source

1|12
The customer magazine
of the ABB Group
New Zealand

Made in NZ for a global market

Power and productivity
for a better world™

source 1|12

Grant Gillard
Managing Director
ABB New Zealand

Technology is the lifeblood of ABB. We have a remarkable history of innovation and the technologies that we have pioneered – such things as HVDC, industrial robots, variable frequency drives - have helped to shape the world as we know it over the last 120 years.

Innovation has always been at the heart of engineering. Scientific knowledge is now being created at an unprecedented pace; every day we see advances in such fields as materials science and mathematics – advances that provide fresh opportunities for the engineer to create new innovative applications.

ABB's power electronics business in Napier is a great example of how expert and innovative engineers can create value for our customers and the community. The technology developed here is being exported to many markets; helping our customers to stabilise their electrical power supplies and increase productivity. Read the feature story to see how our local 'Made in New Zealand' innovation is benefiting both our local and international customers.

In this issue of Source, we also look at other examples of how our portfolio not only encompasses a myriad of product families and applications, but stretches beyond hardware products, to system-engineering, diagnosis, service and support.

I hope you enjoy reading this magazine. I think it demonstrates that although New Zealand has neither the large population to support high volume manufacturing, nor low-cost labour, we are still able to compete in global markets through the creation of innovative solutions.

Regards,
Grant

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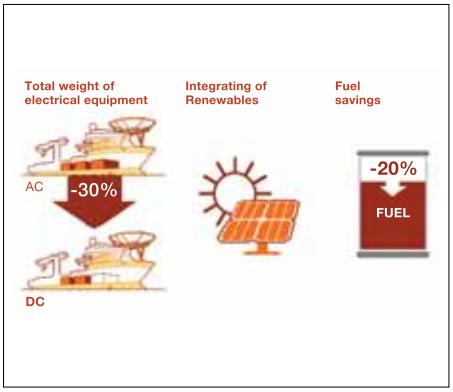

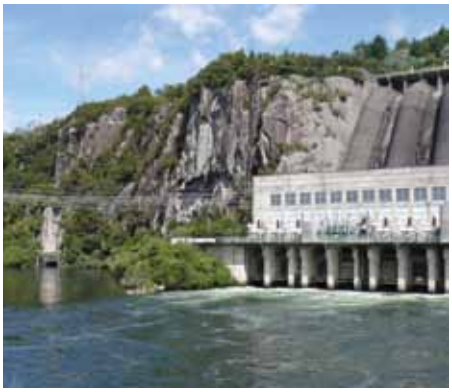

Made in NZ for a global market

Project completion

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New products

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ABB gets on board with Interislander's Aratere extension

Photo 01-02: Interislander

Ongoing local support capabilities and ABB's global marine knowledge are helping keep New Zealanders on the move, with the recent extension of Interislander's Aratere ferry.

Extension of the Aratere

The iconic New Zealand Interislander ferry, the Aratere, meaning "quick path" in Māori, is one of the most modern, high-tech vessels operating in New Zealand waters. Not only does Aratere provide travellers with a "quick path-way" across Cook Strait, but also a comfortable, entertaining, safe and scenic cruise, through some of New Zealand's most impressive landscapes.

In April 2011, the Aratere, one of Interislander's youngest and busiest ships, was sent up to the Sembawang shipyard in Singapore to undergo extensive maintenance, upgrades and a major internal refurbishment.

The 150 m long ship was cut in two, over a 12 day period, using circular saws for internal small pipe work and cables and gas torches to cut the outer ship, at the designed cut line. Around 6,500 pipes and electrical connections were cut and later restored during the extension.

A new mid section measuring 30 metres and weighing 1,500 tonnes was inserted, increasing passenger capacity from 360 to 600, allowing 28 percent more rail lane metres and 32 percent more commercial vehicles onboard. Along with the extension, the Aratere was also fitted with a new bow and 'duck tail' stern. The new bow and stern will help reduce the ships wake by 25 percent, which is not only better for safety and the environment, but improves handling and performance allowing for a smoother crossing in rough weather.

ABB's global solution

There were over 800 people in the yard working around the clock on the extension, with over a million man-hours spent on the project. ABB had 10 people involved from different locations internationally.

ABB provided product supply, systems upgrade and preventative maintenance through support from teams in Singapore, New Zealand and Italy.

The project was led by ABB's marine specialists in Singapore for all the upgrade work. This included a medium voltage switchboard, harmonic filters, a 1 MVA/3.3 kV transformer, 3.3 kV Unigear and seven cubicles. ABB's specialist marine team in Italy provided an upgrade of the existing Integrated Automation System (IAS) to an 800xA DCS System. ABB's Auckland Service Centre engineers were based in Singapore to carry out preventative maintenance on the main propulsion variable speed, water cooled, Sami Megastar drives. All of the commissioning work was supported by ABB's Singapore, Italy and New Zealand teams.

Interislander's Peter Clarke said, "Interislander chose the ABB option, firstly because the vessel has ABB's products throughout, and secondly, we have an ongoing relationship with ABB's New Zealand team in particular."

02

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01 The new look Aratere in Wellington Harbour
02 Aratere's new mid-section about to be inserted
03 The Aratere in the dry docks at Sembawang shipyard in Singapore

Preventive maintenance

Preventative maintenance on the Megastar drives included servicing and a six year exchange of 36 rack mounted, 5 MW liquid cooled inverter modules. The team exchanged the pulse amplifiers, water cooling pipes and snubber capacitors, and the main cooling system. They drained the cooling system, and flushed and exchanged coolant. This maintenance will ensure reliability and performance for the Aratere. It reduces the risk of a breakdown, the likelihood of failure, an interruption to operation and ensures the safety of the ship, passengers and the public. It is also a good way of keeping the equipment up to current standards while minimising spares, and reduces maintenance time for the ship's staff and the demand for technical support.

The Megastar drives on the Aratere are the only two of their kind used in a marine application in Australasia. Liquid cooled drives, like the Megastar drives, are preferred in marine applications, as locations are generally confined to an enclosed space, where high power is combined with compact frame size. Having liquid cooled drives will keep produced heat to a minimum. The ship's existing sea water cooling systems are used as a heat transfer source from the liquid cooled drives.

Peter Clarke commented, "Overall, the system is performing well with some minor modifications to be done in the near future to optimise operating flexibility."

Inclusion of smaller generators on the Aratere will now allow the ferry to be more efficient, produce lower emissions, and have a better fuel economy during turn around, as only the smaller engines will be running during this time.

ABB's ongoing local support

ABB's New Zealand drives servicing team are certified and able to provide local ongoing support to the Aratere and the new systems that were put in place.

Keeping the water and cost savings flowing for Hamilton City

Photo: Hamilton City Council

Hamilton City Council has achieved a 50 percent reduction in machine faults as well as annual savings of $30,000 in machine overhauls, courtesy of a comprehensive condition monitoring and preventive maintenance programme from ABB.

After only a few months following commissioning in 2002, the Hamilton City Council Pukete waste water treatment plant aeration blowers suffered a number of motor bearing failures. With the motors being repaired at ABB's Hamilton Service Centre, ABB assisted the council to determine the root cause of the failures and appropriate corrective actions. Following that success, ABB was engaged to provide planned maintenance on the blowers to ensure their ongoing reliability.

The maintenance programme included:
- stringent lubrication programme
- oil analysis (quarterly)
- vibration analysis (monthly)
- oil replacement on condition
- annual flushing
- removing frame resonance

Maintenance cost savings

In the nine years this program has run, there have been no motor bearing replacements and no major mechanical failures. At an early stage in the blower maintenance schedule, modifications were made to the blower unit frames to reduce resonant vibration. This improvement in reliability has allowed the council to extend major service intervals by 50 percent and save $30,000 in annual maintenance costs.

Reduction in machine faults

On the back of this successful blower maintenance program, Hamilton City Council has pursued a wider vibration analysis programme throughout their water supply and waste water infrastructure.

Hamilton Wastewater Treatment Plant Primary Treatment area

The objectives of this programme were to:
- improve confidence in plant availability
- focus maintenance spend
- identify improvement opportunities
- extend plant life
- reduce the need for expensive system redundancy

This plan currently includes routine vibration analysis of 128 machines. Additionally, the council has pursued further reliability initiatives supported by ABB which include: root cause failure analysis, precision machine alignment and balancing of rotating assemblies.

The information collected has lead to a 50 percent reduction in machine faults, and an improvement in plant condition. Consequently, a thorough understanding of fault conditions has improved availability by focusing corrective maintenance activities on priority equipment.

Sven Ericksen, Asset Maintenance Team Leader from Hamilton City Council, comments that the programme has resulted in an overall increase in plant availability and confidence in plant condition:

"While the vibration monitoring has brought benefits by increasing the work carried out under planned shutdown conditions (51 percent), a key indirect benefit has been when early failure is identified within our environmental protection systems.

"This has allowed Hamilton City Council to keep regulatory authorities fully informed of upcoming maintenance work on these assets and provided them with impact mitigation plans for the work."

Made in NZ for a global market

A small Napier-based power quality technology company, acquired four years ago, has since grown into a major international player in ABB's power electronics portfolio.

ABB's research and development and manufacturing facility in Napier has become the international hub for power quality technology, including STATCOMs, Energy Storage Systems (ESS), Active Voltage Conditioners (AVC) and UPS-1.

The following pages review some of the local and international applications and successes of our New Zealand made technology.

ABB helps Hawaii increase renewable reputation

ABB is helping Hawaii maintain its reputation as a leader in renewable energy through the supply of its power converter system, developed in Napier.

ABB is working in conjunction with Saft, world leader in the design and manufacture of advanced technology batteries for industry, to support the "Hawaii Energy Storage System" project to increase the grid's ability to integrate more renewable energy.

Using federal stimulus funds, this project aims to accelerate the use of renewable energy in Hawaii, which is already a leader in this area with more than one-third of its energy coming from renewable sources.

ESS solution

The joint energy storage system solution combines Saft's 2 Intensium Max 20E containers along with ABB's PCS100 energy storage system (ESS) to create a turnkey solution comprising a Li-ion battery, power conditioning system, and communications interface, as well as installation and commissioning features. Main functions include various grid support services – for example, the reduction of renewable output power volatility, as well as responsive charging and discharging, frequency regulation, autonomous operation and electrical output management.

ABB's PCS100 technology

ABB's ESS power conversion system ranges from 100 kVA-10 MVA and provides wide bandwidth performance with a flexible and highly modular power electronic configuration. ABB's technology provides the opportunity to store energy from the electricity grid and return it when required.

ABB PCS100 ESS offers advanced features and configuration options, if a grid supply is lost, the PCS100 ESS can detect this failure, disconnect itself from the grid and shut down. However, in some applications it is desirable to keep sections of load supplied. So alternatively, the system can disconnect from the main grid but continue to supply local loads. When the grid returns, the systems will automatically re-synchronise and return to grid connect mode.

Deliveries of the solution will begin in April 2012.

ABB provide power protection to Australasia's leading forest products company

CHH's AVC protected production line

ABB's power electronics team based in Napier, New Zealand is helping Carter Holt Harvey achieve greater productivity by protecting their industrial load from voltage disturbance for their microwave generators during the production process at their Marsden Point LVL Plant.

The CHH Wood products NZ business group manufactures and markets a full range of wood based building products, including timber, plywood, laminated veneer lumber (LVL), particleboard, and a range of interior decorative products, supplied from nine major manufacturing operations spread throughout New Zealand.

CHH's plant in Marsden Point manufactures LVL and uses industrial microwave generators during the production process. Voltage fluctuations were causing the generators to trip which was halting the production line, causing production loss of resources and costly replacement of parts.

CHH had specific requirements for product reliability, increased yield, lower running costs, increased machine centre uptime. To achieve this, they realised they would require an investment in a protection system for the plant.

Therefore, ABB's 1 MVA Active Voltage Conditioner (AVC) was installed to help smooth the incoming power to the microwave units. With part of the power for this plant being supplied through Auckland, the distance involved made the power feed potentially vulnerable to external elements, such as tree branches, animals and other industrial sites powered by the same line.

ABB's trusted global experience and proven applications in power protection helped mitigate such external elements by providing continuous online regulation and correction of voltage fluctuations.

The AVC protects three microwave generators on one production line with a total kW rating of 300 kW. Since the PCS100 AVC has been installed, there has been a reduction of loss of magnetrons which, has resulted in a considerable decrease in plant downtime.

Mark Stackpole, Carter Holt Harvey's Project Manager, stated, "For the four months preceding the installation of the AVC, eight magnetrons were replaced for various reasons. In the four months following the installation, only one magnetron has been replaced and this was probably due to the magnetron reaching the end of its life."

This is the first time in New Zealand that ABB's PCS100 AVC has protected industrial microwaves of this size, the largest system to date in the lumber industry, and a first worldwide for ABB AVC for an adhesive curing process.

An impression of TMD's new factory in Japan

ABB's power protection products support sustainable production for Toshiba

ABB is providing power and production protection that saves space, cost and energy for Toshiba Mobile Display Co., Ltd's new manufacturing facility in Ishikawa, Japan.

The technology is being provided by ABB's power electronics team based in Napier, New Zealand.

Background

Toshiba Mobile Display (TMD) is a fully owned subsidiary of Toshiba Co., Ltd, and is one of the leading manufacturers of middle to small sized thin-film transistor liquid crystal modules. It also deals with sales, R&D, and manufacturing of low-temperature polysilicon, thin-film transistor liquid crystal display and amorphous silicon. Its products are renowned for the affinity to touch screen function.

One of TMD's key challenges in constructing the new factory was how to manage voltage sags. A voltage sag can potentially cause a day of checking and recovering production lines and product quality, at the cost of millions of yen of lost production depending on the scale. TMD had found in other factories that voltage sags were mainly caused by extreme weather, such as thunderstorms. To prevent this, TMD had been predicting thunderstorms and were temporarily stopping their production lines to avoid the effect of voltage sags. However, this practice meant there was a potential of increased electricity costs with the use of the co-generator system to back-up the power supply. The strategy then, was to mitigate voltage sags by implementing ABB's technology.

ABB's solution

TMD analyzed all the data for lost time and the reason for the past voltage sags in its main power equipment, for connection units, and for other existing factories in Ishikawa. TMD chose ABB's PCS100 AVC (Active Voltage Conditioner) and PCS100 UPS-I due to the proven market and cost performance in power protection.

The PCS100 AVC is a battery-free solution, leading to less maintenance costs – one of its major advantages, along with sag and swell protection and continuous voltage regulation. The PCS100 UPS-I is tailored towards the demands of industrial applications such as motors, drives, transformers and tools. It also provides protection during deep sag and swell, plus outages between seconds and minutes depending on storage (super capacitors or batteries) and system loading. The solution chosen for this project was two 480 V AVCs protecting down to 40% sags and one UPS-I battery system rated to supply 500 kVA at 208 V/3 phase for five minutes.

Mr Shinji Kubomae, TMD's Specialist Production Engineering Group 2, Process and Manufacturing Engineering Dept. states, "Since PCS100 AVC was introduced, we were able to be flexible in deciding whether or not to have full back up to the protected load. As a result, we achieved significant cost cut, as well as space saving and energy efficiency."

In addition, TMD experienced other benefits from working with ABB, including the achievement of a tight timescale for an intensive installation process that was required to be in place prior to the start of winter, in order to test the full extremities of environmental forces.

Mr Yoshiyuki Iida, TMD's Group Manager, Manufacturing Group, New Clean room Promotion Dept. comments, "We appreciate ABB's efficient installation operation with professionalism and dedication of staff members demonstrated in the project."

Since the installation, both products have performed to a high standard and full operation is expected for the factory by spring 2012. In the future, TMD predicts ABB will provide them with power protection technology as highlighted by Mr Yoshiyuki Iida, "We are also looking forward to communicating with your team to exchange technical information on your wide range of portfolio."

Going for gold

ABB's NZ made technology is providing dynamic voltage control and energy savings for two Canadian mines.

Mines have a huge reliance on electrical power to run their continuous operations. The PCS100 STATCOM solution gives fast acting dynamic voltage regulation (voltage support) for starting continuous borers, extensible conveyor belts and other related industrial equipment.

If the mine is affected by low distribution voltage due to long cable lengths, this technology raises the overall voltage at the mining machine, which in turn increases mining machine production and leads to longer motor life.

Northgate's Young-Davidson (YD) new mine project

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Northgate's Young-Davidson (YD) project consists of a new mine located in Ontario, Canada. With the first gold pour scheduled for early 2012, the Young-Davidson mine will produce over 2.5 million ounces of gold in its first 15 years of production.

ABB's solution consisted of the design, manufacture and testing of six 4.5 MVAr STATCOM units that were assembled in outdoor enclosures.

Also included was a 9.0 MVA ABB step-down oil-filled transformer for one STATCOM unit (115 kV – 13.8 kV). ABB carried out system studies to confirm the STATCOM performance and also provided onsite training of ABB's PCS100 STATCOM technology. The enclosure made by ABB was a 40 foot ISO container housing four 2.25 MVA inverter lineups and controls.

01 The installed STATCOM unit enclosure on site at the new mine
02 The installed STATCOM solution which will help the newly expanded mine operate at full 18 MV load

GoldCorp Musselwhite Esker mine expansion

GoldCorp are working to expand their Musselwhite mine which has produced over three million ounces of gold since achieving its first commercial production in April 1997.

The solution adopted for the mine expansion was a ± 5 MVAr ABB STATCOM and one 5 MVAr 13.8 kV capacitor bank, which allowed the Musselwhite Esker mine expansion project to operate at full 18 MW load while meeting IESO post-contingency voltage criteria. ABB's PCS100 STATCOM provides dynamic reactive power support to limit voltage sags caused by operation of the 4600 hp skip hoist motor to 1.5% at the 115 kV bus.

02

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Smart, safe and compact secondary ring main solutions for a dynamic world

ABB is pleased to announce the launch of their new locally made medium voltage switchgear solution SafeLink 2 – compact automation technology that is designed for safety and is smart-grid ready.

01 New Production Line for SafeLink 2
02 SafeLink unit on its way to packaging ready for dispatch
03 The new Safelink 2 complete with automation

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ABB has been designing and building medium voltage secondary switchgear in New Zealand for over 30 years, SafeLink has been at the forefront of this development since its launch in 2000. SafeLink 2 is the next generation of this product innovation.

The advance in smart grid implementation has driven demand for increased productivity through automation. Reliability and security of supply is more important now than ever before.

Unison – owner, designer and manager of the electricity network that serves the Hawkes Bay, Taupo and Rotorua regions – is currently in the process of developing a smart grid network, as a part of this they have been trialling 40 SafeLink units' automation offerings in the Taupo area.

Grant Hogan, Unison Networks Smart Network Manager, explains "One of the key components when considering network automation options was the availability of a cost effective, automated, ground mounted ring main unit (RMU). As the SafeLink product had previously been selected as the standard switch for Unison's network, it was logical to pursue the option of an automated version. This enables standardisation of equipment and interchangeability with non-automated SafeLink products, together providing familiarity for field crews in terms of installation and operation."

Smart

SafeLink 2 introduces smart control of secondary distribution electricity supply through the use of modular plug and play automation solutions. This approach allows customers to manage the introduction of automation to their network as and when required, to suit budget or network development considerations.

Through the use of a connection panel, customers will be able to connect to their SCADA or other control system with ABB's automation control solution, or third party solution. This ensures flexibility to utilise existing network protocols.

Safe

Providing operators personal safety is an IAC AF arc fault containment classification, covering both the tank and cable box. Arc fault containment is achieved within the above-ground footprint of the unit, without the requirement of additional venting ducts or trenches.

Compact

Maintaining the compact dimensions the SafeLink product is renowned for was an important consideration for ABB's automation control box. The entire automation control box has been designed to fit within the optional external enclosure, while optional extension cables cater for other mounting options away from the SafeLink 2. With the smallest internal and external installed gas insulated switchgear footprint on the market, SafeLink 2 enables installation where space is at a premium, reducing installation costs and visual impact.

Combining the latest automation technology with proven design, SafeLink 2 delivers future secondary ring main switchgear benefits for today's requirements.

Proudly New Zealand – designed and manufactured for local and international distribution

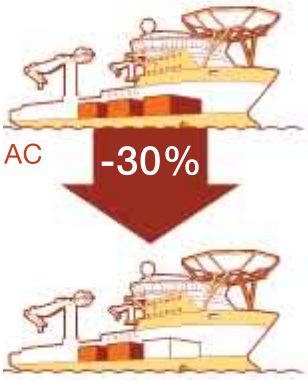
This year ABB will celebrate 25,000 SafeLink products rolling off its production line. ABB's manufacturing plant in Henderson currently supplies SafeLink to a local as well as global market, including the Netherlands, Jordan and Australia.

To cater for future demand, the plant has recently made a considerable investment in state of the art automated production lines. In keeping with the investment in equipment, there have been numerous refinements to the product and assembly process for increased efficiency and production output that will ultimately benefit the end user.

Breakthrough order for DC technology

ABB has won an order from ship owner Myklebusthaug Management to supply the first ever direct current (DC) power grid on board a ship. The equipment will allow a new offshore platform support vessel, under construction in Norway, to cut fuel consumption and emissions by up to 20 percent.

Total weight of electrical equipment



Integrating of Renewables

Fuel savings

In traditional electrical propulsion vessels, multiple DC connections are made to thrusters and propulsion drives from an alternating current (AC) circuit, accounting for more than 80 percent of electrical power consumption. ABB's Onboard DC Grid represents a step forward in optimised propulsion by distributing power through a single DC circuit providing significant power savings.

Launched in May 2011, ABB's Onboard DC Grid is part of a revival of power solutions using DC, and will provide highly efficient power distribution and electric propulsion for a wide range of vessels.

It is designed for ships with low-voltage onboard circuits, such as offshore support vessels, tug boats, ferries and yachts, and can reduce fuel consumption and emissions by up to 20 percent.

ABB will provide its full onboard DC system, including all power, propulsion and automation systems for the 93 metre long, 5,000 ton multi-purpose oil field supply and construction vessel, which is scheduled for delivery in the first quarter of 2013.

ABB wins $30 million order for world's highest voltage three-core AC subsea cable

ABB has won an order worth around $30 million from Energinet.dk, the Danish transmission system operator, to supply a high-voltage submarine and underground power cable system for the Little Belt strait in Denmark.

This is a shipping lane that connects the North Sea to the Baltic Sea, and separates the island of Funen from the Jutland Peninsula and continental Europe.

The cable system is one of several government-initiated projects to replace high-voltage overhead lines and transmission pylons in environmentally sensitive areas.

ABB measuring instrument to revolutionise astronomy

A new ABB wide-field imaging spectrometer for one of the world's leading observatories will enable astronomers to take images and gather data on the universe with a speed, accuracy and depth of detail that no other high-performance instrument provides.

The instrument – a wide-field imaging Fourier transform spectrometer – will be fitted to the Canada-France-Hawaii Telescope (CFHT) at the Mauna Kea Observatory in Hawaii, where it will analyse and collect data from photons that have been traveling through space for hundreds or even billions of years. Known as SITELLE the instrument will combine high-resolution imagery and spectroscopy at levels unmatched by any other astronomical instrument.

SITELLE will acquire spectra within images that are between 100 and 1,000 times larger than is possible with conventional spectrographs.

ABB in New Zealand on Facebook

Join ABB in New Zealand on Facebook to read our latest news and interact with our team.

ABB worldwide also has a presence on Twitter, LinkedIn and YouTube – join in to hear and see the latest international news!

Top 200 – NZ Management magazine 2011 ratings

ABB moved from 146 to 137 in the 2011 Top 200 New Zealand companies rankings report in NZ Management magazine.

ABB also placed 15th in New Zealand in the "top returns on total assets" category.

ABB @ EEA Conference 2012

20-22 June
Sky City Convention Centre
Delivering New Zealand's renewable future

This year ABB will be showcasing its 800xA process control system, integrated in with STATCOM and SafeLink 2 switchgear products at the Electrical Engineers' Association (EEA) annual conference.

To preview more about the technology and applications, visit our event facebook site – ABB in NZ at EEA 2012 – and join in the discussion.

ABB has four speakers at the conference:

Holger Hannemann – *Managing microgrids*
David Lawrence & Matthew Knott (ABB, USA) – *Modernising the distribution network with automated FDIR and Volt-Var control using feeder metering*
John Penny – *Solving grid voltage problems caused by PV solar*
Gilbert Zieleman – *The challenges in specifying and safely operating medium voltage switchgear*

For more details on the speakers and our stand, visit the EEA events page on www.abb.co.nz or ABB in NZ at EEA 2012 facebook page.

Dam safety on the Mighty Waikato River

Mighty River Power, with ABB's support, is leading the way in Hydro generation dam safety management following the recent completion of the new fully automated Whakamaru and Maraetai stations' spillway controls upgrade projects.

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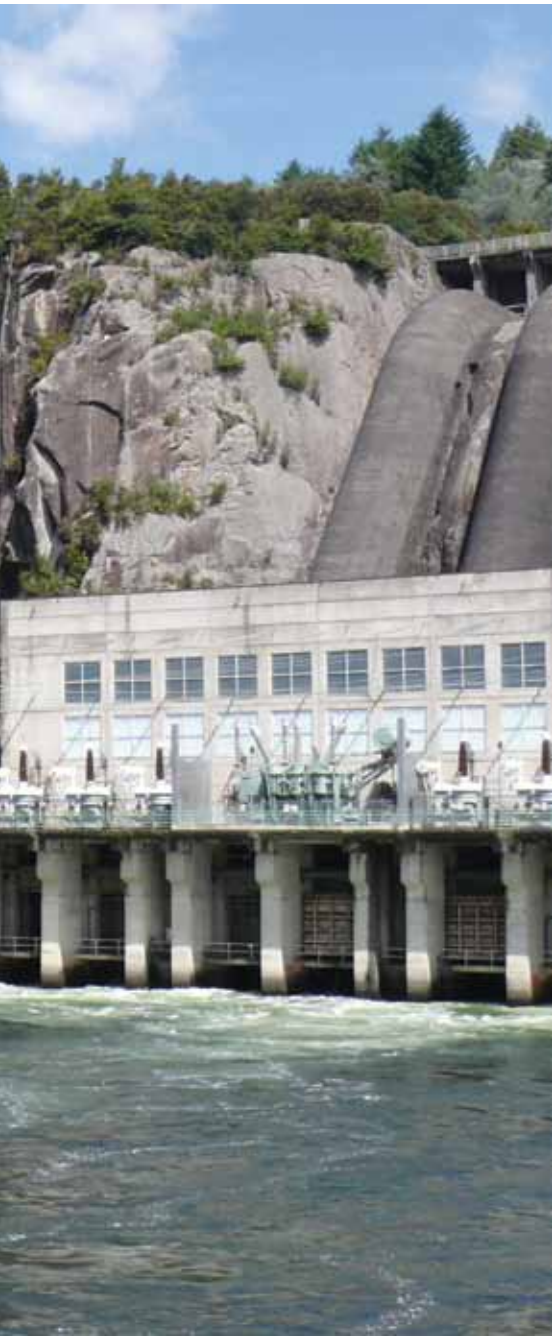

Background

Both stations are part of the wider controls upgrade programme of Mighty River Power spillways, located at their Waikato River dams. The programme is designed to further improve the reliability and robustness of spillway operation, hence increasing safety to both the dam infrastructure, and the wider community.

The Waikato River plays a large part in New Zealand's power generation being able to produce approximately 10% of the country's capacity. There are nine power stations situated on the Waikato River all owned and operated by Mighty River Power – Maraetai (with two stations) being the largest of these with a capacity of 360MW, and Whakamaru somewhat smaller with a capacity of 98MW but a critical station in the hydro power chain.

Might River Power's need

Mighty River Power required a spillway gate control system that met comprehensive safety review recommendations and was entirely independent of the station control. Full automation of the control system was an existing feature that needed to be retained and enhanced, ensuring that the spillway can still function unmanned in case of an extreme event where all power and communications are lost between the spillway and the wider powerhouse. Mighty River Power required increased redundancy in lake level monitoring, with the addition of a failsafe trigger system.

ABB's solution

Working with AECOM on the design, ABB installed a new system with a dedicated spillway PLC and is totally independent of the station control. ABB's service experience allowed the installation of the panels at both sites simultaneously, shortening the overall lead time on delivery. The installation was integrated into Mighty River Power's existing system with minimal disruption, as ABB leveraged knowledge gained from previous experience assisting with design and installation of panels for the Atiamuri spillway controls upgrade.

Mighty River Power praised ABB, commenting that the company showed good initiative throughout the project, maintained strong relationships with project staff and delivered a high quality of workmanship.

The new system creates multiple levels of redundancy supporting the existing functionality of remote spillway operation from Mighty River Power's Hamilton or Auckland control centres, or through automation as a stand-alone site at the spillway structure. Functionality has been enhanced through the installation of a new system using analogue transducers to replace limit switches to the lake level and spill gate position indication – this avoids a single point of failure, improves redundancy, diversity and overall reliability.

01 Maraetai power station 2 and spillway exit point
02 Maraetai spillway gates
03 Maraetai control panel building and hydraulic gate system

ABB helps drive new LPG plant to completion

ABB's integrated motor and drive package for compressors gives Todd Energy capacity control and reduced maintenance and operation costs for their McKee production station LPG plant expansion.

ABB's ACS1000i 3.3 kV medium voltage drive, uses a compact drive cubicle in which transformer, contactor and on-board auxiliary power supply are built-in.

Todd Energy's LPG plant expansion

The new liquid petroleum gas (LPG) plant, based at Todd Energy's McKee production station site in Taranaki, is an important addition to Todd Energy's investment portfolio and will produce 27,000 tons of LPG a year, sourced from its Mangahewa and Pohohura fields.

They will deliver the LPG through their 50,000 customer-strong retail company, Nova Energy, across the North and South Islands.

Transfield Worley was engaged to undertake the front end engineering design (FEED) and detailed design for the expansion project. At an early stage in the FEED it was decided that the feed gas and sales gas compressor drivers would need to be electric motors, rather than reciprocating gas engines, in order to maximise reliability and minimise lifecycle maintenance and operation costs, as well as to better exploit onsite generation facilities.

Capacity control was also required, which made it necessary for the feed gas and sales gas compressor drivers to be variable speed drives, which would also address starting issues, as available power to the site is of limited capacity.

ABB's drives solution

Twelve of ABB's drives were supplied to Transfield Worley for the McKee LPG plant project. These included two ACS1000i medium voltage industrial variable speed drives (3.3 kV output), and 10 ACS800 low voltage industrial variable speed drives.
The ACS1000i drives, along with ABB's 3.3 kV motors, were integrated and used as a drives and motor package driving ariel reciprocating compressors. The compressor packages are used to pressurise and bring external gas (feed gas) into the plant. After the gas has been processed it then extracts the gas (sales gas) from production, pressurises it and readies the gas for export from the plant. ABB was able to provide the complete drive train, consisting of hazardous area motors certified for variable speed drive operation.

By having a matched system the motor and the variable speed drives from the same supplier ensures that optimum performance of the products is achieved.

The ACS1000i drives are connected directly to the 11 kV supply network, as they are fitted with an internal transformer – eliminating the need for an external transformer which greatly reduces cabling and installation costs. The internal transformer has a 24 pulse design, which minimises harmonic currents and ensures utility harmonic requirements are met.

The medium voltage drives were commissioned by ABB's New Zealand drives service engineers.

Todd Energy is the largest electricity generator, from efficient gas-fired co-generation facilities, in New Zealand, with locations in Edgecumbe, Kapuni, Whareroa and New Plymouth. Todd Energy's LPG plant at the McKee Production Station was officially opened by Prime Minister John Key on 15 September 2011.

New product

Read about the latest low voltage product in the market.

Low voltage products

DSN201 – one module, complete protection

The new DSN201 meets the demand for complete protection of modern installations against over-current, indirect contacts, and gives additional protection against direct contacts for 10 and 30 mA versions.

In only one module width, this RCBO offers an advanced and comprehensive range with features, sizes, tripping characteristics, breaking capacities and accessories.

The new 1P+N electronic RCBOs DSN201 share the same profile as the other System pro M compact® range of modular products.

Thanks to the dedicated auxiliary contact, DSN201 can work with the auxiliary elements and accessories of the System pro M compact® family.

Further info: lvproducts@nz.abb.com

Advantages

Compact size

– The DSN201 is perfect to use where full protection for the line is required

Wide range

– DSN201 is available in three versions: DSN201 T with 3 kA breaking capacity, DSN201 L with 4,5 kA breaking capacity, DSN201 with 6 kA breaking capacity
– Rated sensitivity from 10 mA up to 300 mA
– Rated current from 6 A to 25 A
– B and C curve available
– AC and A type

ABB to acquire Thomas & Betts for $3.9 billion to become major player in North American low voltage products market

In late January, ABB and Thomas & Betts, a North American leader in low voltage products, announced that both companies' boards of directors have agreed to a transaction in which ABB will acquire Thomas & Betts for $72 per share in cash or approximately US$3.9 billion.

Thomas & Betts' electrical components complement ABB's low-voltage protection, control and measurement products and would create a broader low voltage portfolio.

"Thomas & Betts is a well-run company with strong brands and excellent distribution channels in the world's largest low voltage products market," said Joe Hogan, ABB's CEO. "Because our products are complementary, we'll go to market with one of the broadest offerings in the industry. That creates strong growth opportunities for both ABB and Thomas & Betts, and gives customers and distributors one-stop access to one of the widest ranges of low voltage products."

The transaction is subject to approval by Thomas & Betts shareholders as well as to customary regulatory approvals, and is expected to close by the middle of 2012.

Power correction that you can rely on?

Certainly.

By choosing from ABB's PCS100 Active Voltage Conditioner and UPS-I solutions, you are selecting from a unique line up of advanced technologies and expertise. This low voltage power protection product range provides energy efficiency, high reliability and increased productivity. Both systems give superior value to operations in the industrial, utility and commercial sectors. www.abb.com/powerquality

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