

Corona Times

27th AUGUST 2020
EDITION 10



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 & ENGINEERING CSE 016 - Special Edition ISH 2019

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:

- Electric field grading and breakdown voltage enhancement of gas insulated power apparatus with functionally graded materials (FGM)
- Rate constants of C_4F_7N decomposition reactions
- Dynamics of water droplet on hydrophobic surface before flashover under AC electric field
- Evaluation of the estimation methods for lightning interception efficiency of air-termination mesh
- Laboratory measurements of thermal behaviour of overhead power lines due to natural convection



Valuation as a comprehensive approach to asset management in view of emerging developments - TB791

Asset management is becoming ever more important given a multitude of investment decisions partly driven by the energy transition, and also of maintenance and end-of-life replacement decisions driven by aging assets. Project prioritization within an asset management portfolio and plan is a key challenge, given that different risks are usually measured on different scales. But asset risk can be given a monetary value when the probability and consequence of asset failure can be quantified.

NGN CORNER

News from our Young Engineer Group (U 35yo)

Over the next series of Corona Times newsletters, we will be highlighting the members of the NGN committee. We currently have 24 members in the committee, majority acting as panel liaison. Their primary role, to assist the convenors and pass on the fantastic work that each of these groups prepare to the wider NGN audience.

ngn@cigreaustralia.org.au



Understanding of the geomagnetic storm environment for high voltage power grid - WB17

The webinar is based on the content of TB 780 which collected and evaluated digitally measured magnetic field environments throughout the world, with emphasis on the larger geomagnetic storms that have occurred since 1989.



Power transformer audible sound requirements - WGR-302-1

Industry entities (utilities) intend to prevent their personnel from long term hearing issues. Today's sound level specifications reveal on average more stringent requirements than in the past. This is owing to the increased awareness of the effects of sound on humans, the demand for high living quality but is often also result of newly built residential districts approaching existing substations (this was rarely the case in the past) that influence authorities' general noise legislation.



AUGUST ELECTRA MAGAZINE

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

PARIS - e-SESSION 2020

The Paris e-session began this week and is now in full flight offering a range of technical presentations across the 16 Study areas over the next 10 days

La Grande Boucle

The Tour De France begins this weekend in its 107th edition - First staged in 1903 as a marketing campaign for a sports magazine, has grown to be acknowledged as the worlds biggest annual sporting event with 10-12 Million roadside spectators (maybe not this yr ?) and over 3 Billion+TV viewers. 22 teams, 176 riders over 21 stages (3470 km)



CORONA PANEL SNAPSHOT | AU-B3

Substations and Electrical Installations

Study Committee Chairman: Koji Kawakita | AU.B3 Panel Convenor: Crina Costan

Scope:

The design, construction, maintenance and ongoing management of the substations and the electrical installations.

Panel Members: 35

Recent Publications:

[WG.B3.45. TB 802: Applications of Non-SF6 Gases or Mixtures in Medium and High Voltage Gas Insulated Switchgear](#)

[WG.B3.46 TB 805 Guidelines for safe work methods in substations](#)

[WG.B3.47 TB 807 Application of robotics in substations](#)

They are available to be accessed via e-cigre website by the CIGRE members (at no cost) and non-CIGRE members.

Activities of the AP.B3 panel include the working with our national and international colleagues on a high number of working groups including:

- Management of Fire in substations,
- 3D Technologies in Substations,
- Guidelines for SF6 end-of-life treatment of T&D equipment
- Large Battery Storage Systems,
- Generator Circuit Breaker,
- Knowledge Transfer of Substation Engineering and Experiences

CIGRE AP. B3 Substations Group held an online Seminar on Thursday 28th May, 2020 with representation from AS 2067 committee and the topics included:

- AS/NZ3000 and AS2067 requirements for the neutral - earth connections.
- Assessment of requirements for pressure vessels. The context being: The national Model WHS Act and Regulations (2012) states requirements in Part 2, Division 3, Section 21 as: "complementary duties on persons conducting a business or undertaking involving the management and control of plant, as well as a range of additional control measures for specific types of plant." The regulations go on to list relevant plant, including pressure equipment, pressure piping and pressure vessels
- Cables installations compliance: AS/NZ3000; AS2067 and State Electricity Act.

Post seminar it was decided to form two Taskforce teams to undertake a detailed review of methodologies and present findings and recommendations at our Panel Meeting in November in Perth.

In June 2020 AP.B3 established two task forces aiming to assess, and further detail design requirements associated with the design and installation of equipment in substation associated with the following:

TASK FORCE 1: Connection of the Neutral Conductors to the Earthing System in Substations

The relevant Australian Standards being AS/NZS 3000 and AS2067.

Background

Over the past 4 years, AS/NZS 3000 and AS 2067 standards have had major updates. This included details pertaining to High Voltages substations; their Low Voltage Auxiliary Supplies and Neutral Earth connections. Different methods have been used by utilities and consultants with advantages and disadvantages.

2. Installation of Cables in Substations

The relevant Australian Standards being AS/NZS 3000 and AS2067.

Background

In the recent years a number of battery storage systems have been installed within the substation perimeter fence. These installations normally use a large number of underground cable connections at two voltage levels: less than 1 kV, high current and very high fault levels and MV level, such as 11 kV, 22 kV, 33 kV.

The method of installation of these cables is required to be done in compliance with AS/NZS 3000 and AS2067.

TASK FORCE 2: Assessment of the Regulations and Compliance Requirements for Pressure Vessels installed in Substations

Scope / Terms of Reference

1. Establish ANZ utilities' current practice in meeting pressure vessel regulation related to HV switchgear;
2. Establish and summarise regulatory requirements in ANZ
 - Standards and codes;
 - Legislation (National, States);
 - Practice with relevant Regulators (exclusions, etc. for HV switchgear).
3. Establish practice overseas on pressure vessel regulation related to HV switchgear

Full Scope, TOR and a webinar presentation is due for release Mid November 2020 - watch the CIGRE Website and LinkedIn.

KMS Tips & Tricks

Direct On Screen Editing (not document down/upload). If you are doing things in Word or as Excel tables which you down/upload for your group to access, we **STRONGLY** recommend that you stop down/uploading files, whether that be a draft of a Technical Brochure or the agenda and minutes of meetings. Using KMS pages with direct on-screen editing is FAR easier and eliminates all the version control problems of exchanging documents by email, Dropbox.