Corona Times

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EDITION 16

cigre Australia

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

Transmission line structures with fibre Reinforced Polymer (FRP) composite - TB818

Advancement in material science and demand for solutions in the aerospace and maritime industries led to the development of new high-tech materials. Fibre Reinforced Polymer Composites (FRP) are one class of these emerging materials, and their use in transmission line structures bring many potential advantages, such as long service life, resistance to corrosion, light weight, high specific strength, high dielectric strength, environmental friendliness. The Technical Brochure provides information on the properties of these materials and their manufacturing technology, investigates in details their possible use in transmission line structures, and concludes that FRP structures are cost-effective alternatives to traditional solutions.

2020 AGM – Friday 20th November 11am (AEST)

The **CIGRE Australia AGM for 2020** will be held via a virtual meeting webcast. This is a member only event and details have been emailed directly to members and Collective member contacts.
You will need to register with your member number. You can find your member number on your invoice or your organisations CIGRE contact person, electronic member card or by contacting our office **(07) 3310 8838 - CLICK to REGISTER**

NGN CORNER

News from our Young Engineer Group (U 35yo)
Introducing the incoming Co-Chair Phil Coughlan

Phil has over six years' experience working across the electrical engineering industry. He started work at a consultancy as a design engineer and is now working within the Utilities team at the Level Crossing Removal Project (LXRP). Phil has undertaken several roles as part of his involvement in CIGRE, and is looking forward to working with Chris in the role of NGN Co-Chair to build on the good work undertaken by Bing over the last few years.

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

IEC 61850 based substation automation systems – Users expectations and stakeholders interactions - TB819

The IEC 61850 standard series has gradually replaced old protocols in Digital Substation Automation Systems. Its main user benefit is to allow interoperability between Intelligent Electronic Devices of different vendors in automation systems and increase DSAS engineering efficiency. However, early implementation experiences pointed out several difficulties in applying the standard. This Brochure covers both general and detailed level user expectations for IEC 61850 based DSAS and describes main stakeholder interactions that are needed in order to improve the interoperability.

Power system restoration – World practices and future trends - RP_304_1

Complete or partial blackout of the electric power grid does occur from time to time, despite prudent planning and operations, due to disturbances that either exceed the basic design criteria, or due to various causes such as natural disasters, multiple equipment failure, protection relay miscoordination or malfunctioning, and human errors. Restoration of the power system, following such disturbances, is an extremely important aspect of the System Operator's role in managing the bulk power system and has as objectives to enable the power system to return to normal conditions securely and rapidly, minimizing restoration time and associated losses, and diminishing adverse impacts on society.

MEMBER INVOICES FOR 2021

Invoices for 2021 will be sent next week and are due 31 December 2020.

Queensland secure famous State of Origin triumph with game three win over NSW

November 18, 2020 - The biggest sporting crowd (52,500) **in the world** since Covid-19 hit, packed into Suncorp Stadium in Brisbane for the State of Origin decider.

CORONA PANEL SNAPSHOT | AU - A1

Rotating Electrical Machines

Study Committee Chairman: Nico Smit (NZ) | **AU Panel Convener:** Tri Tran (SA)

Scope:

The scope of study committee A1 covers the development of new technologies and the international exchange of information and knowledge in the field of rotating electrical machines, to add value to this information and knowledge by means of synthesizing state-of-the-art practices and developing guidelines and recommendations.

SC A1's principal areas of interest are:

- Asset Management to extend the life of existing generators or to recommend their replacement
- Machine monitoring, diagnosis, and prognosis to perform optimal maintenance
- Renewable generation which may be connected directly to the transmission and distribution or even directly to consumers setting up microgrids.
- Enhancements in the construction of large turbo and hydro generators
- High efficiency rotating electrical machines with new materials, improving cooling and insulation systems in generators and motors.
- Large motors and high efficiency motors
- Utilization of Polymer nano-composites in future HV electrical insulation in rotating machines

AU A1 Panel membership: 15 Members represent power generation and transmission utilities, universities, service provider and consultants.

Working Groups:

SC-A1 is organised into five Advisory Groups (AG):

- AG A1.01: Turbo-Generators Advisory Group
- AG A1.02: Hydro-Generators Advisory Group
- AG A1.05: New Technologies Advisory Group
- AG A1.06: Motor Advisory Group
- AG A1.T: Tutorial Advisory Group

These AG's work on various topics & organised WG's, Joint WG's & Task Forces with other SC's.

There are currently twenty two active Working Groups with seventeen participants from Australia and New Zealand.

Turbo Generators

WG A1.33 Guide for Cleanliness and Proper Storage of Generators and Components

WG A1.44 Guideline on Testing of T & H Generators

WG A1.57 Visual Inspection of Stator Wdgs & Core

WG A1.63 Stator Wdg Bushings & Lead Connections – Field Experience, Failures & Design Improvements

WG A1.65 Guide to Optimal Mgt of Coal Generation in the Presence of Inverter Based Resources

WG A1.70 DDF Measurements on Stator Windings

Hydro Generators

WG A1.42 Influence of Key Requirement on the Cost of Hydro generators

WG A1.49 Magnetic Core Dimensioning Limits of Hydro Generators

WG A1.55 Survey on Split Core Stators

WG A1.56 Survey on Lap and Wave Wdgs & their Consequences on Maintenance and Performance

WG A1.59 Survey of Industry Practices & Effects of Cutting Out Stator Coils in Hydro generators

WG A1.60 Guide on Economic Evaluation for Refurbishment or Replacement decisions on Hydro-generators

WG A1.62 Thrust Bearings in Hydropower – A Survey of Known Problems and Root Causes

Non-Conventional Generators

WG A1.51 monitoring, reliability, and availability of Wind Generators

WG A1.52 Wind Generators and Frequency-Active Power Control of Power Systems

WG A1.66 Guide on the Assessment, Specification and Design of Synchronous Condensers for Power Systems with High Levels of Renewable Generation

Large Motors

WG A1.45 Guide for Determining the Health Index of Large Electric Motors

WG A1.53 Guide on Design Requirements of Motors for Variable Speed Drive Application

WG A1.54 Impact of Flexible Operation on Large Motors

WG A1.58 Selection of Copper versus Aluminium Rotors for Induction Motors

WG A1.61 Survey on Partial Discharge Monitoring in Large Motors

WG A1.64 Guide for Evaluating the repair / Replacement of Operable Standard Efficiency Motors

Recent Publications: Available https://e-cigre.org/

TB 724 Guide on use of premium efficiency motors

TB 729 Tech Feasibility study for super-efficient motors

TB 769 DDF Measurements on new Stator Bars

TB 772 turbo-gen. stator wdg support experience

TB 774 Stator Winding Supports in Slot Area & overhangs of Hydro-generators

TB 776 Fact' QA testing requirement for turbo Generator stator bars

Activities: C A1 Colloquium September 2019.

The colloquium was held in India from 22nd to 28th September 2019. It was well attended by members and experts from 19 countries plus a large representation from the local India companies and utilities working in the generation and rotating machines industry.

Best wishes from the AU-A1 panel.

Tri Tran

AU-A1 Convenor