



Specialist Consultants
to the Electricity Industry

PSC NEWS

News and Views from the team at PSC

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ElectraNet EMS Upgrade Sub Project One and Two

ElectraNet owns and operates the Electricity Transmission System in South Australia, interconnecting the state's generation, distribution and National Energy Market (NEM) interconnectors. The majority of this Transmission System is operated via an Alstom Grid EMS/SCADA system. ElectraNet and PSC commenced the staged upgrade of the EMS in 2009.

In 2010 the ElectraNet – PSC team successfully cutover to an upgraded Front End System and architecture, marking the completion of EMS Upgrade Subprojects One and Two. The cutover was performed with zero system outage to the NEM or operations, reflecting the significant effort by the EMS Upgrade team.

Significant architecture changes involved splitting of the DNP3 and WISP RTU protocols onto separate communication server pairs at the primary and disaster recovery sites. Significant testing and configuration by the team saw new communications hardware, DIGI Serial Terminal Servers, introduced to ElectraNet's DNP3 Front Ends. The changes also simplified EMS interfaces to RTUs, significantly reducing space requirements and improved disaster recovery availability.

The subprojects also introduced new server hardware and an upgrade to the latest supported Front End Alstom Grid software. The upgrade has provided ElectraNet with a modern Front End platform with added functionality. PSC and ElectraNet also procured and configured a DNP3 RTU simulation package simSCADA (Opal Software), for the testing of DNP3 based RTU communication.

PSC's Kevin Hart, Graeme Dickason and Kevin Box formed the PSC technical team for Subprojects One and Two. Together with the joined ElectraNet–PSC SCADA Support team, ElectraNet Infrastructure, Telecommunications and Project Management, the outcomes of these projects were made possible. ElectraNet and PSC are now working together to deliver the next stages of the EMS Upgrade.



Front End Communication Devices and Cabling – TS16s and VME Chassis

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PSC NEW ZEALAND

Phone: +64-4-232 7680
Fax: +64-4-232 7682

PSC AUSTRALIA

Phone: +61 1300 933 632
Fax: +61-3-9654 6833

PSC USA

Phone: +1-425-822 8489
Fax: +1-425-822 3520

PSC ASIA

Phone: +65-9030 3311
Fax: +65-6728 2192



We're in the Market – Hedge your position with PSC!

Electricity Markets are unusual beasts; an unlikely amalgam of finance and physics with high-level mathematics at the core – markets where the commodity being traded cannot be stored; what the buyers demand must be instantaneously supplied by the combined efforts of all the sellers! The systems that run these markets have extraordinary demands on them – they must securely and fairly organise the flow of billions of dollars while at the same time managing the physics of electricity in such a way as to meet the critical demand to “keep the lights on” at all times.

It takes a rare combination of drive, skills and experience in a person to be able to fully master all the complexities of an Electricity Market System – but that's the profile of our market systems people! People who understand the Art of the Market Clearing Engine and have a Passion for Power.

Transpower NZ Ltd is the operator of the wholesale electricity market in New Zealand, and is well-known as one of the very first pioneers in the world to implement a wholesale market based on Locational Marginal Pricing. PSC has been deeply involved in supporting Transpower's market system right from its early days, and, as the business needs

and the electricity market rules evolved, PSC became developer and supporter of key applications to extend that market system's capabilities.

From that acorn of experience and expertise, the reach of PSC's Market Systems group has expanded like the growing oak tree, with major clients now including AEMO (the Australian Energy Market Operator), EMC (the Energy Market Company of Singapore), ISO New England, PJM and the Independent Market Operator of Western Australia.

At the core of every successful electricity market are two key things: a soundly designed set of market rules, and a

soundly designed market clearing engine to implement the rules. PSC has senior staff with the global perspective and the detailed experience to provide high level advice in any jurisdiction, and with the technical ability to rapidly develop complex working models to investigate market behaviours.

Taken together with our proven track record in developing and supporting market systems and related applications such as off-line market analysis tools, PSC's electricity market systems service offering is second to none. And, like the oak tree, we're in it for the long haul!

New Projects on the go

PSC in recent months has been successful in securing the following projects in Australia and Canada;

- PSC is currently assisting the **Independent Market Operator (IMO)** of Western Australia with a series of IT initiatives aimed at “smartening” the market systems to allow them to be more adaptable to incremental changes. This work is in preparation for the changes that will stem from the current “Market Evolution Program” of work.
- PSC USA has been selected to complete an EMS upgrade planning project for **AltaLink**, an independent transmission provider based in Alberta, Canada.
- PSC Australia has successfully completed its first design/build telecommunications project for **ElectraNet** in South Australia. In partnership with PBA telecommunications technicians, PSC completed concept design, detailed design, installation specification and construction for the “Templers Three Terminal Protection Signalling Project”.

PSC USA Office opens in Kirkland

In a sign that the North American market is fertile ground for the many service offerings of PSC, we have now opened our first official office in Kirkland, Washington.

PSC USA is pleased to announce that we have moved into our new office in September. While minor fit-out continues, it is fully operational and staffed on a daily basis by Alex Boyd, Randy Berry, and Ken Pratt. The modest space includes a mix of offices, cubicles, a conference room, and a small kitchen space. In addition to space for permanent staff, we have room for additional visiting staff, partners, and/or clients.



The office is ideally located with easy access to major highways as well as the downtown areas of the three neighboring cities (Kirkland, Bellevue, and Redmond) and Seattle is just a short trip across the bridge over Lake Washington. Being just minutes from the Alstom Grid offices doesn't hurt either. Another key factor in choosing this location is that there is good potential for expansion if, or should we say, "when" it is needed.

We look forward to having more PSC staff visit us in the near future.

PSC opens new Brisbane Office



To meet the growing work load in the State of Queensland, PSC Australia has opened a new office in Brisbane.

The office is located on the corner of Commercial Road and Ann Street in Newstead which is about 10 minutes drive from the Brisbane CBD. Situated upstairs from the historic Waterloo Hotel, the new office can comfortably accommodate ten staff and has a large meeting room suitable for hosting training courses.

A successful social function for staff and clients to celebrate the office opening was held on the 28th October.

The office will house PSC's core group of electrical engineers in Australia which includes a powerful combination of engineering knowledge and experience in system studies, high voltage substation concept design and technical investigations, and HVDC project and maintenance requirements. For more information, please contact PSC Australia's Engineering Manager Les Brand at les.brand@pscconsulting.com



PSC Welcomes New Staff

Barry Ireland – PSC New Zealand Engineering Manager

PSC New Zealand is pleased to welcome Barry Ireland as Electrical Engineering Manager. His experience in the electricity industry covers a broad range of roles from electrical engineering design and project management through to the installation and commissioning of high voltage AC and DC transmission systems.

Barry's tertiary qualifications include a Master's Degree in Electrical Engineering with a specialisation in HVDC filters. He went on to become involved with the new Benmore Pole 2 HVDC link project in a range of roles and disciplines including

switchyard control and protection design, quality assurance, and control and SCADA factory acceptance testing. Barry then attended site as the site electrical engineer during construction of the Benmore converter station.

Most recently Barry has worked in the hydro generation industry where he has held key roles in large power station refurbishment projects that have recently been undertaken by Meridian Energy including the Manapouri and Benmore refurbishment programmes.

Barry has excellent technical engineering skills in a broad range of areas, and



along with his project management experience is a valuable team member for major projects of a complex nature. Barry can be contacted at barry.ireland@pscconsulting.com

Ken Pratt – Engineering Services Manager Joins PSC USA



PSC is pleased to welcome Ken Pratt to the PSC team in Seattle. He brings over 20 years of systems development, configuration, delivery, management, and sales experience in the utilities

industry. Ken's role includes managing the Engineering Services staff and onsite activities in North America as well as providing senior technical consulting and support to our customers in the Control and Market Systems area.

Prior to joining PSC, Ken held a variety of positions with Alstom Grid ranging from product and prototype development, project delivery and support, training, sales engineering, and project management. This includes more than two and a half years living in Australia and supporting customers there. Most recently, Ken was responsible for the development of delivery process and efficiency strategies for Alstom with a focus on virtualization of the entire EMS.

Ken brings a deep technical knowledge of energy management and market systems software as well as a strong working knowledge of computer systems, networking, and security.

In his spare time, Ken enjoys outdoor activities including cycling, running, water and snow skiing, soccer, and volleyball to name a few. His most recent adventure was a trip to the Tour de France to spend a week following the tour and riding some of the actual stages in the French Alps. Ken says that working for PSC, a company he has known for most of its existence, is a natural fit as he considers the Australia/New Zealand region his second home.

Ernst & Young Entrepreneur Of The Year Finalist

Now in its 13th year, The Ernst & Young Entrepreneur Of The Year recognises business leaders who demonstrate world class entrepreneurial skills in New Zealand.

Tony Armstrong, Director and Chairman of PSC New Zealand was a finalist in the 2010 Ernst & Young Entrepreneur Of The Year in the Services Category and for the first time in the awards history, Tony received a commendation award for this category in addition to the Services Category winner. The success of PSC in the Ernst & Young Entrepreneur Of The Year is a credit to the leadership of Tony and the dedication and professionalism of all PSC staff.



Greg Fisk, Robyn & Tony Armstrong, and Ed Hall at the Ernst & Young Entrepreneur Of The Year gala dinner in Auckland