amanda Olson (US), Marie Taillandier (Central Office), Philippe Adam (SG) and Rob Stephen (occasionally – President, ZA).



### The digital Electra platform will be launched officially in Paris 2020

- Election of WIE Global representative of Khayakazi Dioka proposed by Ruomei LI;
- NGN showcase again at Paris Session in 2020;
- NGN Awards: two proposals related to Paris showcase function
- Increase web conferencing facilities in WGs meetings to alleviate travel limitations and improve women participation

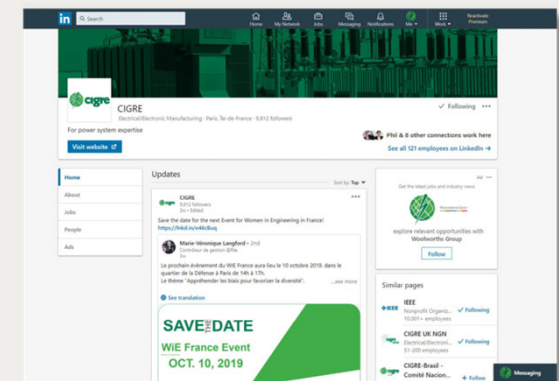


# Attività del Comitato Esecutivo

Twitter



LinkedIn



Community Knowledge Programme Events Publications News About

## Solve all power system challenges in one unique place

The modern power system is transitioning into one complex and interrelated grid, with the lines between generation, transmission and distribution increasingly blurred.

With these changes today's professionals need access to diverse perspectives that have a holistic view, and that offer the opportunity to share the full range of low through high voltage knowledge. One such organisation exists and it has the end to end scope and solutions you need.

### Power system engineering has entered a new age

Watch later Share

YouTube

**The preeminent global technical organisation – CIGRE**

CIGRE offers you the opportunity to access the full spectrum of power system knowledge, in one unique place. We have a world leading global community of thousands of professionals, developing technical material collaboratively on every conceivable subject, across all aspects of the power system.

**Our doors and minds are open**

So no matter who you are, or where you are from, if you, or your organisation want to get the technical edge, it's simple. Join CIGRE, the foremost global community. Our doors, as our minds, are open.

- ✓ Perspectives and peers from every corner of the globe
- ✓ Real world practical expertise
- ✓ Low cost of entry

[FIND OUT MORE](#)

### CIGRE E2E articles

**INTEGRATION OF ELECTRIC VEHICLES IN ELECTRIC POWER SYSTEMS**

With the expected integration of Electric Vehicles (EVs) [more >](#)

**New CIGRE membership mirrors the merging of the power system**

Enedis, one of the world's largest DSOs, was recently [more >](#)

**CIGRE seminar addresses UK's future E2E energy network**

CIGRE UK's seminar in March 2019 on Energy Systems [more >](#)

**CIGRE a single port of call for end to end power system expertise!**

The modern power system is transitioning into one complex interrelated... [more >](#)

**E2E Battery Electric Energy Storage Systems (BESS)**

[more >](#)

## Solve all power system challenges in one unique place

- ✓ Perspectives and peers from every corner of the globe
- ✓ Real world practical expertise
- ✓ Low cost of entry

[cigre.org/e2e](https://cigre.org/e2e)



## Relazioni con altre organizzazioni

- IEEE-PES & IEEE-SA (Standards Association)



- CIRED



- IEC-SMB & IEC-ACTAD



International  
Electrotechnical  
Commission

- GO15

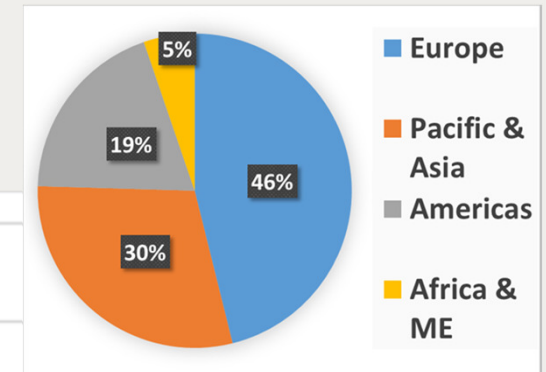
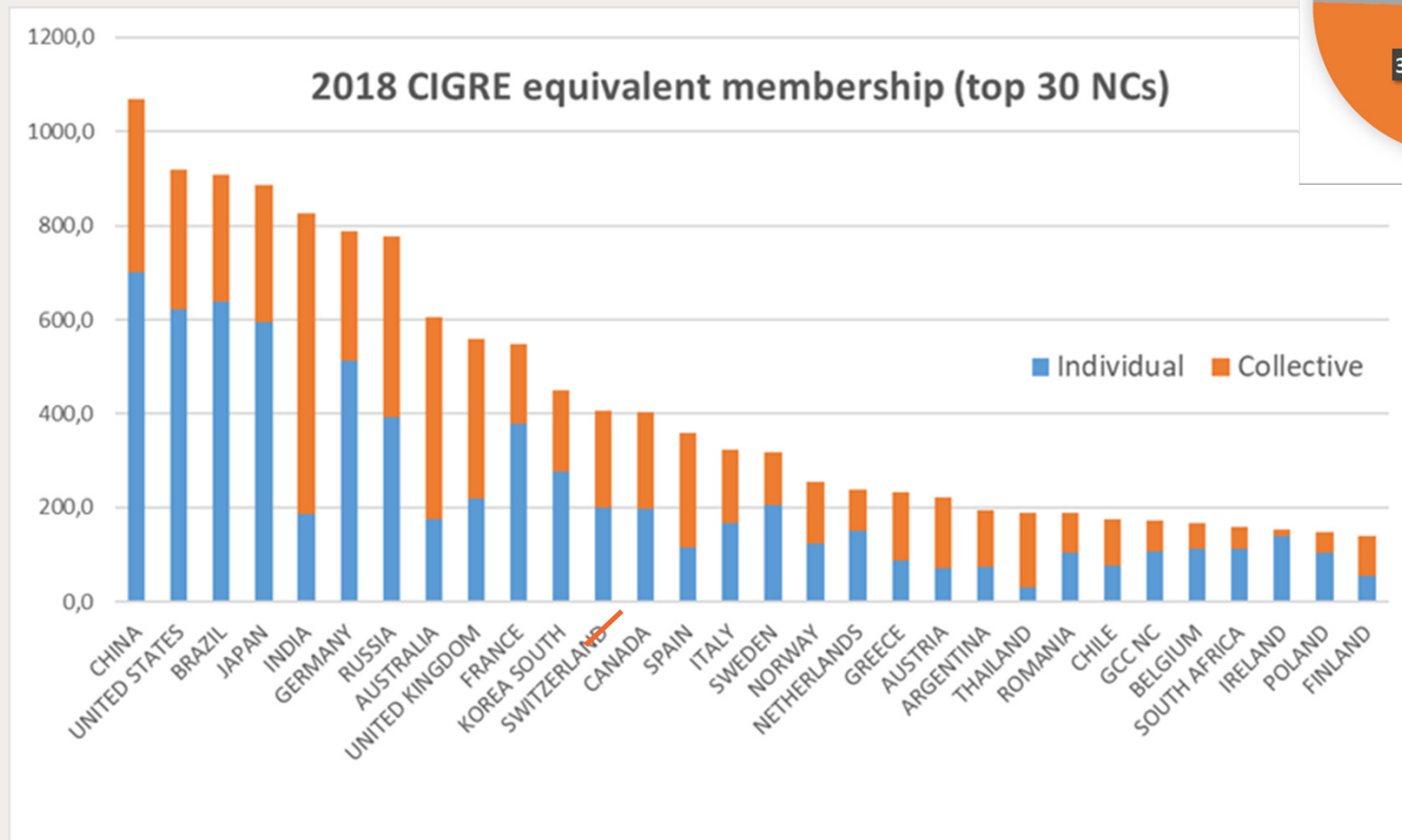


- IHA

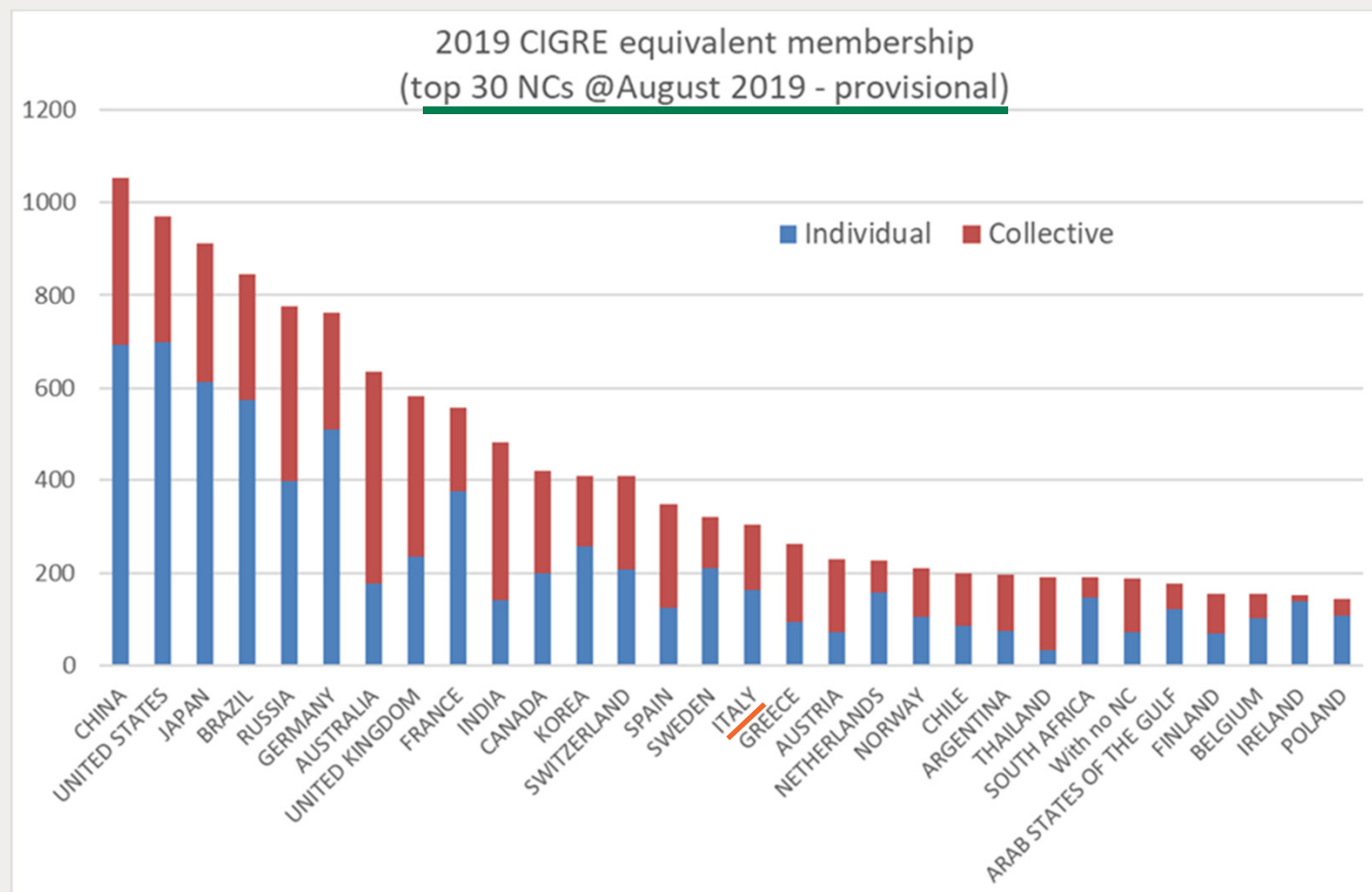




# Membership 2018



## Membership agosto 2019



## Eventi CIGRE

- Hakodate joint conference with IEC (Japan), April 23-26, 2019
- Aalborg symposium (Denmark) June 4-7, 2019.
- Chengdu symposium (China) September 20-26, 2019
- Symposia planning in 2021 and 2023
  - Ljubljana (Slovenia): “Challenges of system performances in energy transition framework “, on June 1-2, 2021
  - Kyoto (Japan): «Active Distribution Network Planning, Operation and Control”, on October 10-16, 2021
  - Cairns (Australia): «Renewables and challenges of integration and the impact of renewable generation on the Grid”, September 4-7, 2023
  - Symposium in April-May-June 2023 **candidates**: Russia, Oman, India, Indonesia
- Other CIGRE events : <https://www.cigre.org/GB/events/event-calendar>

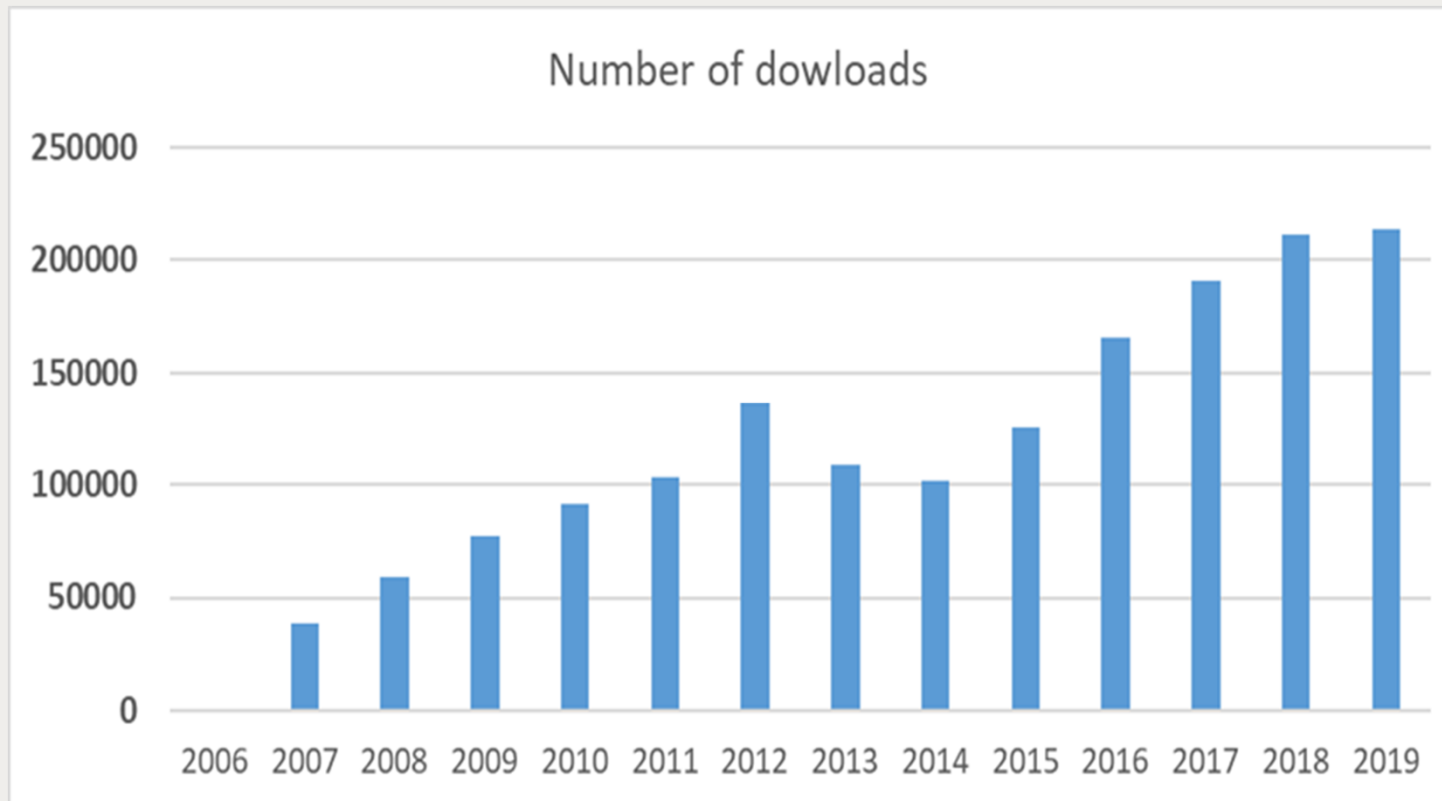


Session 5: Operation of hybrid and low inertia power system  
Chair: Enrico Maria Carlini,  
Terna Rete Italia

## Pubblicazioni CIGRE

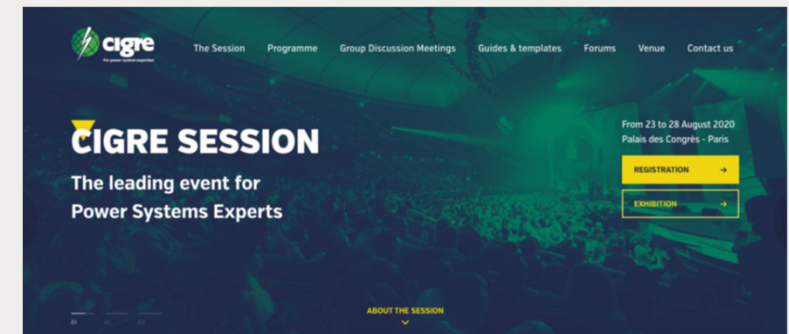
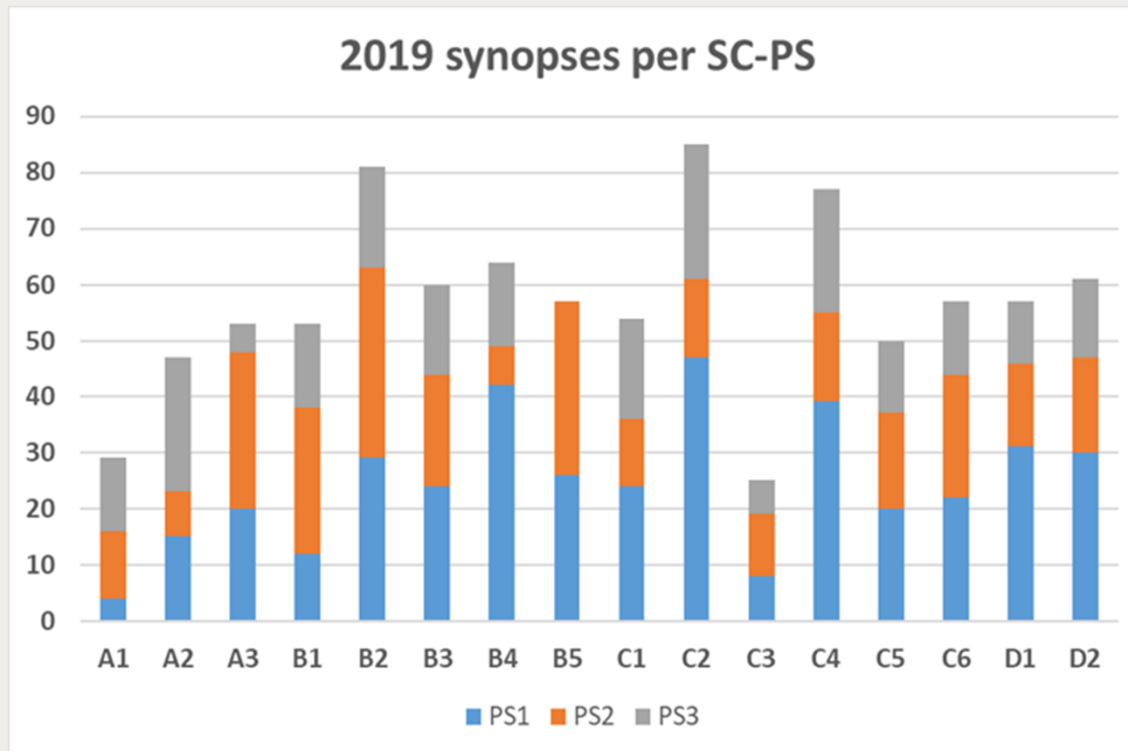
- **Technical Brochures**
  - 2018: 37
  - 2019: 21 (@August)
- **Green Books**
  - 2018: 3
  - 2019: 2 expected
  - 2020: 5 expected
- **CIGRE Science & Engineering**
  - Articles: 29 articles in the first two issues
  - Citation index: procedure under way

## e-CIGRE



**e-cigre: 17855  
active accounts  
(14640 @  
August 22,  
2018, + 22%)**

# CIGRE SESSION 2020



Centennial celebration

**Forum NGN:** Wednesday August 26th

**Forum WiE:** Thursday August 27<sup>th</sup>

- Two free registrations for NGN members offered to each National Committees;



# CIGRE SESSION 2020

Martedì 25 Agosto – Venerdì 28 Agosto

	A1	A2	A3	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5	C6	D1	D2
CHINA	3	3	5	4	5	4	4	4	3	6	4	4	4	3	4	5
BRAZIL	4	4	0	2	4	2	6	10	3	4	2	4	5	4	4	2
USA	1	4	2	4	5	3	3	3	3	7	1	7	6	6	1	4
RUSSIA	2	1	4	1	7	2	2	5	1	3	1	4	3	1	5	5
GERMANY	1	2	4	3	2	4	2	1	3	5	3	3	0	4	7	1
KOREA	1	3	6	4	3	4	4	1	2	3	1	2	2	2	5	2
INDIA	3	3	3	3	3	3	3	3	1	3	1	3	3	3	3	4
UNITED KINGDOM	0	2	2	2	2	2	3	3	4	5	0	6	0	5	2	4
FRANCE	2	3	5	2	3	5	2	1	2	3	2	3	1	0	3	2
AUSTRALIA	1	2	0	1	4	0	1	2	1	3	0	6	4	2	3	4
JAPAN	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2
ITALY	1	1	1	2	2	2	2	2	2	2	2	2	2	3	2	2
SPAIN	1	1	2	2	1	2	2	3	2	2	0	2	1	4	2	3
SWITZERLAND	2	1	6	1	3	5	1	2	2	0	0	0	0	0	4	2
SWEDEN	1	3	1	2	0	1	7	0	1	2	0	3	0	0	2	0
NETHERLANDS	0	1	1	2	0	4	2	1	0	3	2	4	1	0	1	0
NORWAY	1	1	1	5	4	2	2	2	0	0	1	0	1	0	1	0
AUSTRIA	0	3	0	1	1	2	2	1	2	2	0	0	0	2	0	0
GULF STATES COMMITTEE	0	0	0	0	2	0	2	1	2	3	0	2	1	2	0	0
IRELAND	0	0	0	1	2	1	1	1	1	2	0	3	3	0	0	0
THAILAND	1	1	1	1	0	0	1	1	1	2	1	1	1	0	2	1
CANADA	0	1	2	0	3	0	2	0	0	1	0	1	1	1	0	1
CHILE	0	0	0	0	1	0	0	2	6	0	0	1	2	0	0	0
BELGIUM	0	0	0	2	2	0	2	1	2	1	0	0	0	0	0	0

Tuesday		Wednesday		Thursday		Friday	
A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
B4		B2		B5		B3	
C1		C4		A3		C2	
B1		A2		D1		C6	
C3		D2		C5		A1	

Distribuzione paper inviati al Cigre sui Comitati di Studio

## CIGRE SESSION 2020

Equivalent membership	2020 temporary proposal	Alternative proposal	Result of alternative proposal		Change
>1000	65	65	China	65	0
999 - 900	60	60	Brazil	60	0
899 - 800	60	55	USA,RUS,JPN	55	-5
799 - 700	45	50	IND, GE	50	+5
699 - 600	45	45	AUS	45	0
599 - 500	45	40	UK, FR	40	-5
499 - 400	45	35	S.KOR,CDN,CH	35	-10
399 - 300	30	30	ES, IT,SE	30	0

Proposte di riallocazione paper Cigre in base alla membership

# CIGRE SESSION 2020

## Next deadlines for National Committees

	Non Session year												Session year											
Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Proposals of synopses and papers for the Session to CO																								
Transmission of renewed membership fees to CO																								
Requests for NC funding																								
Nominations for Distinguished members																								
Nominations for CIGRE Medal																								
Proposals for the renewal of Study Committee members																								
Nominations for Honorary members and Fellows																								
Consultation on the Session registration process																								
Nominations of candidates for Officers (Pdt & VPs), SteerCo, and Rep. on TC																								
Delivery of national power system information to CO																								
Delivery of National Committee reports to CO																								
Proposal of experts for WGs																								



# Informazioni basate su

Administrative Council Meeting – Rio de Janeiro, 22-23 Agosto 2019

