

Walking the talk - promoting energy efficiency

Electrix was among the first electrical service providers who became a member of the Green Building Council of NZ and embraced sustainable practices. The company also plays a key role in the delivery of renewable energy solution projects such as Te Apiti and White Hill Wind Farms, and is currently working on two Green Star rated office buildings.

Now, Electrix is going one step further in its quest to promote energy efficiencies, with the distribution and marketing of an energy efficient hot water system, as New Zealand distributors for the Australian made Siddon Solarstream Heat Pump Water Heaters.

Electrical Services Divisional Manager, Don Morris, who heads this venture, is enthusiastic about the product - a sophisticated heat pump that extracts heat from the ambient air and transfers it to a matching hot water cylinder. "It's the most efficient system for residential and light commercial hot water on the market" says Don. He explains that the high performance is attributable to an advanced design using patented direct transfer technology, coupled with a high performance R417A

refrigerant, which gives tremendous efficiencies while also being ozone-friendly.

In its role as distributor, Electrix sees opportunities in supplying the trade sector, and also synergies with existing commercial clients and consulting companies who are looking for energy efficient product solutions. Mainly targeted at new developments, whether they are residential or institutional facilities, Solarstream systems can be coupled for larger installations with significant savings in electrical installation and hot water energy saving of over 75%.

Far easier and less expensive to install and maintain than solar panel systems, a Solarstream HPWH system offers a simple and cost effective hot water system that plays an important part in reduced operational costs and environmental sustainability.

For further information contact
Don Morris
don.morris@electrix.co.nz
or visit our web site
www.electrix.co.nz



electrixline

Spring 2008

Keeping lines intact in Fiordland



Electrix has a well-established track record in New Zealand's remote south. Two recent projects in Fiordland are good examples of the company's strength - in this region and beyond.

Fiordland is well known for its incomparable beauty and its designation as a World Heritage Area. It entralls visitors with its vastness, remoteness and isolation. However, these very factors also represent a significant degree of difficulty when it comes to maintaining electrical infrastructure in this area. Contractors therefore need solid expertise, a reliable resource pool and tight logistics control.

Earlier this year, PowerNet decided to complete their 66kV transmission line rebuild between Monowai and Redclyffe. The company, which manages the Southern electricity network assets for five network owners, took the unusual step of going outside their alliance partners in their search of a suitable contractor who could deliver this demanding project within the allotted time frame. With a strong project portfolio in high voltage sub-transmission line

construction, including the nearby White Hill Wind Farm, Electrix was appointed to reconstruct the 20km section.

In total, 130 wood poles were replaced and 66kV conductor was strung along the length, the last 9 kms of which, was also upgraded with an 11kV circuit beneath. Ready access to all-terrain forestry machinery and a flexible methodology approach meant that the project schedule was not hampered when rain rendered much of the area inaccessible to conventional 4WD equipment.

Careful planning thus contributed to a timely project completion, which was welcome by the client who complimented the Electrix team on the "excellent cost control, performance and timely completion of the project".

The Electrix Transmission Line team has also been in demand, at nearby Lake Manapouri where 4000 spacers were replaced on two 220kV lines using Electrix Helikarts. (Ring spacers are installed between adjacent conductors to stop the sagging lines from clashing against each other). As a pioneer of specialist helicopter

assisted methodology, Electrix has earned a reputation for the expert installation of spacers on live duplex conducted transmission lines. While the contract clearly called for Helikart expertise, it was also a rigorous logistical exercise.

More than a third of the spacers were to be installed in West Arm - an area only accessible by barge, 30km across Lake Manapouri - the remainder had to be accessed via a high altitude snow covered access road in the National Park. With satellite phones providing the only source of communication, everything had to be co-ordinated with a high degree of accuracy.

The work was completed without incident or accident which further underscores the superb safety performance of Electrix' Helikarts. Regional Manager Derek Kooman acknowledges his experienced team and the highly skilled pilots of Helicopters Otago. "This is a very demanding field of work. It's a credit to everybody involved that we can complete a project like this so smoothly," he said.

Pioneering solutions to build the new Ohinewai substation

Late last year, Transpower decided to build a new 220kV switching station at Ohinewai, near Huntly, to further support security of supply for the upper North Island. Given its importance to the network, the decision was made to fast-track the construction.

Electrix, who were engaged at an early stage, closely collaborated with the designers. This ensured that the remaining design work could be carried out in parallel with the actual construction.

Project Manager Craig Bryant and his team of up to 65 specialists encountered a multitude of constraints to build and commission a substation complete with control room in record time. "We prefabricated the control room building and precast the concrete pad to meet the tight construction programme," says Craig.

A key issue was dealing with live transmission lines overhead which would eventually feed into the new substation. Craig explains that the lines had to be kept live, yet they did not afford the necessary clearance to complete the final stages of the project.

This conundrum was solved by developing a technique that harnessed the company's strong live-line expertise. With the help of a crane and a specialist live-line team, the conductors were lifted some six metres, so that work could proceed below. This was done twice - for a duration of ten and five days respectively.

Believed to be a 'first', this unique procedure required immense planning and engineering input, and a thorough assessment of risks, including variable factors such as the weather and its effect on conductor tension and crane loadings. During each 'lift', Electrix closely monitored the situation with transmission line staff and crane operators on site

around-the-clock.

The project certainly was not for the faint at heart, but a superb team effort from Electrix and a host of subcontractors ensured that it was delivered to provide additional security of supply for the winter period.



With the help of a crane Electrix pioneered the lifting of live transmission lines. This allowed the construction of a new substation below the lines while maintaining the supply of power.



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Spotlight on Eden Park

Auckland's Eden Park stadium is preparing to host the 2011 Rugby World Cup. The demolition of the South Stand, which commenced in August, signaled the first stage of the upgrade to prepare the venue for this important event.

Part of this stage included the installation of 120 new floodlights on four temporary lighting columns.

Principal contractor, Fletcher Construction, sought a contractor who could reliably deliver within the timeframe. They chose Electrix who assembled a team lead by Doug McRobbie, assisted by Phil Cadman.

Doug explains that the 30 metre high lighting columns were pre-assembled in the nearby cricket pitch before being transported into the stadium and craned into place. This itself was "an inch-perfect operation involving two cranes, one pulling and another one pushing" says Doug.

With the old lights dismantled, the combined project team firmly focused on the deadline of 20th September when a Ranfurly Shield match demanded the flood lights to be commissioned.

Fletcher Project Director Alan Gray notes "It was crucial that we could carry out the testing in the week prior [to the match]."



Moving one of the four temporary towers into place

Thanks to a superb effort it went as planned. Alan commended Electrix for "working exceptionally well with us" and also acknowledges the Eden Trust Board for their great co-operation. He says that "an awful lot of planning between the teams" contributed to a great project outcome.

Electrix' has had extensive involvement at Eden Park for more than eighteen years. The ASB North Stand, sports lighting, regular maintenance and staff on site for every night game have all been part of the Eden Park story

Catering for growth in Queensland

Queensland's Discovery Coast, between Bundaberg and Gladstone, is a popular tourist area that is experiencing significant development and growth. To cater for this load growth, regional Queensland distribution company Ergon Energy, has carried out a multi-million dollar power upgrade to reinforce the power supply for the coastal tourist town of Agnes Water, the nearby town of 1770 and surrounding areas with a new 47 km transmission line and associated substations.

To facilitate this important project, Ergon Energy engaged Electrix under a design and build contract for the single circuit 66kV line that connects two new substations, and also included a four kilometer double circuit section, end-to-end optical fibre earthwire, and a 132kV inter-connector.

Electrix assembled a team of experienced linesmen and focused on the diverse site-specific challenges. The project was largely defined by environmental constraints, not least due to the fact that the route traversed a national park and other environmentally sensitive areas. A robust environmental management plan proved invaluable and guided various activities such as vegetation clearing, weed control and the handling of wash down bays.

The region's cyclonic conditions were also considered for the design of the line, which largely features concrete poles that withstand the typical high winds. However, at up to 26 metres in length and weighing up to 11 tonnes each, they also represented a significant transport challenge and called for heavy semi-trailers. This in itself is a

difficult undertaking along the region's dirt roads. While the project was initially hampered by very heavy rainfall and difficult ground conditions, the final stringing works were completed in September.



On Queensland's Discovery Coast Electrix overcame a number of obstacles when they designed and built a new 47km transmission line.

New era for meters and power bills

Mercury Energy is leading the way with the introduction of GLO-BUG, a prepay electricity product delivered off a smart metering system. After a successful pilot scheme, the electricity retailer is now rolling out the new meters to its customers in the Auckland region.

Based on a prepay system, the new meters give householders the ability to monitor and control their energy spend; they also provide the business benefit of being read remotely; providing accurate up-to-date information and the ability to diagnose problems remotely.

Meter owner and operating company, Metrix, contracted Electrix to be part of this new development. Electrix Metering Manager, Dave Bencetti, said they initially assisted Metrix with an assessment of their communications infrastructure before installing 5000 meters for the pilot scheme earlier this year. With the region-wide rollout, Electrix will ramp up its activities.

With a demonstrated track record in complex meter testing and associated services in the industrial and commercial sector, the metering department of Electrix is excited to gain traction in the



domestic metering market also. "We have all the right skills," remarks Dave. "Our staff are technically qualified and highly skilled ... they also have relevant communication expertise, which is a real benefit to asset owners."

Electrix is, without a doubt, well placed to meet smart metering needs as the technology takes hold in the rest of the country.

Replacing insulators



Electrix mobilised resources at short notice to replace insulators on a section between the vital Huntly-Otahuhu line.

During a planned accelerated condition assessment by maintenance contractor Electrix, and New Zealand grid owner Transpower on the 220kv line between Huntly and Otahuhu, it was identified that a further planned insulator hardware replacement programme had to be implemented earlier than initially planned. Early implementation was required due to upcoming load increases and the constraints this places on ensuring security of supply.

The Huntly-Otahuhu line is a vital lifeline for the entire area north of Auckland and any work on this line becomes a critical undertaking.

As Transpower's maintenance contractor for the area, Electrix generated a plan to carry out the urgent maintenance works.

Electrix Regional Manager Jason Clarke explains that a project like this is very intense but fundamentally is about completing the work as safely and efficiently as possible.

"Our ability to mobilise Electrix resources from other regions at very short notice, was crucial in allowing us to complete the insulator replacement in a very condensed timeframe" says Jason.

His team worked assiduously to install a total of 90 insulators through a 10-span-section of the line, completing the works in only two days

Westpac's new HQ

The Westpac Banking Corporation is about to bring its contact and operations centres together in its new head office in Auckland. Located in the historic Britomart precinct, the extensive development includes the new 7-storey Westpac Charter House, which also integrates the heritage facade of the old Charter House Building and includes a retail area on the ground floor.

Electrix was awarded the contract to provide full electrical, security and MATV services for the entire building comprising 8,500m² of office space. Electrix Regional Manager, Steve Bartlett, explains, "The complete interior fit-out for Westpac was added to the scope once construction

was already underway. This effectively doubled the programme workload within the original timeframe".

For Electrix it meant substantial additional work such as two 200KVA UPS systems for data operations and smart light systems featuring a mix of light and movement sensors, along with considerable additional lighting.

The building is also fitted with a backup 1250kVA generator to provide the office building with power in case of an outage.

Thanks to an effective project approach and Electrix' 24-men-strong team who worked closely with main contractor Hawkins



Construction, the contract is widely considered a success "Our focus was on producing an energy efficient building of high quality," says Steve.