

# Corona Times

13th AUGUST 2020  
EDITION 9



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 FORTNIGHTLY NEWS-SHEET TO PROVIDE INFORMATION AND UPDATES TO CIGRE MEMBERS

## TECH TALK

A series of links to CIGRE Technical documents



### CIGRE Science and Engineering - CSE017

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:

- System Operational Challenges from the Energy Transition by V.N. Swedien et al
- Power Quality Trends in the Transition to Carbon-Free Electrical Energy System by C. F. Flytkjaer et al
- The Need for Enhanced Power System Modelling Techniques and Simulation Tools by B. Badrzadeh et al
- Using Internet-of-Things technology for modern asset management by J. Tammi et al
- Unwanted blocking of differential protection during converter transformer internal faults by Y. Zhao et al
- And a lot more .....



### Recommendations for additional testing for submarine cables from 6 kV ( $U_m = 7.2$ kV) up to 60 kV ( $U_m = 72.5$ kV) - WBN016

Since the introduction of renewables in the electricity network, offshore wind as a concept has been very popular. In the last years the voltage of such inter array cables has increased and are now in the HV cable range. Industrial cost pressure has led to cable designs with either non-traditional water barriers or wet cable designs. Therefore, a new test regime has been suggested to cover these new designs.

## NGN CORNER

News from our Young Engineer Group (U 35yo)

We have organised several webinars this year for the NGN and we are always looking for new ways to innovate and increase the engagement within the NGN and the wider CIGRE Australia audience.

If you have any suggestions on how we can continue to make exciting content, please contact us at [ngn@cigreaustralia.org.au](mailto:ngn@cigreaustralia.org.au)



### Exploring the market value of Smart Grids and interactions with wholesale (TSO) and distribution (DSO) markets - TB803

CIGRE convened the cross discipline Working Group (WG) C5.24 with the purpose to explore, and report on the market-based value of smart grid developments and their net benefits in the context of electricity markets. The Technical Brochure (TB) documents the research findings through case studies and types of the market-based and strategic values associated with smart grid technologies from demonstration programs.



### Sheath bonding systems of AC transmission cables - design, testing, and maintenance - TB797

This Technical Brochure considers lifecycle aspects related to sheath bonding systems of AC transmission cables, from design and installation to operation and maintenance. This brochure reviews relevant industry standards and specifications, reviews information and requirements needed to design such sheath bonding systems, reports industry best practices, and provides recommendations, to ensure effective connection and insulation of such systems.



## AUGUST ELECTRA MAGAZINE

The CIGRE Electra magazine is now fully electronic ([on line](#)) for a limited period it is available to everybody and will then revert to being sent to members only.

## KIWI COMMENTS

News from across the ditch

The CIGRE NZ 2020 Conference was successfully held last week and provided delegates the opportunity to engage to discuss the future, aligned with our conference theme of “power systems advancing beyond 2020” and its tagline of “advancing our energy future”

## Wankel Rotary Engine

The German engineer Felix Wankel, inventor of a rotary engine used in race cars, is born on August 13, 1902, in Lahr, Germany.



## CORONA PANEL SNAPSHOT | AU-B5

### Protection and Automation

**Study Committee Chairman:** Rannveig Loken | **AU Panel Convenor:** Peter Bishop

#### Scope:

Study Committee B5 Protection and Automation covers the principles, design, applications, coordination, performance and asset management of:

- Power System Protection;
- Substation Control and Automation;
- Substation Monitoring and Recording;
- Remote Control Systems and Equipment;
- Metering Systems and Equipment;

Study Committee B5 also incorporates all associated aspects of internal and external communications, including the application of the IEC61850 communication standard.

All technical, organisational and economical aspects are considered including staff education and training. Emphasis is placed on design and application of digital technology and modern integrated system approach including hardware and software for the acquisition of system state information, local and remote data communication, and execution of control commands. It aims to cover the whole Power system, end to end related to this topic, from transmission, to distribution systems, including generation and HVDC systems. The following aspects are of current interest for SC B5;

- Substation Automation and Remote Control covers all aspects of co-ordinated and integrated systems for protection and automation of substations
- Protection and Monitoring covers the protection and monitoring of primary plant and circuits, to maintain power system security, to limit plant damage and to ensure the safety of personnel
- New Network Requirements covers the design and application of digital technology and modern communication system for the benefit of modern and future networks featuring embedded generation and smart grid techniques

**AU B5 Panel Membership:** 30 with membership representing consultants, university, manufacturers, distribution, transmission and generation utilities.

#### Working Groups and Task Forces:

There currently 25 active B5 Working Groups and one Green Book Task Force. Seventeen Australian and New Zealand members are contributing as corresponding or full members on these working groups. The AU panel convenor is also convenor for the B5 Task Force work developing the restarted 'IEC 61850 Principles and Applications to Electric Power System' green book. Regarding bush fire mitigation, AU B5 members are providing input to the Fast Protection Working Group and liaising with other study committee working groups that are looking at aspects of bushfire mitigation.

#### Recent Publications:

As a result of working groups, SC B5 published five Technical Brochures since June 2019:

[\*TB 760 - Test strategy for Protection, Automation and Control \(PAC\) functions in a fully digital substation based on IEC 61850 applications\*](#)

[\*TB768 - Protection requirements on transient response of digital acquisition chain\*](#)

[\*TB789 - Improved metering systems for billing purposes in substations\*](#)

[\*TB790 - Cybersecurity requirements for PACS and the resilience of PAC architectures\*](#)

[\*TB800 - Network protection performance audits\*](#)

#### New Specific SC B5 Public Website:

A specific SC B5 Public website was recently created - <https://b5.cigre.org/>. This site contains information on worldwide SC B5 technical activities, events and publications. It includes a list of working groups with their Terms of Reference (TOR).

#### Activities: SEAPAC Conference:

CIGRE AU B5 panel organises the 'South East Asia Protection Automation and Control (SEAPAC) conference every two years and brings together the leading expertise in the protection and automation fields across Australia, New Zealand and the South East Asia region to participate at paper presentations and network at the technical exhibition.

The principle objective is the ongoing development of fundamental knowledge and skills for application, design and operation of the substation and power system protection, control, metering, condition monitoring equipment and associated interfaces to primary plant, SCADA and telecommunication systems.

The previous conference was in Sydney during March 2019 and the next conference is planned for Brisbane in 2021. Due to the Corona-19 Pandemic, we are now planning for a May 2021 physical event in Brisbane (with fall back to an online event and facility to live stream/ pre-record overseas presentations).

#### October 2020 AU B5 Protection Webinar:

During the annual June AU B5 panel meeting (held by video conference), the panel decided to organise a webinar with local protection presentations and opportunity for questions. It will include a presentation on travelling wave protection implementation and will be open to a wide audience. Further details of the webinar planned for October will follow.

#### Ljubljana Solvina June 2021 Symposium

##### - Call for Papers:

SC B5 will participate in a Symposium in Ljubljana, 1-4 June 2021. The call for papers has been released and further information can be found using the link below and in the attached - <https://cigre-symposium2021-ljubljana.si/call-for-papers/>. The symposium focuses on the future transformation of the electric power sector, the new framework of generation, transmission, distribution, and demand side.

### KMS Tips & Tricks

Whilst the system has been chosen for its ease-of-use "user-friendly" structure, sometimes it is not quite so easy, and all these instructions can even be overwhelming, or you are just so entrenched in what you are doing it is too hard to "see the wood for the trees". Help is available from a number of sources - [see section 2 in the KMS help area](#)