

## **ELECTRICITY COMMISSION INTENDS TO APPROVE HVDC GRID UPGRADE PROPOSAL**

1. On 31 July 2008, the Electricity Commission gave notice that it intends to approve Transpower's HVDC grid upgrade proposal<sup>1</sup> (**the proposal**).

### **The proposal**

2. The proposal involves replacing the existing Pole 1 of the HVDC inter-island link with a new pole that will provide a 1000 MW link capacity between the South and North Islands from 2012, and 1200 MW capacity for 2014. The proposal has an estimated cost of \$672 million.
3. The proposal does not include replacing the HVDC transmission line from Benmore to Haywards, nor the submarine cables which cross Cook Strait.
4. In December 2007, Transpower decommissioned half of Pole 1, with the remaining half pole only available for limited operation during peak demand periods in 2008. For subsequent years, the use of Pole 1 is to be determined on an annual basis. The capacity of the HVDC inter-island link with only Pole 2 operating is currently 700 MW. With Pole 1 operating on a half pole basis, the total capacity of the link is currently 970MW.

### **Criteria for approval**

5. Transpower submitted the proposal as an "economic investment", as defined in the Electricity Governance Rules 2003. Under the Rules, the Commission intends to approve the proposal because the Commission is satisfied that Transpower has:
  - (a) applied the "grid investment test" (as defined in the Rules) reasonably; and
  - (b) has followed the agreed consultation process.<sup>2</sup>

### **Drivers in favour of the proposal**

6. In the Commission's view, there are four main drivers in favour of the proposal:
  - (a) there is expected to be a growing need for peaking plant in the North Island. South Island hydro plant, with its excess peak capacity, is well suited to this task. Investment in the HVDC link will enable existing South Island hydro plant

---

<sup>1</sup> Transpower's summary of the proposal works is attached.

<sup>2</sup> Rule 14.4 of the Electricity Governance Rules.

to better contribute to peak demand in the North Island, deferring the need for new peaking plant to be built;

- (b) an increase in the HVDC link capacity enables greater flexibility in the scheduling of generation in both islands to better manage the risk of low hydro flows;
  - (c) continued investment in North Island wind generation will lead to the need for more 'firming' generation capacity to compensate for the intermittent nature of wind generation. An increase in the HVDC link capacity will enable South Island hydro plant to better contribute to the firming of North Island wind generation; and
  - (d) by increasing the transfer voltage, transmission losses over the HVDC link are reduced.
7. In addition, Transpower has advised that it will consider including in the works a number of frequency and power control features which could benefit the wholesale electricity market. The Commission encourages Transpower to fully explore these opportunities. The Commission considers that these features are important as they will support the development of a national reserves market and better integration of wind generation into the electricity system.

### **Opportunity to comment on the proposal**

8. Interested parties have until 14 August 2008 to request a public conference to provide a final opportunity to comment on the proposal. If a public conference is requested, it is likely to be held on 22 September 2008
9. A final decision on the proposal by the Electricity Commission is expected by 24 October 2008.

Documents relating to the proposal are available on the Electricity Commission's website, <http://electricitycommission.govt.nz>.

**Stage 1:**

- Procuring, constructing and commissioning new HVDC converter station facilities including control systems at Haywards and Benmore that:
  - have nominal continuous ratings of around 700 MW at 350 kV; and
  - have AC filters suitable for bipole operation of around 1200 MW.
- Procuring and constructing seismic strengthening works for existing and new switchyards at Haywards and Benmore.
- Procuring, constructing and commissioning extended and new 220 kV switchyards to facilitate the connection of the new HVDC converter station facilities and (in preparation for Stage 2) new dynamic reactive power compensation facilities at Haywards.
- Procuring, constructing and commissioning extended 220 kV switchyards to facilitate the connection of the new HVDC converter station facilities at Benmore.
- Decommissioning and removal of existing HVDC control system facilities at Haywards and Benmore including:
  - Pole 2 control systems and valve base electronics; and
  - bipole control systems.
- Procuring, constructing and commissioning new HVDC control system facilities at Haywards and Benmore including:
  - Pole 2 control systems and valve base electronics;
  - bipole control systems; and
  - SCADA interfaces at the converter stations.
- Procuring, constructing and commissioning communication facilities to enable efficient operation of the bipole link.
- Procuring, constructing and commissioning new unit connection transformers for the existing C7, C8, C9 and C10 synchronous condensers at Haywards.
- HVDC transmission line works and activities required to facilitate the above.

**Stage 2:**

- Procuring, constructing and commissioning new dynamic reactive power compensation facilities at Haywards to enable bipole operation of at least 1200 MW.

**Common to Stage 1 and Stage 2:**

- Obtaining approvals under the Resource Management Act (including designations and consents) and easements and property purchases for the above.
- Any additional minor works and activities required to facilitate the above.