

> Pole 3 adds to its trophy cabinet

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Siemens' impressive Pole 3 HVDC project has collected another award, this time winning the Energy and Resources category at the NZ Engineering Excellence Awards.

Earlier, in August, Pole 3 was named Energy Project of the Year at the annual Deloitte Energy Excellence Awards in Auckland. In the same week, the project also won gold at the ACENZ civil engineering awards.



This latest award recognised the Pole 3 HVDC upgrade, which required the construction of 'earthquake-proof' bases at the new converter stations at Benmore and Haywards. The HVDC link is a vital piece of New Zealand's infrastructure that required a significant capacity and technology upgrade to meet growth and reliability needs.

Built for Transpower, the DC power links the North and South Islands of New Zealand. At the commencement of the project in 2009, the Minister of Infrastructure, Gerry Brownlee, described the project "as the most important piece of infrastructure to be built in New Zealand in the next 10 years".

The upgrade has nearly doubled the transfer capacity of the previously aged system to 1200 MW.

The project had many challenges for Siemens and its contractor Aurecon, due mainly to its location. Situated in hilly terrain only 200m from the main Wellington Fault Line and partly on a previously filled gully that could mobilise under seismic shaking, the Haywards site posed particular seismic and geotechnical design challenges.

Transpower required the converter stations housing the sensitive valves, transformers and controls to continue in operation after a 500-year return period earthquake and be capable of being rapidly returned to service after a massive 2,500 year event (in comparison, it is thought the 2011 Japanese earthquake represented a 1:1000 year event).

In order to achieve this, and provide seismic diversity from the old Pole 2 link, the converter stations are base-isolated – a world first – to protect the sensitive equipment.

Siemens CEO NZ Paul Ravlich said jokingly that Transpower may need to consider amending its instructions to staff, that in the event of an earthquake instead of evacuating the premises to go into the valve hall building as it is the safest earthquake-resistant structure in NZ!

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