

New Zealand Inter Island HVDC Pole 3 Project

Project: Installation works for HVDC Converter Station (Benmore)

Client: Siemens (NZ) Ltd

Location: Benmore Substation

Contract value: TBC

DESCRIPTION

This project replaces the existing Pole 1 with the new Pole 3 at Benmore Substation, comprising of state-of-the-art thyristor valve converter equipment. It will increase capacity of the high voltage direct current (HVDC) inter-island link that connects Haywards substation in the North Island and Benmore substation in the South Island.

SCOPE

Electrix were awarded the electrical installation contract in February 2011. Construction consisted of the installation of equipment within the 220 kV switchyards and a new HVDC Converter Station. This involved 220kV bus extension by string bus over the tail race between two switchyards, 3 new 80MVar filter banks, four single phase 271MVA converter transformers, installation of 17 tonnes thyristor stacks suspended from the ceiling of the 19m high valve hall, HVDC switchyard including 34 tonne smoothing reactor, new control systems (inc. 102 new control and protection panels), 11 kV switchgear, AC and DC auxiliary supply for Pole 3 and complete replacement of 110V DC battery banks at Pole 2.

Cable installation and termination was a large part of the work with over 129,000 metres of cable run. Earthing of all new equipment and buildings also took place. Electrix also completed the commissioning of the new 220kV bus-zone, 11kV switchgear and AC/DC supplies.

Electrix was among 60 contractors on site working in extreme ranges of temperature from -10 in winters up to 45 degrees Celsius in the height of summer. This involved coming up with unique ideas to enable works to be carried out including heating cables, weather shelters, regular breaks and plenty of ice.

VALUE TO CLIENT

HVDC Pole 1 had reached the end of its commercial life and is being replaced by the new Pole 3. Once work is completed it will increase the capacity of the HVDC link between the North and South islands to 1200 MW. This link is critical for enabling renewable generation to supply the north island and for supporting the south island demand in dry years.

