TUTORIALS
Provisional Programme

Tuesday, October 1, 2019
Misty Hills, Muldersdrift, Johannesburg | Room: Pelindaba 1

Time	Description
07: 30 – 08:15	*Registration in the Exhibition Hall*
08:15	Opening, Safety and Security Briefing
08:30 – 10:00	**Tutorial 1: FACTS Planning, Technology Selection and Specification** ***Presenter:*** *Georg Pilz | SIEMENS, Germany* The alternating current transmission grid must be continuously adapted to new requirements such as higher loads, change of traditional unidirectional energy flow to bidirectional or the conversion from fossil power plants to renewable energies. This create challenges for the owners and operators of the transmission grid. FACTS devices had and will play a crucial role in controlling the load flow and stabilizing the voltage in the transmission systems. The tutorial provides information on network studies required to analyze the network. Based on the results of these studies, different requirements for a FACTS device can be defined. The different technologies on the market are presented. Both technical and economic aspects are discussed. In a further point, the requirements for a technical specification of a FACTS device are discussed. This document is an essential part of a contract between the owner of the network and the manufacturer and describes the connection criteria of the future FACTS devices. Source for this document are the results of the network studies. In addition, the applicable network standards, international and internal standards that must be considered in such a specification are presented. The tutorial concludes with examples of existing installations and further literature.
10:00 – 10:30	*Tea/Coffee Break in the Exhibition Hall*
10:30 – 12:00	**Tutorial 2: Technology Selection and Specification of HVDC** ***Presenter****: Bruno Bisewski | RBJ Engineering, Canada* The tutorial covers technical factors that would be considered when choosing VSC or LCC technology for a new HVDC system. It will cover technical considerations such as cost, footprint, losses, maximum rating, and fault recovery performance that may be decisive in the selection of one technology as well as other factors which may not be decisive but could still influence the decision in favour of one technology over the other. The tutorial will also cover selected topics related to specification of both LCC and VSC technology including ratings, performance requirements and testing.
12:00 – 13:00	*Lunch in the Exhibition Hall*

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13:00 – 14:30	**Tutorial 3: ICT and Telecoms solutions for DERs and micro grids** ***Presenter**: Zwelandile Mbebe	Eskom, South Africa* This tutorial looks at the evolving set of technologies and issues covered by recent CIGRE D2 sessions and publications, in the context of maintaining reliability and improving efficiency of operating the telecommunications and information systems of utilities. The tutorial covers: • Present the current state of electric power utility networks • Impact of grid distribution on the existing utility telecoms networks with the new requirements and challenges imposed on these networks • Telecommunications and ICT technologies for the support of the DERs and microgrids (OTN, MPLS-TP, IP/MPLS, SDN& NFV, GSM, 5G) • Discuss the impact on cyber security • Interoperability issues • Supporting standards • Case studies • Conclusion
14:30 – 15:00	*Tea/Coffee Break in the Exhibition Hall*
15:00 – 17:00	**Tutorial 4: TB740: Contemporary design of low cost substations in developing countries** ***Presenter:** Theuns Marais	Eskom, South Africa & Philip Koenig	Royal Haskonig DHV, South Africa* This Technical Brochure is a topical guide on the substation design process with its main aim to lower the substation's life cycle cost. This brochure is based on the results from an international survey that was undertaken to determine the challenges associated with and best practices in the design, implementation (construction) and operating of substation assets. Another source of input was the outcome of a workshop to solicit input directly from African utilities facing these challenges. The TB presents the information in three basic sections. The first covers Design Philosophy Considerations; Asset Management Considerations for Substation Design; and the Substation Design Process. The second section covers the main substation design considerations such as Equipment Selection; Site Selection, Access and Constructability; Operability and Maintainability; and Safety, Security and Environmental Considerations. The last section covers Project Delivery Considerations; Costing Considerations; Procurement and Contracts for Major Electricity Infrastructure; and Training and Development of Substation Practitioners. This Technical Brochure will be discussed during the session arranged for 1 October. The level of detail will be dependent on the time available.
17:30 – 19:30	*Welcome Cocktail Function in the Exhibition Hall*