



CASE STUDY: Harewood half-life transformer refurbishment

This project involved the "half-life" refurbishment and upgrade of a 33kV transformer at Christchurch's Harewood District Substation, for network operator Orion.

HIGH VOLTAGE
+ INDUSTRIAL

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PROJECT SCOPE

The project included the replacement of an oil-filled OLTC system with a vacuum-operated system, designed by Connetics in a previous design contract. Connetics was responsible for the removal of the transformer unit from its existing location and carrying out all of the refurbishment work and preparation before fitting the new control equipment.

OUR RESPONSE

Work began with the removal of the transformer, using a mobile crane, and disassembly of the unit for assessment and testing of all of the components. The transformer's oil tank was sent out for blasting and painting and the core was checked and retightened. Once completed, and with the core stored in a dry room, modifications were made to accept the new Tap Changer.

The transformer's radiators were inspected and painted, and all gaskets, flanges and valves were replaced or refurbished. The condition of the transformer's insulating oil was checked and treated in line with the network owner's specifications or international standards. All of the reconditioning work was carried out at Connetics' engineering workshops in Woolston.



Once fully assembled, the refurbished unit was tested and transported to Harewood for installation and commissioning.

SOLUTIONS

This was one of series of similar refurbishments throughout the Orion network. Although Connetics brought considerable experience to the project, there was always going to be a degree of design refinement and adaptation along the way. In this case the location of the Tap Changer control box had to be revised. Connetics presented design solutions which allowed the project to achieve full effectiveness and maintain completion schedules.

RESULTS

The installation of the new Tap Changer during a scheduled maintenance project has extended the nominal life of the transformer. Throughout the project Connetics ensured Orion remained fully informed of any design issues, and key Orion personnel were included in team updates and site inspections.

On the strength of the experience gained from this project, Connetics has been able to develop proposals for undertaking half-life refurbishment in situ, which has the potential to offer significant advantages in terms of flexibility within asset management programmes.

"Connetics was able to offer a combination of electrical design services, experienced workshop staff and a locally based transformer workshop facility. All of these contributed to the successful completion of the project."

Nic Wong
Orion New Zealand Limited