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PQCA NEWSLETTER

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2014/2015 & 2015/2016 PQCA Proposals

Proposals for the 2014/2015 & 2015/2016 power quality survey reports have now been issued to all potential participants. In keeping with our commitment of responding to and addressing the needs of our clients and to continue to add value to the project, as of the 2014/2015 reports, the Long Term National Power Quality Survey (LTNPQS) is set to become the Power Quality Compliance Audit (PQCA). With the change in name comes a slight change in focus with reports now set to be more compliance orientated. All of the important material continued in previous reports will remain and sections related to compliance will be added. For the first time, reports will also include reporting which examines the economic impact of power quality on customers. In this first instance, the cost impacts of voltage sags and outages will be evaluated. As more research is conducted into the economic impact of other disturbance types, this data will be included in compliance audit reports. The latest proposals also include added value for clients through the inclusion of additional services such as consulting or continuing education courses.

TNSP PQ Forum

A forum attended by all Australian and New Zealand Transmission Network Service Providers (TNSPs) to discuss power quality issues and challenges common across all organisations was held in February this year. The forum was organised by the University of Wollongong and hosted by TransGrid. The response from TNSPs to the forum was extremely positive as many TNSPs are confronting similar power quality challenges and such an industry wide forum for discussion and sharing of knowledge had not been available previously. A very productive day was had and the power quality capabilities of and challenges confronting TNSPs were identified. A range of outcomes from the forum are being pursued including ongoing regular meetings to discuss TNSP power quality challenges and collaborative work to find solutions to common problems. A major outcome of the forum was to offer a power quality surveying and benchmarking proposal similar to the PQCA to all Australian and New Zealand TNSPs. PQA looks forward to being able to apply the innovative power quality reporting and benchmarking techniques developed for the LTNPQS and PQCA in the transmission space.

Power Quality (PQ) Allocation 101Course

A course was recently run for Networks NSW staff introducing the concepts of allocation of PQ disturbance levels to customers. The course was help over 2 days in December 2014 and February 2015 with about 40 attendees.

Day 1 commenced with a general overview of the background to PQ allocation including the reasons for allocation policies, the different PQ disturbances considered and the relevant standards behind the allocation process. This was followed by a more detailed presentation of the allocation processes for voltage

fluctuations and flicker (using TR IEC 61000.3.7-2012), and for voltage unbalance (using TR IEC 61000.3.13-2012).
Day 2 concentrated solely on harmonics disturbances including their origin, analysis, characterisation and allocation to customers (using TR IEC 61000.3.6-2012 and the Voltage Droop approach). Issues such as the presence of harmonic resonance and allocation methods with distributed generation present were also dealt with.

Computer laboratory exercises were used to demonstrate and reinforce the concepts taught.
Please contact PQA for details should your organisation wish to run this course in-house.

AUPEC 2015

Planning continues apace for the 2015 Australasian Universities Power Engineering Conference (AUPEC2015) which will be held in Wollongong from 27-30 September 2015. An extension to the paper submission deadline was recently announced with paper submissions now open until 15th May 2015. The theme for the 2015 conference is Challenges for Future Grids. For more information on the conference, including paper submission guidelines and opportunities for sponsorship and exhibition, see the conference webpage at www.aupec2015.com.au.

AUPEC 2015 will feature distinguished keynote speakers from around the world, including:

- Emeritus Professor Vic Gosbell, School of Electrical, Computer and Telecommunications Engineering, University of Wollongong (UOW), Australia
- Professor George Gross, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, USA
- Dr.-Ing. Jan Meyer, Faculty of Electrical and Computer Engineering, Technische Universität Dresden, Germany
- Professor Wilson Xu, Department of Electrical and Computer Engineering, University of Alberta, Canada

Two tutorials will be held on Sunday 27 September. The tutorial registration fee includes both tutorials and a light lunch. The general topic areas of the tutorials will be:

- ***Renewable Energy – Grid Connection and PQ Issues for Commercial Buildings***. This tutorial will examine renewable energy technologies for commercial scale buildings, including high efficiency buildings, with a focus on solar photovoltaic installations and grid connection issues. The tutorial will be presented by Dr Duane Robinson, from UOW's Sustainable Buildings Research Centre (SBRC).
- ***Power Disturbance Analytics - Extraction and Utilization of Information from Power Disturbance Data***. This tutorial will be presented by Professor Wilsun Xu.

Cigre Activities

Cigre C4.27 Power Quality Benchmarking Indices for Transmission Systems

Sean Elphick from UOW attended a meeting of Cigre working group C4.27, which is concerned with power quality indices for benchmarking in transmission systems, held in Tallinn, Estonia in December 2014. This was the inaugural meeting of the group and allowed a chance for all members to meet each other and for the basic concepts and material to be included within the scope of the working group to be identified. During

the meeting it was decided that Sean will be organising the harmonics sections of the report.

JWG C4.24/CIRED Power Quality and EMC Issues Associated with Future Electricity Networks

The joint working group commenced activities in September 2013 and is due to complete its final report in third quarter 2016. The JWG consists of 41 members from industry, universities, and research and development organisations from 23 countries including Dr Phil Ciufo from UOW. The report focus is on the expected significant changes in future electricity networks and the associated impacts on power quality and EMC. In the context of the JWG report, power quality relates to both quality and continuity of supply. The most recent draft structure of the report contains 11 chapters, including:

1. New developments on power electronics
2. Changes in power quality due to smart grids
3. New emissions
4. Transmission
5. New immunity
6. Microgrids and power quality
7. Volt-VAR control and power quality
8. Feeder reconfiguration and power quality
9. Demand side management and power quality
10. New measurements
11. New mitigation

Several chapters are quite well advanced. The University of Wollongong is making significant contributions to chapters 2, 7 and 9, as well as to the overall structure and content of the report.

Upcoming Courses

Power System Stability	6-8 July 2015
Power Electronics in Distribution Systems	Late 2015

For information on upcoming training courses visit www.elec.uow.edu.au/apqrc/training.
Have you considered our Master of Electrical Power Engineering Course?

Want More Information?

If you would like more information on any of the articles published in this newsletter please contact Dr Vic Smith at the University of Wollongong on 02 42214737 or vic@uow.edu.au.