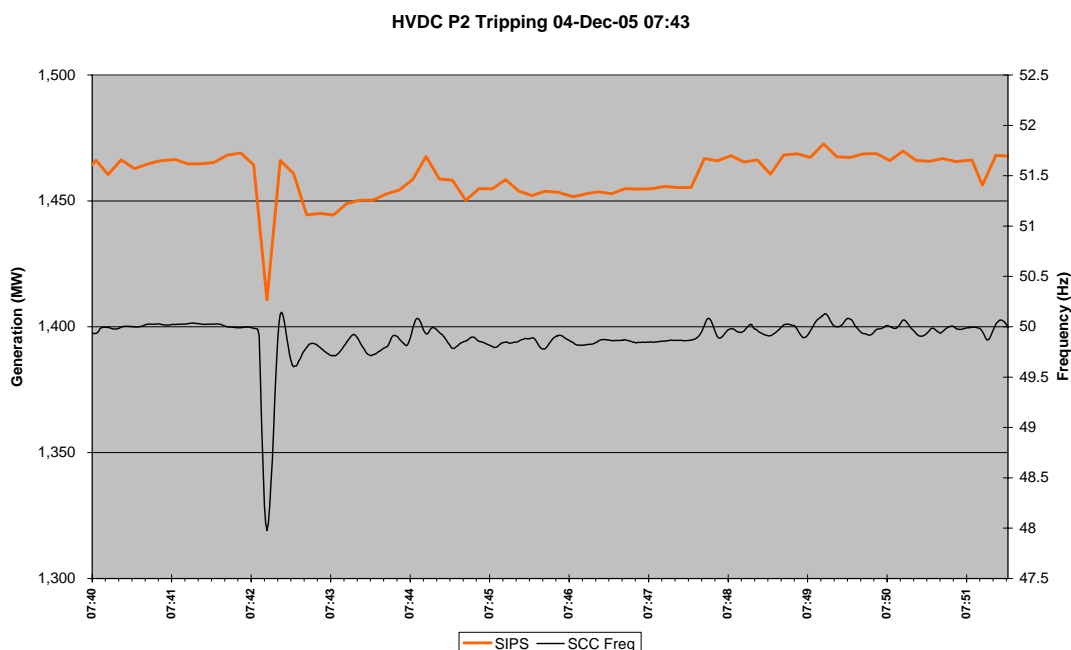


South Island Frequency Excursion on December 4, 2005

This is an initial summary report on the above event. It is provided for the information of participants only.

Event description

On 4 December 2005 at 07:43, HVDC pole 2 tripped while transferring around 173 MW south. HVDC pole 1 was not in operation. The frequency in the South Island fell to around 47.9 Hz before recovering.



Impact of the event

The total load on the South Island power system immediately dropped by about 60 MW when the South Island frequency dropped to 48 Hz. Most of this load returned when the frequency recovered but it seems total demand on the South Island power system was reduced by around 20 MW for a number of minutes afterwards.

The System Operator aims to procure sufficient instantaneous reserves to ensure that power system frequency remains above 48 Hz (the under frequency standard set out in Schedule C6 of Part C) following a contingent event such as the loss of a single HVDC pole. The frequency dropped below the under frequency standard for this event.

Implications and Actions

During the event, the South Island frequency dropped to a lower level than was expected for this contingent event. This was due in part to some instantaneous reserves providers not providing the full amount of instantaneous reserves for which they were dispatched..

Following the event, the System Operator

- reduced the maximum amount of reserves that the non-performing service providers are permitted to offer. The reduced amounts were consistent with performance observed during the event on 4 December 2005.
- Implemented changes to RMT to increase the under frequency standard in the South Island to 48.25 Hz from 48 Hz.

The System Operator is continuing its investigation of the performance of ancillary service providers during this event. The System Operator may take the actions available under the Ancillary Services Provider Contracts and the rules in respect of any non-performance by service providers.

Review of power system performance

As a consequence of this event the System Operator will carry out a review of system performance during the 4 December 2005 under frequency excursion during 2006. The review will include investigation of the dynamic performance of generating units and other plant, adequacy of existing ancillary service reserve definitions (especially fast instantaneous reserve) given the load and system inertia of the South Island. Such a review is timely given proposals to install intermittent (wind) generation in the South Island and the option within the rules to raise the South Island under-frequency limit from 45Hz to 47Hz.

It is expected that the review will be led by an independent expert in power system dynamics. The scope of the review will be discussed with participants and their contribution and co-operation sought as part of the study. The results of the study will be shared with the Electricity Commission's Wind Investigation Project.

Feedback on the event

Any participant observations on performance of assets, changes in load, etc during the event can be provided to: the System Operator mailbox (system.operator@transpower.co.nz).

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System Operations

22 December 2005