

# Corona Times

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EDITION 19



empowering  
networking  
globalknow-how

**CORONA:** "a luminous, audible discharge brought on by the ionization of a fluid such as air surrounding a conductor that is electrically charged".



A MONTHLY NEWS-SHEET TO PROVIDE INFORMATION AND UPDATES TO CIGRE MEMBERS

## TECH TALK

A series of links to CIGRE Technical documents



### CIGRE SCIENCE & ENGINEERING - CSE020

This journal is the outcome of CIGRE's desire to broaden its publication to scientific articles of interest for its members, and outside the CIGRE sphere.

#### In this issue :

- Editorial by R. Stephen - Editor in chief
- System strength - Z. Emin et al.
- System Strength Challenges and Solutions Developed for a Remote Area of Australian Power System with High Penetration of Inverter - Based Resources - B. Badrzadeh et al.
- Analysis and Mitigation of SSCI in DFIG-based Multi-Machine System - M. Taha Ali et al.
- Would Traditional Primary Frequency Response and Automatic Voltage Control Naturally help Usher in Grid Forming Control? - D. Ramasubramanian
- Dynamic equivalent of a real distribution grid hosting photovoltaic and synchronous generators - T. Van Cutsem et al.
- Tools and Techniques for System Restoration - B. Badrzadeh et al.



### SESSION PAPERS & PROCEEDINGS 2020 CIGRE SESSION

#### Abstract

#### SC A1 ROTATING ELECTRICAL MACHINES

##### PS1: GENERATION MIX OF THE FUTURE

- A1-101 Is reliance on synchronous machines holding us back from evolving the power grid to facilitate renewables? D. VAUGHAN - AU
- A1-102 The benefits of implementing Synchronous Compensators in Grids with high penetration of renewables - H BIELLMANN - FR

## NGN CORNER

### News from our Young Engineer Group (U 35yo)

This year we aim to improve the way we engage with our CIGRE audience. Last year we hosted a series of webinars across a range of topics and we would like to continue developing similar content this year. If you have any recommendations for presenters or interesting topics, please get in touch via: [ngn@cigreaustralia.org.au](mailto:ngn@cigreaustralia.org.au)

#### SC A1 ROTATING ELECTRICAL MACHINES

##### PS2: ASSET MANAGEMENT OF ELECTRICAL MACHINES

- A1-201 Experimental Study of Vibration Sparking Erosion on Stator Bars - Y. MENG - CN, H. ZHU - US
- A1-202 Diagnosis and Prognosis of Wind Turbines using Machine Learning Algorithms on SCADA and Gearbox Vibration Datasets - F. FREITAS - BR
- A1-203 Evaluation of the Behavior of Partial Discharges in Generator Heating and Operating Range Tests - P. VILHENA - BR
- A1- 204 Developments in maintenance processes increase operational availability and contribute to the operating efficiency of the hydroelectric plant of Itaipu - M. MAURO - BR

## WEBINAR - FREE



### CYBERSECURITY REQUIREMENTS FOR PACS AND THE RESILIENCE OF PAC ARCHITECTURES - WBN024

This webinar offers an insight into the emerging threat landscape with attention paid to common protection, automation and control systems (PACS). Overlaid on this portrait is the imposition of emerging laws and regulations. From this assessment it was clear that a dramatic sea change will be required to modernize existing EPU policies, procedures, and organizational directives. A well-defined model-based system engineering (MBSE) process was used to define selected views of PACS-centric systems of interest. Using MBSE each impact is associated with recommended solutions to improve the security posture of PACS operations.



## Mars Perseverance POWER

Perseverance carries a radioisotope power system - "Multi-Mission Radioisotope Thermoelectric Generator" (MMRTG) The MMRTG converts heat from the natural radioactive decay of plutonium into electricity. This power system, which charges the primary batteries will last 14 years and produces a dependable flow of electricity using the heat of plutonium's radioactive decay as its "fuel."  
<https://mars.nasa.gov/mars2020/spacecraft/rover/electrical-power/>



## Member SNAPSHOT

### Distinguished Members

Australia has had several members recognised with the CIGRE global distinguished member award. The “Distinguished Member” title is granted to a select number of long-standing members who have contributed to the Association through participation in technical work or within the National Committees. In this edition and the March edition, we will offer short profiles of the most recent recipients.

1996	N.R. White, William P. Price, F. Brady
1998	Dr. David allan, Ralph Craven, Ken Barber
2000	Dr. Ronald James
2002	Bryce Corderoy, Dr. Vincent Morgan
2004	Philip Dulhunty
2018	Hans Mayer
2020	Alex Baitch, Ken Ash, Rod Hughes, Simon Bartlett



Alex has contributed significantly to technical activities over a long period. Alex was the founding Australian C6 mirror panel convenor and has served on several WG including WG C8,08; WG.C6.09; WG.C6.11; WG C6.19 ; WG c6.30 and convenor of WG C6.23. Alex has also contributed to Green Book “Electricity Supply Systems of the Future” and is a member of C1/ C6.37/CIREC Optimal Transmission and Distribution Investment Decisions under Increasing Energy Scenario Uncertainty. Alex continues his involvement in our C6 and C4 panel and in assisting our young engineers.



Ken has been a long term member of CIGRE. He has been a member of several WG including WG C6.24; WG C6-.22 and WG C6.28. He has also been a representative on the C6 Study Committee and the Australian shadow C6 convenor for 7 years. Ken was instrumental in initiating and assisting in successfully implementing CIGRE Australia’s ‘CIDER’ event on DER, which is now a mainstay biennial event. Ken continues his involvement in our C6 panel and is aiding and mentoring our younger engineers.

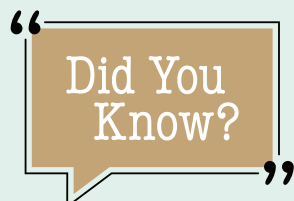
#### Australian Technical panel presentations:

These can now be found on our [YouTube](#) channel and summarise the work being carried out in each of our 16 Technical fields of work.

**e-cigre:** The go to site for all CIGRE documentation and Technical Brochures.

Through e-cigre you can search the vast technical database of 14,000 + items, order Green books or view a range of Webinars and search for past Electra editions.

<https://e-cigre.org/>



#### Social Media:

CIGRE Australia has several social media channels where we post updates and items of interest.

#### Follow us to keep up-to-date:

- [Linkedin](#)
- [Twitter](#)
- [YouTube](#)

**Instagram** is under development.

### COLLECTIVE MEMBERS PROFILE



#### POWER SYSTEM ENGINEERING AND SOFTWARE

DlgSILENT Pacific is a specialist power systems consulting company with links to DlgSILENT Germany and the greater DlgSILENT group. We work in Australia, the Pacific and South and Southeast Asia on power system analysis, transmission planning, system operations and regulatory matters. Now in our twenty-first year, DlgSILENT’s reputation is our most precious attribute. We are enjoying the innovation and implementation of new technologies spurred by the energy transition. We support these emerging technologies as well as the existing generation base and offer broad-based technical services and advice. DlgSILENT’s inclusive and supportive culture makes it a great place to work and have fun at the same time. <http://www.digsilent.com.au/>

This Member summary is provided as general information and is not an endorsement of the members services or products.