



CASE STUDY: Pre-assembled substation solutions

As part of its network upgrade in the North Canterbury area, MainPower decided to engage Connetics to prefabricate transportable substations at their workshops for transport to various locations on their network

HIGH VOLTAGE
+ INDUSTRIAL

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PROJECT SCOPE

The project involved the assembly of five transformers and associated switchgear on galvanized steel skids, followed by testing, transportation and installation on site.

Connetics' role also covered any work necessary to modify main components, sourcing of associated components such as the cable terminations, and arranging the trunking and earthing systems.

CHALLENGES

This was a new approach to a transmission upgrade based on an innovative design solution. The design scope of work not only involved the assembly of all equipment on the novel skid based platform, it also required the prefabricated substation to be integrated into MainPower's electricity network and communications systems.

When the components arrived, some additional challenges became apparent. The skids had sustained some damage in transport, and strengthening members were running in the wrong direction. The control panels were unsuitable for the control equipment and needed to be rebuilt.

OUR RESPONSE

Connetics role began with repairs to the skids, including the straightening of steel panels, re-galvanizing of components and re-installation of strengthening members. The reclosers, disconnectors, current transformers and voltage



transformers were then laid out for inspection, assembled on the skids and tested as a complete unit for transporting to the site.

The unit was then prepared. Connetics arranged all the necessary on-site work including earthworks, construction of a concrete pad, drainage system and a sump pit for oil collection.

With the design concept being so new, both parties accepted there would be the need for trouble-shooting and refinements. Regular communication and clear, well supported recommendations became a key feature of the project.

SOLUTIONS

Connetics was able to draw on past experience in substation design and installation to overcome the challenges of the project.

In particular, the Communications Team was able to fully develop the SCADA, which had to be programmed to read and process inputs and outputs in line with MainPower's specifications.

The completion of the first installation at Waipara, through to on-site testing and commissioning, provided a model for the following installations.

RESULTS

MainPower has achieved an innovative solution which provides a high degree of flexibility within their network. Successful implementation required strong project management and an ability to adapt to a number of unknowns. A key feature of the project was the ability of the Connetics team to problem-solve and present effective design and construction solutions.

"Connetics was appointed as the main contractor for this project, which was a challenging one for everyone involved. Connetics responded very well to the dynamics of the design. A successful outcome was achieved through close communication and the skill and experience of their staff, from project management right through to commissioning."

MainPower New Zealand Limited