



Whirinaki Dispatch Query – 10 September 2009

Background

On 10 September 2009, the System Operator dispatched the Whirinaki Power Station (WHI) during trading periods 15, 16, 17 & 18 (07:00-08:59).

The following questions have been asked of the System Operator in relation to its dispatch of WHI on 10 September 2009.

1. The reasons for dispatching Whirinaki;
2. Data that supports the decision to dispatch Whirinaki;
3. Why there was no Grid Emergency Notice sent out if this was a security issue;
4. Why Pole 1 was not brought on.

Sequence of Events

At approximately 05:30 on 10 September 2009, SPL tripped. This plant was scheduled to generate between 150MW and 260 MW as tabled below.

	Trading Period				
	06:30	07:00	07:30	08:00	08:30
Scheduled Generation (MW)	150	210	260	260	260

Following the tripping, the System Operator re-assessed the expected system conditions over the morning peak.

This assessment showed that the load forecast had been tracking lower than the actual system load over the course of the morning. The System Operator subsequently adjusted the load forecast to reflect the actual load trend and to account for the expected peak load during a trading period.

A review of the forward looking schedules then indicated that meeting the peak load during the 07:30 and 08:00 trading periods would leave little residual generation and there was potential for a generation shortfall to occur over the morning peak.

This information above indicated to the System Operator that in order to meet the morning peak and maintain system security it would need to be dispatch generation plant which have slow ramping characteristics (relative to other types of generation).

The ramping characteristics of this plant were slower than the ramp of the expected demand. It was therefore clear that either demand needed to be restrained to match the plant or that the plant needed to be brought on ahead of the demand. The System Operator considered this to be a system security situation and used discretion to bring the plant with slow ramping characteristics on ahead of schedule.

Consequently, Whirinaki, Huntly Unit 6, and Southdown Unit 5 were all dispatched by the System Operator using discretion around 07:00 hours that morning.

- Huntly Unit 6 was dispatched for 20MW and dispatched back to 0 at 8:21.
- Southdown Unit 5 was dispatched for 30MW and dispatched back to 0 at 8:55.
- Whirinaki was dispatched up to 150MW and back to 0 at 08:59.

The System Operator's decision to take this action also considered the following:

1. After the 05:30 SPL tripping, Otahuhu generation offers were increased, but only from 08:00 onwards.
2. The load forecast is a half hour average of the expected load profile. Instantaneous load at any point during the half hour can be up to 70MW higher than the half-hourly average. When the residual generation is low this could be a significant difference.
3. The calculation of residual generation assumes current levels of wind generation.
4. Due to these uncertainties of actual peak load and available wind generation, a cautious view is applied by the System Operator, particularly during periods of low residual generation.
5. Sufficient generation was offered to meet peak demand. However, the generation offers submitted from plant with slow ramping characteristics needed to be dispatched ahead of the load to avoid the generation becoming ramp-rate constrained as the load ramped up into the morning peak. Had the generation become ramp-rate constrained, the dispatch solution would have been infeasible.

In circumstances where the dispatch solution becomes infeasible the options available to the System Operator are to reduce the reserve adjustment factors and/or start Pole 1. Both of these actions happen under a Grid Emergency. It should be noted that it is not the policy of the System Operator to dispatch the system in such a way as to give rise to a Grid Emergency. The System Operator will use all legitimate means available to it to avoid this situation.

Grid Emergency and Pole 1 Use

The Grid Owner's offer for Pole 1, as at 10 September 2009, only allowed Pole 1 to be operated under the following circumstances:

- A Grid Emergency declared by the System Operator, or
- For test purposes

As a result of the actions undertaken by the System Operator, including the decision to exercise discretion to dispatch plant with slowing ramping characteristics ahead of the morning peak, a grid emergency situation did not eventuate. There was no Pole 1 test planned for that day.

Consequently Pole 1 was not started by the System Operator on 10 September 2009.

Please note that the Grid Owner's offer for Pole 1 changed from 11 September 2009.

Conclusion

For either natural or pricing reasons, the demand during the morning of 10 September did not continue to increase as expected. Accordingly, the dispatch of plant with slow ramping characteristics appears to have been unnecessary in retrospect.

However, based on the information available to the co-ordinator at the time the decision was made to dispatch Whirinaki, Huntly Unit 6 and Southdown Unit 5, the System Operator believes that its actions on 10 September were reasonable and prudent in the circumstance.

Following this event, the System Operator will review the manner in which its co-ordination staff take into account the extent of wind generation expected to be available in real time when determining the need, if any, to exercise discretion to bring on generation ahead of schedule. This is with a view to reducing, if appropriate, the degree of conservatism currently applied when exercising that discretion.

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