



Specialist Consultants
to the Electricity Industry

PSC NEWS

Helping our clients power the world



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APEX 2018 Conference

The Association of Power Exchanges (APEX) was formed to facilitate development and communication of ideas and practices in the operation of global energy markets and there are over 50 member organisations worldwide.

PSC has supported APEX for many years and in 2018 the annual APEX conference was hosted by Transpower New Zealand in Wellington from the 17th to 19th of October. PSC was pleased to be a silver sponsor at this conference and we had several market system specialists and senior managers attend the conference.

PSC's Dr. Ranil de Silva was a speaker on the panel session – **Renewables and Energy Efficiency**, where he presented the electricity market challenges posed by integrating inverter based Distributed Energy Resources (DER) into Power Systems.

PSC is a leading market systems and applications service provider with support and project teams currently working across multiple clients. Our teams have many years of international experience in supporting, developing, enhancing and upgrading custom and commercial energy market systems.

Our specialist market system skills include:

- ▶ Market design & implementation
- ▶ Clearing engine support specialists
- ▶ Optimisation tools for DER
- ▶ Trading & bidding applications
- ▶ Software development
- ▶ Certification and testing
- ▶ Strategic advisory

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L to R: PSC members at APEX 2018 - Victor Francisco, John McLean, Ranil de Silva, Ross Gaspard



TERRITORY GENERATION - REMOTE OPERATIONS CENTRE (ROC) UPDATE

In March 2016 PSC was awarded the role to scope Territory Generation's Remote Operations Centre (ROC) project in Darwin. The project was to establish the ROC, which centralised operation of TGEN's portfolio of 8 power stations, comprising of 55 generation units, some located 1,500km from Darwin. This role was extended to include the tender, selection and contract award stages with Yokogawa Australia being the successful vendor. PSC was subsequently engaged as the Project Manager for the delivery phase of the project.



L to R: The Yokogawa team - Brett Gardner, Tejas Sathe, Nick Duley (first three from left); Himanshu Parmar (TGEN), Andrew Dunn (PSC), Tim Duignan (TGEN CEO) and Sai Bingi (TGEN)

Yokogawa have deployed their Fast/Tools SCADA system, interfacing to disparate control systems at the 8 power stations. By the end of October all but two sites will be completed, with those two remaining sites pending completion of major expansions which will not be completed until February 2019.

The project scope included server and network infrastructure, control room operator work consoles, all HMIs, on site installation and commissioning of 55 units at 8 power stations. The project also included the implementation of the OSIsoft PI data historian making operational data readily available in real time and for on-going event and performance analysis.

Andrew Dunn, PSC's Project Manager on site for two and a half years has now handed over completion of the Project and Contract Management to TGEN personnel.

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CIGRE CANADA Adapting the grid to the customer of the future

PSC was proud to be a Diamond Sponsor of CIGRE Canada 2018, a venue for participants to collaborate to help define the future of the electric power industry.

This year addressed customers' changing needs and expectations about access and leveraging energy. Distributed energy resources (DER) and disruptive technologies are increasing customer demand for more choice and information, and utilities must foster this evolution while making use of existing infrastructure and maintaining security.

PSC was deeply involved in the discussion. PSC's Kevin Cheung (GM, Operational Technology), was a member of the Sponsor Panel which addressed the theme "Adapting the Grid to the Future." In workshop sessions, several Albertan transmission and distribution utilities shared experiences integrating DER into their power system.

One distribution utility shared the findings of an EV Impact Study. After modelling a variety of EV brands and adding them to their distribution system, they found that incorporating EVs resulted in more voltage issues compared to the traditional load on the network.

Another challenge was that distribution transformers were underprepared for loads created by multiple EVs that shared them.



L to R: PSC members at CIGRE - Khosro Kabiri, Kevin Cheung, and Ken Pratt

The utility determined a new planning paradigm is needed, as current infrastructure is unprepared for the influx of larger loads brought by EVs, as well as batteries. The impact study allowed them to better prepare for the changing energy landscape.

Other utilities looking to assess and plan for the impact of DER on their distribution networks can benefit from similar feasibility and impact studies.

PSC's Matin Rahmatian (System Studies Consultant) presented an excellent paper demonstrating how quantitative quality-indicators can help improve the confidence level of production grade applications based on synchrophasor data.

Matin and the PSC Power Networks team around the world are supporting system operators, utilities, asset owners and developers with planning and analysis to help them develop the power system of the future.





5 TIPS FOR KEEPING YOUR PROJECT ON TRACK

Electric utilities deliver large and complex projects that deal with critical infrastructure. The livelihood of millions of energy customers depends on the continued success of these projects. Sometimes delivering a successful project comes down to how well you execute the basics. Here are a few simple tactics all PSC Project Managers practice:

1. RECOGNIZE THE WARNING SIGNS

Technical projects tend to have unique warning signs before getting into trouble, and all projects share the big ones. For example, when communication becomes scarce, that means critical information isn't getting where it needs to be. This can lead to conflict, and reduce buy-in. The best way to avoid this is for the Project Manager to stay engaged throughout the project, understand technical challenges and political differences among teams well enough to identify warning signs, and have the confidence to step in early.

2. ASSESS THE PROBLEM

To develop the right solution, you need to understand the problem. Start by engaging the project team, get their view on what can improve, and give them an opportunity to make substantive suggestions. Keeping your team engaged is critical to maintaining buy-in throughout the project – especially when things get exciting, and most importantly, when things get slow.

It's easy for team members to feel interrogated or alienated when you come looking for answers. It's important to demonstrate an understanding of each member or group's unique challenges, speak their language, and show a common desire for the team to succeed.

3. PRIORITIZE

Once you have identified areas of focus, it's important to determine which ones to address first and why. Take another look at the project scope and goals. Do each of the activities map to the project goals? Then, consider the severity of each issue and its impact on each activity. Develop a hierarchy of which issues are most critical to resolve.

4. ADDRESS THE PROBLEM

Now that you have a prioritized list of actions, assign resources to address them and communicate the adjustments across the team. Once the actions have been addressed, continue to monitor progress closely to ensure the resolution effort has not impacted other areas of the project.

5. COMMUNICATE WITH ALL STAKEHOLDERS

If working alongside a product vendor, there may be dependencies impacted by a slip in the schedule. Be sure to communicate issues with all project stakeholders early on.

THE DOMAIN PM

The most successful projects are led by Project Managers who remain engaged, speak their team's language, understand the issues and their impact, and who have been there before. We call these folks Domain PMs. Domain PMs are highly skilled and trained Project Managers who are also veterans in their industry.

In the electric utility industry, Domain PMs take the traditional project management responsibilities of communication, leadership, negotiation, planning/organization, risk assessment/mitigation, and commercial/contractual capabilities to the next level by applying their deep industry knowledge to improve outcomes. Domain PMs have delivered successful projects in SCADA, EMS, DMS, and Markets spaces. They understand the safety concerns that impact utility operations. They work with all major technology vendors familiar to electric utilities. They understand the regulatory environment, working to address evolving security and compliance requirements, and they have grappled with the same change management issues and operational constraints as their customers. Domain PMs have built a career in the utility industry – and they use this advantage to help lead their teams to success.

Domain PMs have an advantage in the following areas:

- ▶ They leverage domain expertise to understand a variety of perspectives, and prioritize intelligently
- ▶ They validate technical estimates and more accurately assess schedule and budgetary risks
- ▶ They focus key resources on the critical path activities and assure that they have the support required to succeed
- ▶ Past experience with industry vendors

As energy industry specialists, we know first-hand the benefit of utilizing Domain Project Managers to guide our customers safely through their critical projects. We encourage our customers to ensure their project teams have the requisite domain experience in electricity, power systems, control systems, market systems, distribution systems, NERC CIP requirements, utility operations, utility business models and the regulatory environment to deliver a successful project.



PSC WELCOMES NEW STAFF

BARRY O'CONNELL

PSC is pleased to welcome Barry O'Connell as a Principal Power Systems Engineer in Australia. He has extensive experience across a wide range of fields, including power system analysis, network development, protection systems, transmission asset management, and project management. As a transmission network planning engineer, Barry has completed a number of projects, which have incorporated frequency and time domain analysis, reactive power studies and locational capacity constraints. Most recently he has been a team lead managing system studies and smart grid programmes for Ireland and Northern Ireland. This included managing a team to deliver technical analysis to support operational policy change and technology strategy development. Barry will be working in the PSC Power Network's group based in Melbourne.



PERRY HOFBAUER

We welcome Perry to PSC in the UK. Perry has worked as an owners Engineer supporting construction, design review, factory testing, on-site commissioning, and operations for the control and protection systems for the Lower Churchill HVDC Project in Newfoundland & Labrador Canada and the Western Alberta Transmission Link in Alberta, Canada. Before entering the HVDC world, Perry spent 5 years as a Protection and Controls Engineer for Alstom where he was responsible for the design, implementation, maintenance, and root cause failure analysis of their protection and control schemes for equipment and transmission lines from 25kV to 500kV AC. Perry is currently supporting GE with DPS studies and Nalcor for Factory Acceptance Testing.



PSC STAFF CELEBRATE 10 YEARS OF EXCELLENT SERVICE WITH PSC

Recently two PSC staff in Australia and New Zealand celebrated 10 years of excellent service with PSC. The PSC management team congratulates Roger Ward and Peter Fong on reaching this important milestone – well done.

Roger Ward is a Control Systems Engineer based in our Christchurch office. For the past 10 years Roger has been assisting our clients in Australia and New Zealand with SCADA, Energy Management Systems (EMS) and RTU engineering support. This includes project management, the integration and commissioning of substation control systems, RTU & PLC configuration, functional testing and installation specifications.

Peter Fong is a SCADA/EMS Engineer with our Adelaide SCADA team for the ElectraNet SCADA support contract that includes SCADA development, database and display modelling, systems administration, on-call response and technical support. Peter also has extensive experience in commissioning new equipment into the Energy Management System, SCADA simulation software for testing and the management and development of specialised applications.



Roger Ward (L) pictured here with Warwick Glendenning (R), MD Asia Pacific



Peter Fong (L) and Warwick Glendenning (R), MD Asia Pacific

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