Program- TIC Advanced Course Power Transformer Condition Monitoring and Asset Management Oct/Nov 2020

Day 1 Wednesday 28th October 2020

11.40* 11.50-12.00	Zoom Login, video-sound check Welcome	Ray Holzheimer Manager Australasian Transformer Innovation Centre, The University of Queensland
12.00 -13.00 Session 1	• Power transformer losses and their source, loss characteristic. • Transformer efficiency and evaluation of losses. Optimisation of initial cost versus losses. • Methods to include loss value management, lifetime cost evaluation	Rob Milledge Hitachi ABB Power Grids (Australia)
13.00- 14.00 Session 2	• Introduction to Monitoring & Diagnostics using the 5W's approach, with the focus on its contribution to Maintenance. • Essential Monitoring (on-line & periodic) and the 80/20 rule, • Transformer Maintenance Cycles how they can be reduced, or eliminated • Case Histories with good and not so good results • Response Plan and Actions resulting from monitoring outputs • Communications and Situational Awareness	Brian Sparling Dynamic Ratings (Canada)
14.00- 15.00	Break	
15.00- 16.00 Session 3	Forecasting of condition degradation for power transformers - importance of linking all available condition information and of probability of failure curves- Transformer Condition scores: • differences between fleet approach vs single transformer approach, • ways to deal with reduced resources, • linkage between transformer specification, maintenance strategy and re-investment strategy	Amra Alibegovic-Memisevic Powerlink Queensland
16.00- 17.00 Session 4	Digital Asset Management- Strategies by major Australian Electrical Utility -Western Power - Defining a Digital Asset Management strategy - Digital Twins - Digital Asset Management in the context of the enterprise	Carlos Gamez Western Power
17.00	End of Day 1	

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Day 2 Wednesday 4th November 2020

11.40* 11.50-12.00	Zoom Login, video-sound check Welcome	Ray Holzheimer Queensland University
12.00 -13.00 Session 5	Case studies of Digital Asset Management • Circuit breaker monitoring • Switchboard monitoring	Carlos Gamez Western Power
13.00 - 14.00 Session 6	Data required and process to determine adequate number of system spare power transformer • identify inputs required to determine number, sizes and vector groups for system spare transformers • Risk based approach to determine how many spare transformers can be justified • Triggers needed to update your system spare transformers key maintenance needed for system spare transformers	Amra Alibegovic-Memisevic Powerlink Queensland
14.00- 15.00	Break	
15.00- 16.00 Session 7	Life extension, In service parameters and interpretation of DGA in MIDEL • Comparison of cellulose materials' ageing in mineral oil and ester • In-service parameters and limits for ester liquids • Adjustments required to interpret DGA results of an ester filled transformer	Dr Attila Gyore M&I Materials MIDEL (UK)
16.00 -17.00 Session 8	What is TIC? What is TIC's research and education activities? Attendee networking session including attendees share successes or issues with transformer condition monitoring and asset management. 5-10 min case studies can be presented?	Ray Holzheimer University Queensland All attendees
17.00	End Day 2	

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Day 3 Wednesday 11th November 2020

11.40* 11.50-12.00	Zoom Login, video-sound check Welcome	Ray Holzheimer University Queensland
12.00 –13.00 Session 9	Condition Monitoring of Distribution Transformers using Digitalization • focus on the world's first TXpert digital distribution transformer to meet the evolving needs of today's grid with focus on low voltage (LV) network • required sensory technology and industrial computing integrated during transformer manufacture • TXpert increases transformer optimized utilization	Bhaba Das Hitachi ABB Power Grids (Singapore)
13.00- 14.00 Session 10	• Effective signal processing for extracting data and information from sensor measurements; • Transformation of data into useful information regarding the condition of transformer (i.e. fault type identification); Integration of online sensor measurement and other information (i.e. offline measurement, human experts' judgments, industry standards and practices, inspection) to determine transformer health index	Dr Hui Ma University of Queensland
14.00-15.00	**Break**	
15.00- 16.00 Session 11	Transformer silver sulphide /copper sulphide • Introduction into tests to identify corrosive/silver sulphur in transformer oil • Field observations, failure modes • Mitigation by oil reclaiming • Case-study about corrosive sulphur transformer risk assessment based on MR´s FLEETSCAN 2D methodology	Barry Myburgh Reinhausen Australia
16.00- 17.00 Session 12	• New challenges and trend in asset management • Motivation for condition assessment of power transformers and requirements of different stakeholders • Data for fleet management • Practical example of a German utility	Alexei Babizki Maschinenfabrik Reinhausen Germany
17.00	End Day 3	

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Day 4 Wednesday 18th November 2020

11.40* 11.50-12.00	Zoom Login, video-sound check Welcome	Ray Holzheimer TIC
12.00- 13.00 Session 13	Asset Performance Management of Transformers through Digitalization – the "TXpert Ecosystem" • highlight the steps to take advantage of the advancements in understanding transformer condition, • sensing solutions and domain knowledge for power transformers using the TXpert Digital Ecosystem.	Bhaba Das Hitachi ABB Power Grids (Singapore)
13.00- 14.00 Session 14	• Asset management principles • Economic assessment of investments and optimal project timing • Quantifying Transformer asset risks • Understanding risk in redundant systems • Joint versus conditional probability assessment • Common-cause failure concepts and mitigation techniques	Chris Beckett United Energy
14.00- 15.00	Break	
15.00- 16.00 Session 15	• Background and the need for Digital Enabled Substations. • Digitisation of transformer online data and information. • Practical application of transformer AVR in advanced VOLT-VAR control schemes in modern power systems with high penetration of renewable sources. • Transformer online data for power systems analysis using Artificial Intelligence (AI) and Machine Learning (ML).	Tuan Vu Powerlink Queensland
16.00 -17.00 Session 16	Asset management strategy and S/S benefits with Ester • Fluid choice impacts on Asset Management Strategy considerations • Fluid choice impacts on total cost of ownership considerations	James Reid M&I Materials MIDEL (UK)
17.00- 17.10	Closing remarks End Day 4	Ray Holzheimer Manager Australasian Transformer Innovation Centre, The University of Queensland

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