THE POWER OF COLLABORATION

Identify a problem and find a solution. It is never that easy in practice. But put in some painstaking work and develop a New Zealand collaborative partnership and it can work. We visit and talk to some key players in such a partnership to find out how it all came together.

Words by Mike Isle

Transpower's Andrew Renton makes contact by phone just as we are about to arrive at Tidd Ross Todd's head office in Hamilton. He is responding to our request for information about a new mobile substation that is making big news in transport and electricity circles.

Everybody says that it is Andrew's 'baby', and we should be talking to him first. Everybody, that is, except Andrew. Even in the briefest of chats before we meet with TRT, the builder of the two trailers required to transport the substation, Andrew, who is Transpower's chief engineer on the project, is quick to point out that this is truly a collaborative project.

It couldn't have succeeded, he says, without the input and technical skills of, among others, the trailer-builder we are about to meet—Tidd Ross Todd, a company that prides itself on delivering the undeliverable.

Tidd Ross Todd is a staple of the New Zealand trailer building industry. The Hamilton-based company has a long and laudable history in the industry, particularly for one of its specialisations-low-loaders. They built their first low-loader in 1967 and have built countless since.

Bruce and Robert Carden, who run the company today, are sons of one of the founders, Dave Carden.

We are to meet Bruce along with head designer Bevan Olson who ran shotgun on the design of the substation trailer and TRT's trailer sales engineer Glen Harnett who handled client liaison on the mobile substation project

But first, what are we talking about? What is 'the baby?'

The fixed-width quad for the switch gear and control room (MS2) in font; the transformer is on the rear unit (MS1)

TRANSPOWER AND TRT • NZ

The baby is the largest mobile substation built in New Zealand, and possibly the largest in Australasia. It is not the first (mobile substations have been around since the early 1900s) but there has never been one on this scale, nor with this degree of mobility.

It can be transported on the TRT-built trailers to any one of Transpower's 14 single-unit grid-sites, and bypass the permanent substation for as long as required to safely complete scheduled maintenance. What may have taken up to ten hours of outages per year per community can be reduced to as little as two hours, the time to set up and transfer the power flow to and through the mobile substation, and in some cases eliminated altogether.

The savings in cost to communities together with the minimising of disruption were Transpower's driving motivations for the project and for the hunt by their senior principal engineer Andrew Renton for a workable solution.

In the mobile substation he found it. And also found a great example of collaboration.

Transpower was the end-point customer; Mitton Electronet provided the lead design expertise, Beca New Zealand carried out the protection design, Electronet Transmission installed and tested the equipment and of course TRT designed and built the trailers.

The substation comprises two trailer units. The transformer is on one trailer, a four rows of eight fixed width for the cable roll, and the switchgear and control room are on the second—a fixed width quad. Both have rear steering axles. Combined weight of the units is 113 tonnes. Specialised or modified tractor units are not required.

Both trailers are fully road compliant and require no dispensation. They can be transported easily to any of the 14 Transpower sites in New Zealand and that includes being transported on the Cook Straight ferries.

Those were stipulations of Andrew Renton and his Auckland-based project manager Graeme Winthrop. The BPW running gear is a stipulation of TRT.

Throughout the design and build process, all parties kept in close contact. They had to—each party was providing very specialist skills, not interchangeable. Graeme Winthrop instigated and managed weekly conference calls and the many, many other meetings, as the parties grappled with challenges of a ground-up design whose benefits to the communities are self-evident, but in whose execution became trial without the latitude for error.

Late last year the mobile substation completed successfully the first of its scheduled maintenance missions. There were no problems and the unit is moving through a heavy maintenance schedule with capacity, if required, to handle emergency situations.

Fully set-up within an hour of arrival on site.

From TRT's point of view it has been an immensely satisfying exercise. They have dealt with a -'great'- client Transpower and collaborated with some highly specialised companies. From that TRT learnt or developed new applications and innovations they intend to use on other low-loaders –just what they are, is a closely guarded secret.

There is also now the capacity and technical skills for TRT to build further mobile substation trailers and it is no secret that the company is looking for such work in Australia.

But perhaps the last word should go to the man who was instrumental in its start, Andrew Renton:

"We started with the precept of: 'is there another way of doing this better? What are the problems? What are the possible solutions?' There were obviously answers out there, but it became a matter of getting around a table and finding them. Which is what we did, and which is where this succeeded."