NEWS AND VIEWS FROM PSC

Specialist Consultants
to the Electricity Industry

PSC NEWS

Helping our clients power the world

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PSC Sponsors EEA 2016 Conference

The Electricity Engineers' Association (EEA) conference and trade exhibition is the premier power engineering event for the New Zealand electricity industry and sees more than 1,000 delegates, exhibitors and visitors attend each year.

The theme of this year's conference was 'Shaping the Future' – reflecting the changing landscape of the electricity supply industry. Industry veterans and thought leaders discussed opportunities and challenges presented by new technologies, changing customer demand, and new business models and innovations for the future.

PSC was a proud exhibitor and sponsor of the 2016 EEA conference which was held in Wellington, New Zealand in June. Following on from the success of 'Project e-tron' launched at last year's EEA conference that showcased PSC's solar-powered car solution, PSC has advanced the development of its DER technology to include industrial solar installations that enable PSC's hybrid Electric Vehicle (EV) to be fully charged using 100% solar energy resources.

A major topic at EEA 2016 was distributed energy resources (DER). As an independent provider of solutions and support to the global electricity industry, PSC is assisting our clients to design, operate and optimise their DER. These clients have access to PSC's full spectrum of specialist skills needed to meet the challenges and benefits of DER.

PSC held a breakfast session during the conference where PSC's Director of Engineering, Dr. Ranil de Silva and PSC's Electrical Engineering Manager Dr. Tim Browne, discussed distributed energy resources (DER) and outlined some of the innovative projects that PSC has been working on with our industry partners and clients around the world.

PSC's Director of Engineering, Ranil de Silva (L) and PSC's Electrical Engineering Manager Tim Browne at the 2016 EEA conference.

ALSO IN THIS ISSUE:

PSC Supports Investor Owned Utility's Interface Projects

Over the past four years, PSC has provided cost effective and reliable project management and technical engineering client side support to a North American Investor Owned Utility (IOU), including PI system upgrades for Gas and Electric systems, a Gas SCADA system upgrade, EMS configuration and maintenance support, and implementation of advanced EMS visualization technology.

Most recently, PSC has supported the utility in developing a number of interfaces to improve the orderly exchange of data between a number of in-house and third-party systems. PSC worked alongside the utility to develop a system interfacing platform for a new Energy Trading and Risk Management system, along with a number of interfaces to assist the utility in preparation for entering the California ISO (CAISO) Energy Imbalance Market (EIM).

ETRM Interface Development

The IOU is replacing its existing Energy Trading and Risk Management (ETRM) system with the Endur ETRM from OpenLink Software Inc.

Integrating Endur into the utility's ecosystem requires continual transfer of diverse types of data between Endur and several internal and third party systems.

Currently, data transferred comprise accounting entries, meter volumes, trading curves, nomination requests and confirmations for several pipelines (each one quite different), plant metered burn volumes, and a host of other values.

To provide a robust and orderly exchange of data, the utility has chosen to develop a set of in-house store-and-forward interfaces for the required data transfers.

PSC was contracted by the utility to work closely with its in-house developers to develop an interfacing platform and the specific interfaces to and from Endur.

Services provided included:

- Solution architecture design
- Database schema design
- Database configuration
- Software development using T-SQL and SSIS
- Testing

PSC helped produce this robust system interfacing platform that provides the utility with:

- a framework comprising a small set of database tables and code;
- a plugin architecture that requires minimal effort to develop, test and maintain interfaces, and;
- is easily reusable for other projects.

EIM Interface Consulting

The IOU's Energy Imbalance Market (EIM) project was undertaking a major set of upgrades and new installations which included interfacing multiple internal systems and databases to the new infrastructure and 3rd-party systems. This work was required as part of the utility's entry into the California ISO (CAISO) energy balancing market in late 2016. PSC was contracted to design, program, and test multiple new interfaces both to and from the EIM solution.

As part of the EIM project, the utility implemented a 3rd-party software solution from Power Costs Inc. (PCI). The interfaces were one-way data transmission either to or from the PCI platform. All work was done in SQL Server Integration Services (SSIS) 2012 and C#. As an example, an interface would receive a flat file from PCI and translate the data through SSIS into an existing database. 24+ interfaces were designed, programmed, and tested by PSC. PSC's services in design, programming and testing of new interfaces assisted the utility in preparation for entering the CAISO EIM. The services provided came in both on time and on-budget.

The utility commended the level of professionalism, and the quality of work provided by PSC.

PSC provides advice to UK Future Power Systems Architecture Project

The Future Power System Architecture (FPSA) project has explored the functional requirements for the whole UK power system that will be needed by 2030 to respond to a likely transformation in consumer needs, the way in which electricity supply and demand are balanced, and the potential electrification of much of the energy currently delivered to the point of end use as oil and gas fuels.

The FPSA project was commissioned by DECC (UK Governments Department of Energy and Climate Change) and undertaken through a collaboration between the IET and the Energy Systems Catapult. It identified 35 new and enhanced functions that will be required to make the future, low carbon, power system work in the face of transformative change and used these as the basis of its findings and recommendations. PSC participated in this project on a volunteer basis and was able to contribute two key points into the project. Point one relates to the opportunities presented by new VSC HVDC interconnectors to contribute to the national Black Start capability. The FPSA Project agreed that this is one of a number of possible areas of development and should be a consideration of the future function to manage Black Start capability. Point two refers to the development of market structures for the trading of electricity at a local level.

The FPSA Project agreed that the future functionality needs to allow for such developments whatever their basis or complexity, and has included this flexibility in its assessment of future functions. PSC also provided a peer review of the international aspects of the project report utilising its knowledge of changes taking place within the electricity industry in North America and the Asia Pacific regions that were relevant to the UK. The official launch of the FPSA recommendations will take place on the 20th July 2016 at the IET, Savoy Place in London.

Sarawak Energy Berhad - Interconnection AGC Studies

Sarawak Energy Berhad (Sarawak Energy) is both an energy development company and a vertically integrated electricity utility in the State of Sarawak in Malaysia.

PSC Asia has been working with Sarawak Energy to complete an assessment study of the Automatic Generation Controls (AGC) for the KALBAR interconnection between Sarawak Energy Berhad (SEB) in Malaysia and Perusahan Listrik Negara (PLN) in Indonesia. The scope of the work includes verification of the simulation models, the validation of the existing studies and updates where appropriate to determine the interconnected system stability and performing an assessment of the operational performance of the equipment.

This work will culminate in the development of a report for Sarawak Energy which includes suggested improvements where appropriate, and presentation to their operation and management committee.

PSC Asia is pleased to be assisting Sarawak Energy with several projects that are being delivered by our Power Networks group.

PSC Scholarship recipients in the PSC Power Networks group

In 2004 PSC established the PSC Scholarship at the University of Canterbury, School of Engineering. The scholarship is provided in association with the Electric Power Engineering Centre (EPECentre) to promote and support the education of power engineers as a field of excellence. The PSC Scholarship is open to students in their 3rd professional year who are focusing on power engineering subjects, and who have demonstrated excellence in their studies.

PSC's Power Networks group in Brisbane is proud to have welcomed our second PSC Scholar into the team. Dr Lance Frater was awarded the 2005 scholarship after being selected from a strong field of submissions, and joined PSC Power Networks in April, having completed his PhD at the University of Canterbury in 2015. Lance joins former PSC Scholar Errol Bebbington, a Senior Power Systems Engineer who specialises in complex system study, HVDC and research projects.

Errol Bebbington (L) and Lance Frater in the PSC Brisbane office

PSC WELCOMES NEW STAFF

ASSADULLAH SAMIR

PSC welcomes Assadullah Samir who has joined the Power Networks group in Australia. Assadullah holds a BSc in Engineering from the Bangladesh University of Engineering and Technology, and as a project engineer and senior program manager, has experience in tower and foundation design, construction supervision, training, technical documentation and project management. This includes the delivery of projects in Asia and Australia. Assadullah will be based in our Transmission Lines engineering team in Adelaide.

INDHRAN PILLAY

PSC Australia is pleased to welcome Indhran Pillay as a Principal Lines Engineer in the Lines & Structures team in Adelaide. Indhran is an electrical engineer with over 17 years of experience in the Overhead Power Line industry, having worked in ElectraNet, Parsons Brinkerhoff, CPP and Eskom. He has specialised in the electrical design aspects of Transmission Lines, bringing a wealth of experience to the team in structure geometry optimisation, earthing design and investigations, insulation selection and coordination, lighting protection and assessment, conductor selection and optimisation, electric & magnetic fields studies and AC interference.

LANCE FRATER

PSC Australia is pleased to welcome Lance Frater, who joins PSC's Power Networks team in Brisbane as a Power Systems Engineer. In 2015 Lance completed his Ph.D in Electrical Engineering at the University of Canterbury and with postgraduate experience, has a high level of analysis and research skills. He has completed several projects for clients in the New Zealand electricity industry including wind turbine IEC certification and voltage flicker allocation and assessment. Lance will be working for our clients in Australia and internationally on power system planning and analysis. Lance was also the inaugural recipient of the PSC Scholarship in 2005.

MARCELLE COLLINS

PSC Australia is pleased to welcome Marcelle Collins as an Electrical Technologist who will be based in the Brisbane Power Networks team. Marcelle has nine years' experience working within a large generation, transmission and distribution utility. For the last six years she has been completing network performance and quality of supply analysis for distribution power networks. This includes analysing network design and configuration, monitoring performance, asset maintenance management and extensive involvement in delivery of projects. Marcelle will be working on projects for our electricity network clients in Australia.

TIM GORMAN

PSC Australia is pleased to welcome Tim Gorman, who joins PSC's Power Networks team as a Power Systems Engineer and will be based in Brisbane. Tim has recently completed his Bachelor of Engineering degree and during his university studies, gained experience in the Network Planning group for the Australian Energy Market Operator (AEMO) where he completed a wide range of tasks including power system analysis, high voltage network fault analysis, development of automation tools and data research. Tim will be working on the modelling, analysis and planning of transmission and distribution networks for PSC clients in Australia and around the world.

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