

# Gas supply disruptions and their effect on the power system

8 November 2012

## **1 The SRC has been following the industry's response to the 2011 Maui pipeline outage**

- 1.1 The SRC has received presentations from the Gas Industry Company (GIC) on the review of the October 2011 Maui pipeline outage at its December 2011 and August 2012 meetings. The outage affected the thermal generation at Huntly,<sup>1</sup> Southdown, Otahuhu and Te Rapa, but the power system was able to continue to operate in a normal manner.
- 1.2 In its 28 May 2012 advice to the Authority Board on security of supply issues, the SRC identified that natural gas supply risks may not be well understood by all electricity industry participants. The secretariat was asked to work together with relevant SRC members to establish a forum to discuss events around the Maui pipeline outage to ensure there is a wider understanding of what occurred and how the industry did (and should) respond, and to report to the SRC on the results of that forum. The forum was put 'on hold' pending the outcome of the MED (now MBIE) report into the outage.<sup>2</sup>

## **2 The Maui outage has also influenced the review of the emergency management policy**

- 2.1 The emergency management policy (EMP) sets out the steps the system operator will take, and encourage participants to take, at various stages during an extended supply emergency. The EMP is incorporated into the Code by reference, and responsibility for its development was transferred from the Electricity Commission to the system operator under the Electricity Industry Act 2010.
- 2.2 The Code requires the system operator to have updated the EMP by 1 November 2012 to include the steps that would be taken in anticipation of and during gas transmission or supply failure. The system operator submitted a revised EMP to the Authority for approval on 29 October, following consultation with the industry. A verbal update on the status of the EMP review will be provided at the SRC meeting.
- 2.3 The revised EMP has been informed by the Maui outage and gas contingency scenarios developed for the system operator for the Centre for Advanced Engineering (CAENZ). These scenarios included a major failure on the Maui pipeline.<sup>3</sup>
- 2.4 As the EMP follows a prescribed consultation process, the SRC is not being asked to provide its advice on the details of the proposed EMP. The system operator's review of the EMP has however identified a couple of broader issues where the advice of the SRC is sought.

## **3 Requested Action**

- 3.1 The SRC's advice is requested on the following questions:

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<sup>1</sup> Huntly units 1 – 4 are able to operate on gas and coal, and transitioned to coal-fired operation during the outage.

<sup>2</sup> This report was published on 18 October 2012.

<sup>3</sup> This scenario was discussed at the 29 August meeting (see paragraph 41 of the draft minutes of meeting). The CAENZ report is available from the system operator website at <http://www.systemoperator.co.nz/emergency-management>.

- a) should the electricity sector seek improved communication and coordination of outage planning with the gas sector (to help avoid the con-current scheduling of gas and electricity outages that might compromise security of supply)?; and
- b) in the event there is a gas transmission or supply disruption that does not create a gas critical contingency but does lead to some gas supply scarcity, is it reasonable to assume the gas market is flexible enough for electricity generation to compete for the available gas (i.e. generators will be able to obtain the gas they require – probably at a higher cost – and so continue to contribute to security of supply)?

#### **4 Future gas and electricity sector coordination**

- 4.1 From talking to the GIC, it does not appear that the Electricity and Gas Working Group that is mentioned in the system operator’s presentation will have met since around 2007/08.<sup>4</sup> Accordingly, clear terms of reference or membership of such a group is unlikely to exist (for example, the Authority does not appear to hold any legacy records from any involvement the Commission may have had in this group).
- 4.2 If the SRC considers there to be merit in re-establishing such a group, the Authority could discuss the possibility with the GIC and system operator. Terms of reference, etc. could then be developed if suitable arrangements for the operation and activities of the group can be identified and agreed.

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<sup>4</sup> The group was established during the development of the gas critical contingency regulations.

# Gas Supply Disruptions and the Power System

SRC Briefing

8<sup>th</sup> November, 2012



SYSTEM OPERATOR

# Background

- Gas is the primary fuel for a significant portion of North Island generation capacity
- Gas supply disruptions can therefore affect power system operation in real time, and also energy security
- The 2010 Code included an obligation for the SO to specifically reference a gas supply disruption in the EMP by 31<sup>st</sup> October 2012



# Maui pipeline outage

- Since the Code was written, a significant gas disruption occurred in October 2011 that lasted several days
- This event provided both the electricity and gas industry with useful experience
- A key learning for the SO is that an event of this kind can be managed using existing systems and processes



# Gas regulation review

- Following the October 2011 gas outage, the GIC\* initiated a review of the 2008 Gas Regulations
- This review began earlier this year, and is expected to complete by first Qtr 2013
- The SO will consider the final outcome of this review, and assess whether there is any effect on the current policy in the EMP
- In the meantime, the SO has updated the EMP as per its requirements under Part 7 of the Code

\* Gas Industry Company



# The EMP update

In summary, the SO policy is to:

- Ensure all market participants are informed of the disruption via a Customer Advice Notice
- Maintain normal operational and market processes throughout the disruption
- Monitor and communicate energy security status via the Hydro Risk Curves (HRCs)



# Scenarios

- To assist stakeholders to understand the effects of a gas supply disruption on the power system, the SO has published various, hypothetical gas disruption scenarios to accompany its EMP update
- These include both high level and detailed operational impact assessments
- The power system is constantly changing, so the SO intends to review these scenarios from time to time



# Planning, information & risk

- The scenarios all assume full availability of Poles 2 & 3
- If the bi-pole were on a maintenance outage with a long return to service time, there may be a more significant impact on the power system for the first day or so
- SO operations planners do consider gas supply risk in determining the viability of bi-pole outages, however, **there is no long notice system they can refer to that flags planned gas transmission and supplier outages from the gas side**

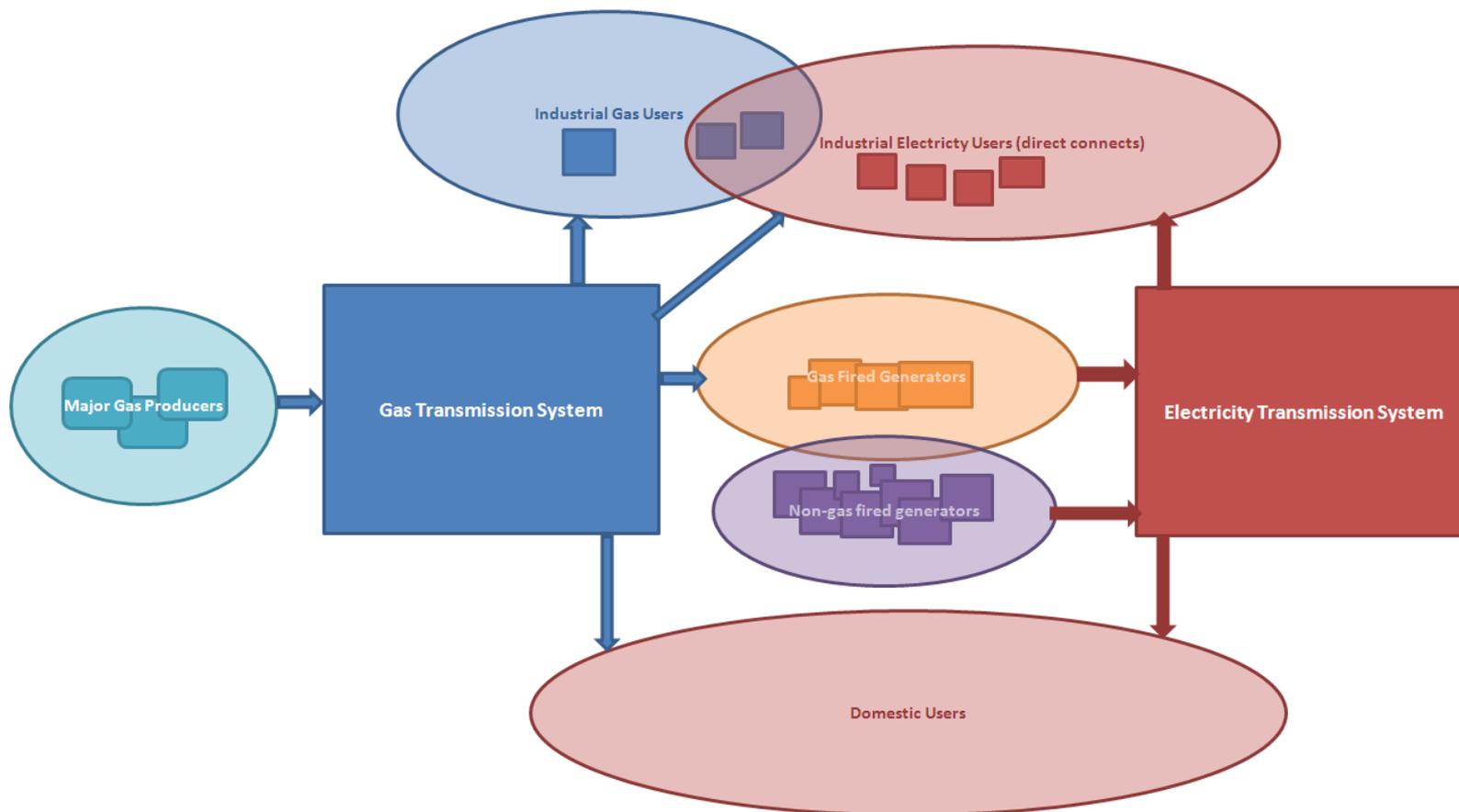


# Partial gas supply disruption

- It is assumed that partial, extended gas supply disruptions can occur
- It is also assumed that such disruptions do not necessarily lead to Gas Critical Contingencies, but could still lead to gas scarcity
- **Is it reasonable to assume a flexible gas market where electricity production can compete for available gas?**



# Overview of E&G Supply



# Maintain E&G awareness

- SO proposes that greater use is made of the Electricity & Gas Working Group\*
- Should include Transpower, Vector, EA, GIC and Major gas users & producers
- Group Objectives:
  - Increasing electricity/gas industry awareness
  - Consider long notice gas information systems and other initiatives
  - Make recommendations and flag issues

\* This group was established during the development of gas critical contingency management regulations, but has not been active for several years.



# Summary

- EMP updated for Gas Critical Contingencies
- GIC review of gas regulations underway
- Some questions around gas outage planning, and consequences of partial gas supply disruptions
- Propose greater emphasis and use of the existing E&G Working Group



# Questions?

