Meeting Date: 24 October 2018

COORDINATION OF CRITICAL GAS CONTINGENCIES WITH THE ELECTRICITY SYSTEM OPERATOR

SECURITY AND RELIABILITY COUNCIL

After receiving presentations from Woodward Partners, First Gas and the Gas Industry Company on the management of gas supply and transmission, the SRC sought Transpower's perspective (in its capacity as the electricity system operator) on the coordination of critical contingencies of the natural gas network. Transpower's view is that the management of critical gas contingencies is generally good and improving, though some potential improvements to notification processes were identified.

Coordination of critical gas contingencies with the electricity system operator

The system operator has responded to an SRC request for information about coordination of critical gas contingencies

At its earlier meetings in 2018, the SRC received presentations from:

- John Kidd of Woodward Partners about future gas supply
- First Gas about the management of gas transmission network security and reliability
- The Gas Industry Company (GIC) about the management of critical gas contingencies.

In response to the GIC's presentation, the SRC asked to hear from Transpower (in its capacity as the electricity system operator) about "its perspective on management of critical gas contingencies."

The SRC is seeking a good understanding of the full arrangements for managing the impact of gas supply issues on electricity consumers. The SRC's request was not motivated by any specific concern about the management or coordination of critical contingencies.

Transpower have prepared the attached presentation (Appendix A). Staff from the system operator will attend the SRC meeting to briefly present the material and answer any questions from the SRC.

Questions for the SRC to consider

The SRC may wish to consider the following questions.

Q1. What further information, if any, does the SRC wish to have provided to it by the secretariat?

Q2. What advice, if any, does the SRC wish to provide to the Authority?

Attachments

The following item is included as an attachment to this paper:

- *Impact of gas critical contingencies on electricity supply* by Transpower (Appendix A)

Appendix A: Impact of gas critical contingencies on electricity supply

IMPACT OF GAS CRITICAL CONTINGENCIES ON ELECTRICITY SUPPLY

PRESENTATION TO THE SECURITY AND RELIABILITY COUNCIL

OCTOBER 2018

TRANSPOWER

OVERVIEW

- In our role as the system operator, Transpower has real time and planning time processes to enable the management of an energy supply shortage
- These are well-defined processes, including sending out demand allocation notices in real time, grid emergency notices, rolling outage plans, market scheduling and security of supply processes
- A gas supply issue is one potential means by which we end up in a shortage situation
- We therefore have experience, skills and ability to handle a gas supply situation
- Communication in the case of critical gas contingencies is good and improving
- Earlier notice of a potential problem (prior to any indication of the criticality) would be highly beneficial
    - Entering information in POCP would provide visibility to the industry
    - Communication from CCO, or other parties aware of gas issues, with Transpower as system operator would allow the planning to start earlier when there are more alternative options available

GAS CRITICAL CONTINGENCIES CAN HAVE TWO POSSIBLE IMPACTS TO ELECTRICITY SUPPLY

1. **Short-term capacity constraints** caused by restrictions on gas supply curtailing thermal generation (can have electricity supply and system security implications)
    - Managed in real-time with grid emergency process which allows generators to re-offer close to real time
    - Process and communications are well-established and we are working with the gas industry to improve communications generally
2. **Long-term energy constraints** resulting in reduction of electricity availability particularly in a dry sequence
    - Managed through the Security of Supply function

SHORT-TERM GCC MANAGEMENT IS REGULATED AND WELL UNDERSTOOD

- If a Gas Critical Contingency (GCC) is declared (or a potential GCC is imminent) the Critical Contingency Operator contacts Transpower as system operator for assessment of impact on electricity supply and the system operator's ability to maintain system security.
- Transpower's advice may alter the CCO's curtailment plan, leaving thermal electricity generation connected to the gas network in favour of other consumers.
- The CCO's discretion in selecting to avoid curtailing electricity generation during a GCC is vital to preserving electricity supply security (such as permitting Huntly to use sufficient gas to allow them to switch fuel to coal). The discretion is dependent on the magnitude of situation.
- We have comfort in the communication and the process when a GCC is declared.
- The process is tested annually with an operational simulation. The exercise in May this year, simulating a major landslip on the First Gas Maui pipeline in north Taranaki, went well with the system operator and other stakeholders informed and notified when action was required.

NOTIFICATION PRIOR TO A GCC

This is the timeframe in which we seek more information and better communication.

Recent examples:

Short-term notice of Genesis reduction in gas use (short production outage from Maui)

- We had not been informed by the gas industry of a shortage and were not aware of an issue until Genesis informed us of a problem with gas and they were pulling back
- Earlier notice (ideally from a central gas industry body such as the CCO) would have enabled us to:
  - provide information on the implications on the power system
  - examine more options to cover the loss of Genesis' generation

Maui pipeline crease

- This is being managed well with good information provided soon after First Gas were aware of the problem
- The process is informal at this stage, we will seek to formalise this alert channel
- An industry phone conference was beneficial to allow the self management of gas and to enable planning for event scenarios

THE SECURITY OF SUPPLY PROCESSES MANAGE LONGER-TERM GAS SUPPLY EFFECTS

- Hydro Risk Curves assume full thermal availability. If thermal capacity is reduced due to gas supply issues, this is reflected in the Hydro Risk Curves (risk of hydro shortage is increased as hydro is used to ‘fill the gap’).
- A long-term gas supply issue would be managed in accordance with our Emergency Management Policy provisions for managing demand. These include:
  - Monitoring energy storage vs HRCs
  - Official Conservation Campaigns
  - Rolling Outages.
- We have recently consulted on a proposed change to the HRC input assumptions to obtain thermal fuel supply information as a ‘cross-check’ to the HRC thermal fuel consumption assumptions. The objective is to ensure that our estimated fuel burn does not exceed the quantity of fuel available for a given period.
- This process applies regardless of the current hydrological situation, ie it also applies if it’s a dry year

WE ARE IMPROVING COMMUNICATIONS WITH THE GAS INDUSTRY

- Some electricity transmission system outages can impact gas production sites and are notified by the Planned Outage Coordination Process (POCP), more information would be even better
- Currently gas production site outages are not well notified to either the gas industry or the electricity sector
- If Transpower has advice of something happening they can give early consideration to the potential impact, for example by:
  - undertaking system security studies and planning scenarios for re-dispatching generation
  - sending warning notices to industry requesting re-offers
- We are in discussions with the GIC and FirstGas to seek opportunities to improve communications between parties for outage and gas contingency management, and security of supply
- We have good relationships with major gas-fired electricity generators, Contact and Genesis, who also advise of their security of supply situations


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