Specialist Consultants
to the Electricity Industry

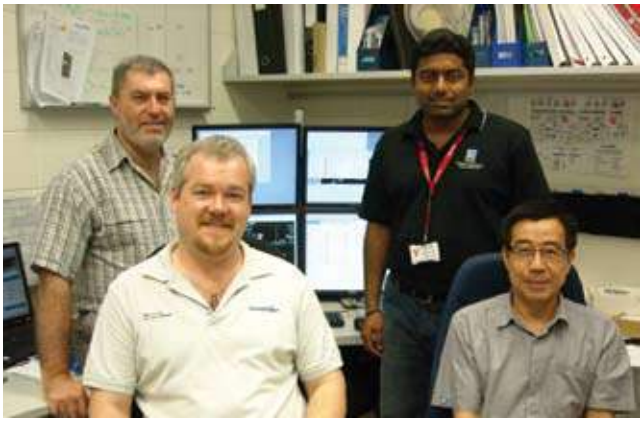
PSC NEWS

News and Views from the team at PSC

Issue 27 | December 2011

PSC provides Power and Water Corporation SCADA support

Power and Water Corporation supplies electricity, water and sewerage services to its customers across an area of more than 1.3 million square kilometres in the Northern Territory of Australia. Power and Water Corporation is unique in the Australian power industry as they operate generation, transmission and retail distribution.



SCADA team members Gary Jennings (PSC), Paul Chandler (PWC), Sriram Ragunathan (PSC) and Tim Leung (PWC)

PSC Australia is a member of the Power and Water Corporation (PWC) panel contract for the provision of engineering support of their Alstom Grid SCADA master station.

SCADA Engineer Gary Jennings led the PSC team on-site with support from PSC Australia's Control & Market Systems Manager Warren Young and SCADA Engineer Sriram Ragunathan. The PSC team have been working with PWC at the Hudson Creek control centre providing SCADA support and project services for their Alstom Grid 2.3 EMS SCADA system. This includes maintaining databases and configuration management, display maintenance and commissioning indications to the master station with PWC to RTU field crews located at the substations.

Graeme Dickason is a senior PSC SCADA/EMS Consultant who has extensive experience in the development and installation of energy management systems for the electricity industry. He has been assisting PWC with the implementation and commissioning of their DTS (Dispatch Training Simulator). PSC's Mahsa Ahmadi provided assistance to Graeme with the DTS network modelling for this project.

Several PSC team members are very experienced in the installation, testing and commissioning of substation RTU equipment. PWC recently built the new Archer Zone Substation to support growth in the Palmerston central business district and new suburbs under development. PSC staff members Roger Ward and John Everaarts worked with PWC on the testing of RTUs and commissioning for this substation.

PSC Australia values the working relationship it has with PWC for SCADA services and looks forward to providing additional services to support their transmission network.

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PSC IT & TELECOMMUNICATIONS

PSC's Telecommunications and Networking Group are totally focused on the needs of power generation, transmission and distribution customers. We have an in depth understanding of the critical telecommunications and networking requirements for energy delivery.

We have extensive industry experience within our team. PSC can provide services across all aspects of the business planning lifecycle from initial technology assessments, through to development of strategic plans, design/build and operations support.

Services offered include,

- Strategic planning
- Technology investigations
- Business case preparation
- Point to point radio link path planning and regulatory applications
- Concept design
- Detailed design
- Design and construction management
- Network audits and reviews
- Equipment configuration and technical support

Technologies supported include,

- SDH and PDH multiplexers
- Digital Microwave Radio (DMR)
- Fibre Optic Transmission Systems (FOTS)
- Powerline carriers
- DWDM/CWDM
- Unified communications including VoIP and TDM PABXs
- Fibre Optic cables - underground and overhead
- IP data network routing and switching
- Firewalls

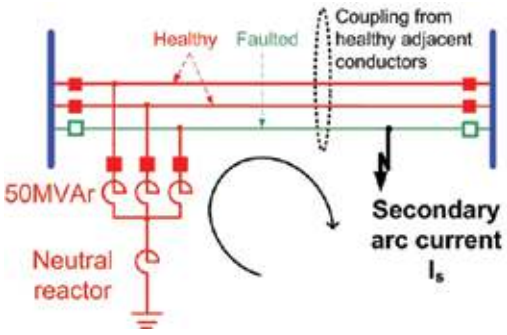
ElectraNet Shunt Reactor Earthing Study

Three-phase shunt reactors in transmission systems are usually either solidly earthed or earthed via a neutral reactor. In a single-phase autoreclose scheme, coupling from healthy adjacent conductors can drive a secondary arc following a single-phase fault: even though the circuit breakers on the faulted phase have opened, current can continue to flow in the line and in the shunt reactor. A neutral reactor may be required in order to reduce the arc current to a level where the arc will self-extinguish.

Recently the PSC Electrical Engineering team carried out a study for South Australian transmission network service provider ElectraNet. Our brief was to determine whether a neutral reactor would be required to earth a 275 kV 50 MVAr switched shunt reactor, which replaces a smaller fixed reactor at a particular ElectraNet substation.

With the aid of the PSCAD/EMTDC electromagnetic transients simulation package, PSC carried out studies to assess secondary arc currents with and without a neutral reactor. These studies, along with additional validation, confirmed that the client would be able to omit the neutral reactor – and its space and cost implications – from this installation.

The PSC Electrical Engineering team includes experienced users of PSCAD/EMTDC, who have used it to conduct insulation coordination investigations for



ElectraNet and other clients.

As well as a report demonstrating that solid earthing would be sufficient for this site, PSC attended a workshop with ElectraNet personnel, covering this project and an earlier PSCAD/EMTDC-based transformer energisation study.

Turbocharged Smartgrid Project Advances with Improved Quality and Efficiency at Southern Company

Our team of consultants at Southern Company in the State of Alabama in the United States are advancing the Integrated DMS (iDMS) project with improvements in data modeling, intersite data communications, display creation and system installation and deployment. Under the direction of Southern Company DMS staff, PSC team members Erin Olander and Mark Klause have been making steady progress readying the iDMS project for production. Recently the team developed advanced database verification tools improving iDMS display creation. The new tools eliminate errors and reduce the manual effort required to create iDMS displays.

iDMS deployment requires installations on multiple machines and the PSC team has developed methods to create and configure iDMS without the need for information specific to the machine or system. This improves the consistency and quality of the iDMS deployments and eliminates manual custom configuration tasks.

To reduce the time and effort required to support and maintain the iDMS, PSC staff have implemented synchronization of data model validation tables across all sites. Synchronization of the data model validation tables is managed by an application developed by PSC staff including an easy to modify configuration file for ease of maintenance.

iDMS interconnection with the EMS is performed with ICCP. With a multi-site, multi-vendor environment keeping all the ICCP data links up to date can be a challenge. PSC staff have been improving an application that updates the SCADA database with ICCP information across all sites. Through this application, ICCP data configurations are managed centrally and systems are updated automatically.

ElectraNet Templers West Substation Project

ElectraNet is the Principal Transmission Network Service Provider in South Australia and has been developing a new Templers West 275/132 kV substation to supply electricity to the Barossa area of the mid north region. This includes Templers, Dorrien and Roseworthy.

PSC has been assisting ElectraNet and Tenix, the design and construction contractor for this substation with several telecommunication aspects of the project. PSC was responsible for the design and project management for the reconfiguration of the existing teleprotection and new teleprotection systems for this project. This included working with PLC and optical fibre technologies. PSC is pleased to be associated with this successful ElectraNet project.

PJM's AC^2 Goes Live

PJM Interconnection in Valley Forge, Pennsylvania announced the switchover to its Advanced Control Center (AC^2) on November 9th, 2011. PSC congratulates PJM on this significant achievement. John O'Hehir and Jeff Shandorf of PSC played key roles assisting PJM in achieving this milestone.

PSC Welcomes New Staff

PSC welcomes new staff, and is continuing its recruitment of industry leading people to meet the growing demand for services in the specialist areas that we support.

Scott Morgan

Scott Morgan has joined PSC as an Electrical Engineer. Scott has a Bachelor of Electrical Engineering Degree from the University of Canterbury and has over 8 years experience in the electricity transmission, distribution and generation industries. This includes electrical engineering design for high voltage transmission protection systems through to electrical project engineering and commissioning for wind farm projects in New Zealand. Scott will be working in the PSC New Zealand Electrical Engineering group.

Samir Mehra

Samir Mehra has joined PSC Australia as a Senior SCADA Engineer and has over 15 years experience working on the analysis, development and integration of SCADA systems for electricity transmission and power utilities. This includes working with Alstom Grid e-terraplatform SCADA systems, advanced EMS applications and PI historian systems. He also has experience as a software trainer and an Oracle database administrator. Samir has Master of Engineering and Bachelor of Engineering degrees in Electrical Engineering and will be based in our Adelaide office in South Australia.

Mansour Mohseni

Mansour Mohseni has joined PSC Australia as a Planning Engineer and his experience in power system software applications includes DIgSILENT PowerFactory, MATLAB/SIMULINK, and PSCAD/EMTDC. He has obtained his PhD in Electrical and Computer Engineering from Curtin University in 2011 and his thesis was titled "Enhanced Control of DFIG-Based Wind Power Plants in Compliance with the International Grid Codes". He has published more than 25 journal and conference papers during his PhD studies. Mansour has worked as a power system engineer for the Iranian national system operator and later as an Associate Lecturer at Curtin University in Perth. He will be working for the PSC electrical engineering group based in our Perth office.

PSC opens new Christchurch office

There was only a brief hesitation before PSC made the decision to proceed in the face of the disastrous circumstances in Christchurch, to establish its new office base at 167D Waltham Road. PSC saw this as an essential step in further developing its capability to serve new and existing clients.

Perhaps it should have been no surprise when, on the first day that two of our staff began working together from the office, Christchurch was rocked by two more significant earthquake events (magnitude 5.3 and 6.4 centred only few kilometres away). Rain, hail, snow or shake - this first few months has certainly presented its share of nature's challenges. But PSC is here for the long haul and our office has thankfully survived this barrage of nature's extremes.

167D Waltham Road is now home base for five engineers offering a range of specialist consulting services to the electricity industry including knowledge and experience in HV primary equipment (transformers and switchgear), secondary electrical systems, SCADA and RTU, telecommunications, network analysis and other specialist functions. For more information, please contact PSC New Zealand's Engineering Manager Barry Ireland at barry.ireland@pscconsulting.com