

TIC COMMENCES FIRST RESEARCH PROJECT

The Australasian Transformer Innovation Centre (TIC) transformer was first energised in mid-July and is now operational for research projects. This is a milestone that will allow students and researchers to access the centre and perform the vital research needed to support the electrical industry.



The TIC is an initiative of the University of Queensland and committed industry participants. The University of Queensland (UQ) is a research-intensive university and has recently been included in the top 50 world university rankings. UQ is providing world class engineering graduates and is renowned for state of art teaching and research facilities, as it has a long history of more than 60 years of power engineering teaching and research, of which the Power and Energy Systems (PES) research is one, and sits within six research groups within the School of IT and Electrical Engineering. The Australasian Transformer Innovation (TIC) centre is a focussed initiative of the PES research group, which is strongly supported by 3 Queensland universities that have a commitment to establishing the centre as an internationally transformer centre of excellence. The centre's existing UQ staff have strong reputations in working with the Australian electricity supply industry through industry led research projects and delivering continuing professional development courses.

TANGIBLE BENEFICIAL OUTCOME

The first Research Project has been endorsed and is due to commence in August 2017. To assure the highest value to the TIC partnering organisations the research programme has been set in conjunction with their input, and where timely progress and delivery is acknowledged by the TIC Industry Advisory Steering Committee. Unique to this facility is the 0.5/0.9 MVA test power transformer, which was donated by the Wilson Transformer Company, to study how the condition of a transformer can be managed. The first project to be endorsed and undertaken will investigate how the partnering utilities can improve the resilience of networks using retrofilled vegetable oil power transformers with a focus on how to optimally manage such assets. The project is titled: "Investigation into Loading of Transformers with Vegetable Oils during Emergency Events" and has the objective of determining whether there are differences in the safe running of a vegetable oil filled transformer, compared to one filled with mineral oil. As an outcome there will be a report for TIC members that may help them update their current loading strategies if applicable.



Both Platinum Members, Kerry Williams (K-BLK Power) with Jon Ford (Maxivar) at the final commissioning of the transformer in July.

INNOVATIVE TEST TECHNOLOGIES

Further projects being considered involve the development of new and innovative test technologies to be used by the sponsors to detect the problems which could lead to asset failure. The effectiveness of these new technologies will be compared to that of the extensive suite of monitoring devices installed on the test transformer. The universities' R & D team have extensive experience in delivering such projects, and have worked with the industry to provide them with smart software tools to manage the condition of transformer assets in previous projects.

The first Continuous Professional Development (CPD) Course the TIC has develop has been set down for delivery on 28-29th September at the University of Queensland, Brisbane. The course is titled "Managing the Life Cycle of Power Transformers" and leverages the knowledge of eight university and industry transformer experts. The course will deliver sessions covering critical aspects of specifications, design, testing, maintenance/ condition monitoring and whole of life costing. It will deliver a range of case studies that allow participants to take their learning and apply it to real-world cases.

KEY LEARNING OUTCOMES

- A. Understanding key elements of the transformer specification/ procurement processes that will maximise outcomes for organisational expenditure.

- B. Learning to apply the latest transformer design developments, and how you can influence these to best suit your businesses' requirements.
- C. Find out what factory and sites testing are recommended by industry experts for you to apply to your organisation. Case studies will reveal the pitfalls of inappropriate testing.
- D. Understand the online/offline maintenance practices over the life of the transformer that provides value for money.
- E. Learn which condition monitoring is best suited to meet your needs.
- F. Attend a real time online monitoring session of the energised TIC research transformer. You will be guided by experts on aspects of online monitoring in action and learn how load/ temperature affects the migration of water in insulation and oil.
- G. Learn how to cost the whole-of-life operation of a transformer using condition and risk based techniques, and total cost of ownership calculations.
- H. Participate in case studies that are intended to help you reduce the risk of disruptive transformer failures at your organisation

To find course details and register online visit:
<http://www.itee.uq.edu.au/tic-cpd>

INDUSTRY PARTICIPANTS

The TIC has signed 12 industry participants and has another 5 expected to join by the end of August. These members are mostly Platinum members who have committed to supporting the Centre for the next 5 years thereby showing their confidence in the future of the Centre. Members enjoy access to IP developed in the Centre along with a complimentary attendee to CPD courses. As a member there is also the opportunity to participate in the sub-committees for setting the research projects and the types of CPD Courses delivered.

More information on the TIC and membership can be found online at <http://www.itee.uq.edu.au/tic>

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