



## A new order of magnitude

Transpower's massive line upgrade requires tight resourcing, scheduling and overall project management.



Over the past few months Electrix has been ramping up to deliver New Zealand's biggest and most significant transmission line projects in recent times. Three successive line upgrades, covering a total length of 263km, are the subject of Transpower's 'Tactical Transmission Upgrade' programme which addresses the tremendous electricity demand increase in the Upper South Island.

Part of this upgrade is the \$17M installation of two new circuits between Islington and Kikiwa, and between Blenheim and Stoke, as well as the replacement of a single conductor with a duplex conductor on the Roxburgh-Islington line which will allow Transpower to increase the transmission capacity from those lines.

Chosen from a strong line-up of international competitors, Electrix, in conjunction with Transfield Services, is ready to demonstrate that its selection was prudent given the multitude of challenges that are part and parcel of this undertaking.

While the type of project is nothing new, the

size certainly is. It will test the team in all aspects of resourcing, scheduling and overall project management

The resourcing issue alone would represent a major hurdle for most service providers. With a base crew demand of around 100 people, the resource requirements are massive, especially in light of the severe skill shortage that is plaguing the industry. However, having teamed up with Transfield Services as subcontractors, Electrix is able to draw from solid partner resources while also reaping the rewards of its own successful overseas recruitment campaigns.

### The upgrade at a glance:

#### Islington to Kikiwa - 114 km:

Stringing of single conductor to complete a second circuit  
Nov 05-Jan 06

#### Roxburgh to Islington - 73 km:

Replacement of single conductor with duplex conductor  
Jan-Feb 2006

#### Blenheim to Stoke -76 km:

Stringing of single conductor to complete a second circuit  
Mar-April 06

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Electrix Project Manager Gavriilo Kovacevic, a veteran of several major projects, has his work cut out for him. With a keen eye on detail, he has assembled a formidable team within a solid project management framework. Defined by a transparent structure, a no-surprises policy and excellent understanding among team members, his approach is tailored for the task at hand and has resulted in buy-in from members at all levels of the project.

The team has carefully prepared for the daunting logistics and constraints including the timing of the Roxburgh-Islington portion of work, which can only be carried out during six weeks in summer (2006 and 2007), when electricity loads permit the line to be taken out of service. That is no mean feat considering the vagaries of the weather and the need to accurately plan the transport of crew, equipment and material to site, not to mention the ambitious targets.

Gavriilo explains that the target completion for one section (covering 7 – 8 towers over three kilometers of line) is just three days. In context of the industry average of 7 days, this clearly allows no room for errors and will only be possible with total dedication and utmost precision. However, he is confident that his team will deliver the goods. "We have a very motivated and experienced team and have invested in excellent equipment including \$1.5M worth of new stringing gear. We have four crews working in parallel supported by three helicopters; we also have new streamlined processes for safe tower access. We can confidently say that we are using best practice."

The projects are scheduled for completion in April 2006 with a second stage on Roxburgh-Islington to be completed in 2007.

## A new line in Hamilton

New transmission lines are almost as rare as hen's teeth. That's why Electrix' recently completed 2.1 km line in Hamilton drew much interest from industry insiders.

The construction of the 220kV line, which was required to connect Transpower's new Te Kowhai substation with the existing Huntly-Taumarunui line, was the first opportunity for most of those involved to be part of a greenfield development.

Electrix project manager Eddie Olivier and his team tackled the challenge with much enthusiasm and professionalism while also managing a range of subcontractors. The subcontractors provided the initial outline plan approvals as well as topographical surveys, geotechnical investigations and civil design works relating to six large towers, some of which required 11 metre deep foundations.

Eddie and his team relished the variety. "It's not every day that you get involved with landowner liaison, deal with river crossings or construct temporary access roads for major civil work, let alone build transmission towers from scratch," he explains. But despite the new territory, the team proved to have the right skill set and were often a step ahead. With proactive measures, including the ad hoc integration of an outage that had not been intended as part of their programme, they delivered an excellent product and successfully commissioned the line ahead of programme.

*The construction of a new 2.1 km feeder line presented a whole new set of challenges for Electrix and gave the team the opportunity to prove themselves in this rarely encountered field.*



## Improving safety

In an industry where potential workplace hazards are often part of everyday life, it's a given that safety is paramount. This is reflected in stringent industry regulations and client requirements that range from improved procedures such as fully attached climbing to personal protective equipment like fire retardant clothing.

With a real focus on safety, Electrix has always pushed for higher standards to minimise risks and ensure site safety. The company augments its compliance with highest client and industry standards by continuously improving its own rigorous health and safety policies.

Take the flagship initiative, the drug and alcohol policy, for instance; it is based on compelling international research that links drug use with a 40 times higher chance of fatalities in the workplace. Unsurprisingly, this policy, which has been in force at Electrix for over two years, has since been widely adopted among other industry organisations.

Combined with a thorough pre-employment health check, another voluntary Electrix initiative, this approach has already started paying dividends. However, Joe Warren, General Manager NZ Operations points out, "we are continuously aiming for improved safety and have made it our mission for all staff to take personal responsibility for safety". And because the management of safety has to reach beyond actual incidents, the company also carefully analyses near-misses which are reported as part of a company-wide safety awareness campaign.

Safety is clearly non-negotiable and Joe Warren sums it up succinctly and says "Safety is to be ingrained in everything we do; it is not discretionary. It must apply under all circumstances."

# World-class asset management - right here, right now

Keeping clients happy is perhaps the most important aspect of business. For NGC, who owns nearly half of all electricity metering assets in New Zealand, this was the catalyst for taking a whole new approach in the way their assets are being managed.

Focused on the specialist needs of commercial and industrial energy users, NGC wanted to improve the service delivery via their complex Time-Of-Use meters which are critical interfaces with their energy retailing clients and in turn their clients' clients.

NGC researched the best delivery models around the world and, moving away from conventional asset ownership, turned to Electrix who helped pioneer what is now widely hailed as a world-class solution.

Based on a slick process-driven management system, Electrix developed an efficient web-based approach. It provides total transparency for clients, improved field performance through use of sophisticated technology, accurate recording and reporting. "In partnership with NGC, Electrix have effected a significant change and raised the bar in the field of Time-of-Use metering," says NGC operations manager Lee Brown.

The talented and motivated Electrix team, supported by an extensive subcontractor network, is acting as a virtual extension of NGC and seamlessly integrates the outsourced metering operations into the existing client structure.

The fact that all maintenance requests now bypass the asset owner and come from NGC's clients directly to Electrix speaks volumes about the level of trust and commitment that underpins this service level agreement. "Ultimately we have taken total ownership of our client's business objectives," explains Ranjit Manak who helped conceive the delivery aspects of the solution.

Electrix' entry into the arena of facility management has resulted in much praise from NGC, its clients and industry insiders alike and sparked great interest among other asset owners who are already looking at further developing this system.



*Electrix developed a sophisticated information management system which enhances NGC's maintenance programme management and ensures ongoing precision of technically sophisticated meters used by large consumers.*



*Electrix' contract for the massive Spring Hill Corrections Facility in the Waikato strengthens its good working relationship with Mainzeal.*

## Spring Hill

The construction of an institutional building is usually a substantial undertaking. In the case of the new Spring Hill Corrections Facility in the Waikato, this is most definitely true. As the largest new prison ever constructed in New Zealand, it incorporates a 28 hectare building area on a 650 hectare operational farm.

The project is being undertaken by the Department of Corrections, Mainzeal, Stephenson and Turner, and Works Infrastructure as Principals within a collaborative working arrangement (CWA) with Electrix as a key member of the CWA and the integrated project team.

With its demonstrated ability to deliver and its supportive corporate structure, "Electrix is part of our mature supply chain, and we constantly achieve great results together," says Mainzeal Project Manager Martin Fahey. He explains that a significant design input is key to the collaborative approach, where the "project team" delivers the completed design. "Electrix' broad skill base allows them to incorporate innovation into the design while also encompassing lessons learned from the construction of the Northland Corrections Facility."

Unsurprisingly project challenges often revolve around the high demand for security. "All equipment is evaluated against strict security criteria and, where necessary, specialist fittings have to be sourced," explains Electrix project manager Rick Richardson. This means that the planning phase requires a great deal of attention to detail, not least because of long lead times for specialist equipment.

The construction started in December 2004 and is due for completion in 2007.

## Peer Recognition

At the recent ESITO Excellence Awards, Electrix proved its high skill level once again by winning significantly more awards than any other company. Electrix Palmerston North supervisor Dave Whale received the Network Award for his significant contribution to the network sector while Lisa Dearsly, PA to MD Gavan Jackson won the Business Support Award for her inspired efforts and tremendous support behind the scenes.

The judging panel also highly commended Phil Neal, TLS QA & Safety Manager for his contribution to industry as well as trainee line mechanic Michelle Burke in the New Entrant of the Year category.

# Boosting skills in Australia



As the widespread skill shortage threatened to hamper progress for many sectors of the industry, Electrix in Australia opted for pro-active measures. To support an effective 'attract, retain & train' programme, they decided to address the skill shortage with a concerted overseas recruitment campaign.

Having identified a pool of skilled staff in the Philippines where the standard of vocational training is very high, Electrix entered the local employment market and received a tremendous response of would-be migrants. A thorough assessment regime, devised with the help of local registered training organizations and industry stakeholders, ensured that qualification and skills expectations were met.

This initiative has seen the Electrix workforce in Australia boosted by 70 highly skilled and talented staff, now making a significant contribution to the industry. Eager to assimilate, they have become an integral part of the company.

New line mechanic Norman Bembo enjoys his new job and Electrix' supportive team environment which helped him become proficient with local technical standards. "It's a great opportunity to work with a very professional company," he says. For Electrix it has been a win-win outcome all round as the company can pursue business opportunities and offer enhanced career paths for all staff as it continues to expand.

*Skilled migrants have helped to boost Electrix' workforce*

## Ongoing Queensland success

Ever since Electrix moved into Queensland, the company has gone from strength to strength in Australia's Sunshine State. Foreseeing opportunities through increased outsourcing needs, Electrix started building a reputation with its first asset inspection contract for Ergon Energy. Now, less than 4 years later and with over 200 employees in Queensland, the team has built on this key client relationship with further contract renewals and a new construction & maintenance contract.

A similar construction and maintenance contract for Energen (in Brisbane's metropolitan South region) and transmission line projects for Powerlink and Ergon alike have further added to an already solid workload, providing proof that a strong strategic vision and commitment to the industry are key ingredients on the path to success.

## Substation maintenance

When Transpower decided to rationalise the 110kV double busbar design of its Hamilton substation, they commissioned Electrix to implement the new substation design.

The upgrade, which will feature a more contemporary single bus, will result in major improvements in terms of regular maintenance work. The removal of the top busbar and associated live equipment will make it safer and easier to work around.

For Electrix, the project requires a meticulously detailed programme of works, carefully scheduled around 31 outages. Given the relatively tight time frame, it is critical that the team successfully completes each stage where many substation components are modified. With much live equipment within a congested and complex substation design, this means that the team has to overcome a fair few technical difficulties and ensure that safety remains paramount before the scheduled completion in February.



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