



## Whirinaki Dispatch Query – 18 February 2010

### Background

On 18 February 2010, the System Operator dispatched the Whirinaki Power Station (WHI) between trading periods 24-34 (11:43-16:34 hours).

The System Operator has been asked how it dispatched WHI on the 18th February 2010.

This letter covers how and why WHI was dispatched, and displays some of the data seen by the System Operator at the time.

### Sequence of Events

On the morning of 18th February 2010, there were several trippings of Pole 1. These did not change the total HVDC transfer. However, shortly after 10:00 Pole 1 was re-offered on 6 pulse operation with a maximum of 100MW until 14:00

At 11:11, Pole 1 tripped and was subsequently offered out until 16:00. There was no change to total HVDC transfer as a result.

From the 11:30 SDPQ below is the forecast load, forecast DC transfer and offered NI generation.

Trading Period	Load Forecast	Scheduled DC	Offered NI Generation
11:30	3428	408	3452
12:00	3483	354	3419
12:30	3478	358	3420
13:00	3471	318	3432
13:30	3449	327	3444
14:00	3433	277	3418
14:30	3414	277	3489
15:00	3435	280	3452

This shows that offered NI generation alone, without the HVDC transfer, would not be enough to meet the forecast load plus risk.

At 11:35, Pole 2 of the HVDC was also offered out until 16:00 due to a fire near the lines causing arcing.

At that point the HVDC transfer was 420MW, and needed to ramp down to zero.

At 11:40 Pole 2 of the HVDC tripped and restarted on reduced voltage. The NI frequency dropped to 49.26Hz. The frequency excursion notice is attached in Appendix A.



With the HVDC scheduled to ramp down to zero shortly, it became apparent that all offered NI generation would need to be dispatched.

While the HVDC was ramping down either demand needed to be restrained whilst WHI was ramping up or the plant needed to be brought on early. The System Operator decided that bringing on WHI early was the best course of action.

Consequently, Whirinaki was dispatched by the System Operator using discretion at 11:43 hours.

At 11:49, a grid emergency was declared for all of the North Island, participants were requested to increase energy and transmission offers. The GEN notice is attached in appendix A.

At 11:51 with insufficient energy offers the System Operator managed the grid emergency by zeroing the NI Reserve Adjustment Factors (RAFs). This meant all generation previously dispatched for reserves was now available as energy.

At 11:58, North Island Regional Centres were instructed to initiate a 5% load reduction within their regions. This meant a 5% load reduction across the entire North Island was instructed.

At 12:02 Pole 2 of the HVDC was stopped.

The Grid Emergency ended around 16:00 hours after Pole 2 of the HVDC was offered back in from 15:30.

In such circumstances the System Operator will dispatch all offered generation before reducing security through not having any dispatched reserves.

## Conclusion

Based on the information available to the co-ordinator, the System Operator believes that the actions taken to dispatch Whirinaki were reasonable and appropriate in the circumstances.



Appendix A – Notices

### Excursion Notice

To:	Excursion NZ Participants	From:	The System Operator
Sent:	18-feb-2010 12:16	Telephone:	0800 488 500
Ref:	181691028	Facsimile:	07 843 7176

Revision of:

<b>Excursion:</b>	Frequency
<b>Time:</b>	18-feb-2010 11:40
<b>Location:</b>	National
<b>Level:</b>	49.26
<b>Comments:</b>	HVDC Pole 2 emergency shut down. NI 49.26 Hz, SI 50.74Hz

Frequency Excursion notices are only issued if the deviation is out side 49.5 and 50.5 Hz.

### Grid Emergency Notice

To:	GEN NZ Participants	From:	The System Operator
Sent:	18-feb-2010 11:57	Telephone:	0800 488 500
Ref:	181680359	Facsimile:	07 843 7176

Revision of:

<b>Cause:</b>	Unplanned outage HVDC Pole 2, HVDC Pole 1
<b>Region or GXP affected:</b>	North Island
<b>Starting:</b>	18-feb-2010 11:49
<b>Ending:</b>	18-feb-2010 16:00

<b>Participants are Requested to:</b>	<b>At:</b>
Increase Energy Offers	North Island
Increase Transmission offers	North Island

**Consequences if insufficient responses by participants:**  
SO will manage the power system on reduced security, not manage demand.

This formal notice is issued in accordance with the EGR's - Part C Section C3 Technical Code B - Emergencies.