



PowerTalk

Editorial



Ian Christmas – Editor

Welcome to the third edition of PowerTalk from Beca Power's latest outpost in tropical Queensland.

Beca Power now has over 80 specialist Power System engineers across the 2000-member strong Beca Group, and is supported by another 60 or more team members providing ancillary skills, including structural, civil, geotechnical, planning services. We have developed skills providing a service across a number of different geographic locations, (enabling our clients to access the right skills no matter where they reside within our various office locations), whilst still maintaining a local contact to liaise with our clients about their requirements.

As our markets grow, the opportunity to contribute to strategic projects continues to increase. Beca Power is pleased to be involved in a number of key projects including MainPower's Mt Cass Windfarm located just north of Christchurch, New Zealand; continuing our work, in partnership with Victoria's SP AusNet, on the Geelong and South Morang Terminal Stations; and the growth of our industrial opportunities in Australia including Melbourne Airport. This issue of PowerTalk will give you some insight into our activities on these exciting projects.

Ian Christmas

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Beca aids MainPower's vision for local renewable energy generation.

Beca Power has been involved in the electrical design and grid integration of a number of wind farms, including Meridian Energy's completed Te Apiti (91 MW) and White Hill (58 MW), and West Wind (142 MW), presently under construction. However, the team's proven wind integration skills have also been in demand by other developers.

Mt Cass, MainPower's proposed wind farm located near Waipara, is one such site. Known for its fine wine producing soils, the area also has tremendous

potential for renewable energy resources, though currently has no significant local generation.

Mainpower is proposing to change this. Depending on the wind turbine generators chosen, the Mt Cass wind farm could generate between 41 and 69 MW, around 40% of the energy consumed in MainPower's coverage area, and enough to service all the homes in the Hurunui and neighbouring Waimakariri Districts.

MainPower's Project Manager, Andrew Hurley, engaged Beca Power at project inception and has been pleased with the team's performance so far. "We chose Beca Power because of its track record with integration of new wind generation, its knowledgeable staff with local presence and because it is respected in the power industry," says Andrew.

MainPower is keeping its options open regarding the final number of turbines and their size until after resource consent has been obtained, a decision which has presented a number of challenges.

Andrew concludes: "We're looking forward to working more with Beca Power as the project develops."

For more information, contact: Colin Pearson
Email: colin.pearson@beca.com
Telephone: +64-3-374 3169



View from Mt Cass

Waipara generating more than just wine

Beca Power wins new work with SP AusNet.

As SP AusNet's ongoing terminal station refurbishment programme continues, so too does Beca's relationship with the Victorian grid operator. In the last six months, Beca has been awarded the design services contract for large rebuild projects at both Geelong and South Morang terminal stations. These build on Beca's previous experience with rebuilds at Brunswick, Ballarat and Horsham terminal stations.

"The knowledge we have gained from each rebuild allows us to continually make improvements to the way we deliver projects to SP AusNet," says Senior Beca Power Systems Engineer, John Fallow.

Geelong and South Morang both involve the provision of a wide range of design services including geotech, building services, fire engineering, along with the typical power-related disciplines of protection, switchyard and civil engineering.

While all rebuilds are different, each includes the installation of new switchyard equipment with replacement of associated protection schemes. Design work includes 220 kV line, transformer, circuit breaker management and other associated schemes. At Geelong, the project includes the provision of design specifications for a new control building.

"This rebuild work utilises key staff from many of our office centres, including Melbourne, Auckland, Wellington and Christchurch," says John. "Beca's ability to gain repeat rebuild work is reflected in the company's ability to manage and deliver multi-disciplinary power projects."

For more information, contact: John Fallow
Email: john.fallow@beca.com
Telephone: +64-9-300 9877



Geelong Terminal Station

Solid partnership built with rebuilds

Superintendent success

In recent years, Beca has gained increasing recognition but the company's project management capability within the industry is less well known. This is set to change following Beca's recent work on Melbourne Airport's 22 kV network.

When Melbourne Airport initiated a staged capital upgrade program to replace ageing equipment and cabling and to increase supply security to the terminals and critical airport operations, they looked to Beca for help. In its capacity as project manager and superintendent, the Beca Power team oversaw the establishment of a new 22 kV substation to supply the international terminals, the replacement of oil filled 22 kV indoor switchgear within the site's main 22 kV substation and the installation of a 5 km length of 22 kV cable across the airports main runway.

"Early on this project was identified by Melbourne Airport as high-risk, due to the potential impact of power loss to airport terminals, facilities and airfield operations," says Keith Middleton, Manager of Beca Power, Melbourne. "A sound understanding of the technical issues involved, gained from specific experience in delivering power projects, allowed us to develop a robust risk assessment and risk management process involving all project stakeholders. Good communication meant all parties understood the likelihood and severity of potential risks and these identified risks were well documented, assessed and quantified."

"The process proved to be highly successful with the adopted risk management recommendation significantly helping to increase supply security during the execution phase."

"Beca has successfully completed a number of project management roles to the power industry in Australia and New Zealand," says Keith. "We are pleased to have successfully delivered this project for Melbourne Airport."

For more information, contact: Keith Middleton
Email: keith.middleton@beca.com
Telephone: +61-3-9272 1469



Delivering high voltage projects for Melbourne Airport.



Melbourne Airport

Out with the old and in with the new

Burdened by aging and obsolete equipment no longer supported by the manufacturer, and which lacked the processing capability for IED Serial communications and Tekron clocks, Transpower engaged the experience of the Beca Power team to help them update their Remote Terminal Unit (RTU) equipment at various sites around New Zealand.

The tactical upgrade of 17 sites which were using obsolete Harris D20M RTUs was planned to allow the eventual capability to communicate over local substation LAN's and National WAN's, in accordance with the new substation IEC standard 61850.

Beca was commissioned to upgrade 11 sites in total, nine to new D20VME RTUs at the smaller sites and conversion to D200 RTUs at the two larger sites of Haywards and Tarukenga. The scope included upgrading the sites to conform to new Transpower standards, some of which are still in the draft format.

"The tight deadlines involved with this job presented us with a real challenge," says Hayden Nikolajenko, of Beca Power, "especially the Tarukenga upgrade which was scheduled for delivery just three weeks after the project was started. But with careful planning, and by remaining flexible with our existing work flow, we were able to stay on schedule throughout the whole design phase."

A welcome addition to Beca Power's project stable, this commission was the result of Beca Project Director and SCADA Expert Kevin Brown's close work with Transpower as part of the SCADA working group, which was set up to develop standards and procedures to incorporate the IEC 61850 technologies into Transpower's existing substations.

For more information, contact: Kevin Brown
Email: kevin.brown@beca.com
Telephone: +64-9-300 9611

Beca aids Transpower with RTU tactical upgrade.



RTU cabinet at Motuni

Our people and presence.

The face of Beca Power

Beca Power's team now comprises engineers from over 10 different countries including New Zealand, Australia, the United Kingdom, South Africa, Serbia, USA, Chile, Ireland, Wales, France and India. We are working both within our traditional markets of New Zealand and Australia, and outside in places such as Indonesia, Malaysia and Fiji. Importantly, work is not being handled by a remote office, but by locally based staff. We have also seen a number of our staff accept challenges and manage the seamless provision of services outside their local market including John Fallow, Andre Van Zyl, (both based in Auckland) and Robin Stewart (based in Wellington)

supporting Melbourne, Hayden Nikolajenko (based in Christchurch) supporting Auckland, and Robin Harvey (based in Auckland) supporting Indonesia. Others have taken a more permanent approach and relocated to new offices including Danny Martin from Wellington to Melbourne and Ian Christmas from Christchurch to Brisbane.

There are also some internal moves to be celebrated. David Solloway has recently taken over the management of our Christchurch Power Team. He has worked with the New Zealand Power market for many years and offers leadership, both technical, and project management, and continues to encourage the development of our up and coming engineers.

We would also like to mark the retirement in June of long standing Beca champion, Kevin Allen. Kevin is well respected on both sides of the Tasman and has made an immense contribution to the industry in a career spanning more than thirty years. We are pleased to say that Kevin has agreed to be available for special projects, in between spending more time with his family. Thank you, Kevin.

We have been able to contribute to and attend some recent key conferences including SEAPAC in Sydney, Cigre in Melbourne, and Queensland Power in Brisbane. These are excellent opportunities for us to continue our professional and technical development as well as spend some informal time with clients. We plan to continue our support of the 2008 NZ Power Conference to be held at Skycity Convention Centre in Auckland, 25-29 February 2008.



John Fallow



Andre Van Zyl



Robin Harvey



Robin Stewart



Danny Martin



Hayden Nikolajenko



David Solloway



Kevin Allen



Do we have your correct details?
Contact us at:
power@beca.com

* The Legal entity Beca Power trades through is Beca Carter Hollings & Ferner Ltd in New Zealand, and Beca Pty Ltd in Australia

New Zealand
Auckland
Level 2, 21 Pitt Street
Ph +64-9-300 9000
Hamilton
Tauranga
New Plymouth

Wellington
Christchurch
Dunedin
Australia
Melbourne
Level 4, 5 Queens Rd
Ph +61-3-9272 1400

Sydney
Brisbane
Wollongong
Brazil
Sao Paolo
China
Suzhou

Beijing
India
New Delhi
Indonesia
Jakarta
Malaysia
Kuala Lumpur

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