



4 June 2008

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Dear Ian,

## **Interrelationships Between Gas Contingency Management Arrangements and Electricity Generation**

### Background

On 5 June 2007, an unplanned outage was triggered at the Pohokura gas field. This resulted in a Phase 2 declaration under the National Gas Outage Contingency Plan (“NGOCP”) being called. Major users were requested to reduce load to preserve line pack. This request would effectively have resulted in major users shutting down thermal generation stations, without a clear picture as to the likely consequential effects on the electricity market.

The Pohokura Gas contingency highlighted the potential value of better co-ordination between the gas and electricity industries in minimising the chances of unfavourable outcomes in both markets. With an existing Gas Industry Co (GIC) work-stream looking at contingency event processes, industry participants identified the opportunity to feed into this process and use their knowledge to better understand the linkages between these two industries under such circumstances.

An industry working group (the “Group”) was formed to better understand the interdependencies between the gas and electricity sectors and included representatives from a number of parties in both the gas and electricity supply chains, as well as some regulatory representation.

The Group discussed a range of indicative gas market contingency scenarios and considered the flow-on impact on the electricity market. Gas pipeline owners volunteered to carry out the initial analysis. This involved simulating the possible effects of a Maui gas outage on the gas industry, given varying levels of gas dependency and participants’ likely compliance with existing curtailment instructions. This analysis was then expanded to determine the potential impacts on the electricity market.

### Key Findings of the Analysis

The analysis undertaken by the Group demonstrated what will happen if action is taken independently by the gas and electricity sector under existing arrangements to mitigate the effects of gas outages.

A key finding was that early stand-down of gas-fired generation (during phase 1) may facilitate an orderly reconfiguration of the electricity generation stack to avoid Transpower’s security criteria being breached.

It was also observed that, under some gas contingency scenarios, rapid curtailment of thermal generation would be unavoidable. Under high load scenarios with a high proportion of thermal generation, a breach of the Transpower security criteria would be likely.

The analysis has highlighted the close linkages between the gas and electricity systems, especially on days where there is high CCGT generation.

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Given the results of these findings, the Group considers further work should be completed that provides more certainty around the following areas:

- The need for more formalised industry arrangements that provide clear direction and more certainty for industry participants in a contingency event;
- Communications between the gas and electricity system operators need to be clarified and, where necessary, enhanced to enable the electricity system operator to take appropriate corrective action and source alternative means of delivering capacity demands.

There is a clear need to minimise the likelihood of brown/blackouts in the electricity market, and gas is a key component of that equation. The work of the GIC - in particular the proposal to undertake further work on the make-up of curtailment arrangements - must take explicit account of the important role of gas in electricity generation. The work must also be forward-looking insofar as it needs to take account of structural changes in the gas industry resulting from the decline in output of the Maui field and the consequent loss of flexibility in rates of gas delivery.

The Group sees value in the results of the analysis being distributed, and recommends that it be considered as part of any future workshops convened by GIC to develop gas critical contingency management arrangements. In particular, we believe the analysis undertaken by the Group could add value to GIC's development of future curtailment bands and contingency pricing arrangements. Representatives of the Group would be happy to discuss the findings further with GIC as part of this process.

We also ask that GIC consider publishing the results of the analysis on its website. This will enable the wider industry to gain an understanding of the importance of gas contingency management which this work has highlighted.

Yours sincerely



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**Manager, Market Services**

CC:

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