

DWGM EVENT – INTERVENTION – 20 DECEMBER 2017

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DOCUMENT REF: DWGM ER 17/004

DATE: 8 January 2018

Final

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IMPORTANT NOTICE

Purpose

AEMO has prepared this report pursuant to rule 351 of the National Gas Rules, using information available as at 5 January 2018, unless otherwise specified.

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1 Introduction

The Australian Energy Market Operator (AEMO) issued a notice of a threat to system security in the Victorian Declared Wholesale Gas Market (DWGM) for gas day 20 December 2017 during a planned outage of the Brooklyn Compressor Station. All times used in this report are AEST (Market Time), and a chronology of events is included in Appendix A – Chronology.

Rule 351(1)(b) of the National Gas Rules (NGR) requires that AEMO investigate and prepare a report following an event which is or may be a threat to system security. Rule 351 also requires that AEMO assess and advise on:

- the adequacy of the provisions of the NGR relevant to the event or events;
- the appropriateness of actions taken by AEMO in relation to the event or events; and
- the costs incurred by AEMO and registered participants as a consequence of responding to the event or events.

This report is published in accordance with rule 351(2) of the NGR.

2 Background

In July 2017, APA VTS (APA) advised AEMO that it would undertake a full outage of the Brooklyn Compressor Station (BCS) during November 2017. The time frame for this outage moved from November, with APA proposing to take the outage on Tuesday 19 December, for approximately twelve hours between 6.00 am and 6.00 pm with a four hour recall time. The operator of the Laverton North Power Station was also informed of this outage in accordance with their operating agreement.

This outage was required to enable works related to the South West Capacity Expansion Project. The Project will enable increased western flows through the South West Pipeline (SWP), improving transportation capacity for filling Iona underground gas storage (Iona UGS).

The BCS is primarily used to:

- support gas exports into Iona underground gas storage at Port Campbell (Iona UGS);
- assist in balancing system line-pack for efficient operations;
- support system demand in the Brooklyn to Lara Pipeline (BLP), SWP and the Western Transmission System (WTS);
- support GPG at the Laverton North Power Station; and
- maintain pressures above operating limits in the Brooklyn-Corio Pipeline (BCP) and the Brooklyn-Ballan Pipeline on high demand days.

When the BCS is unavailable, net injections at the Iona close proximity points (Iona CPP) are required to meet demand that is supplied from the BLP, SWP and WTS, as well as Laverton North Power Station demand, which is supplied from the BCP. The minimum injections required on any given gas day is variable depending on system demand, this relationship is shown in Figure 1.

On 13 December AEMO advised APA that it was possible that AEMO would not allow this work on 19 December due to high forecast Gas Powered Generation (GPG), and proposed a one day delay.

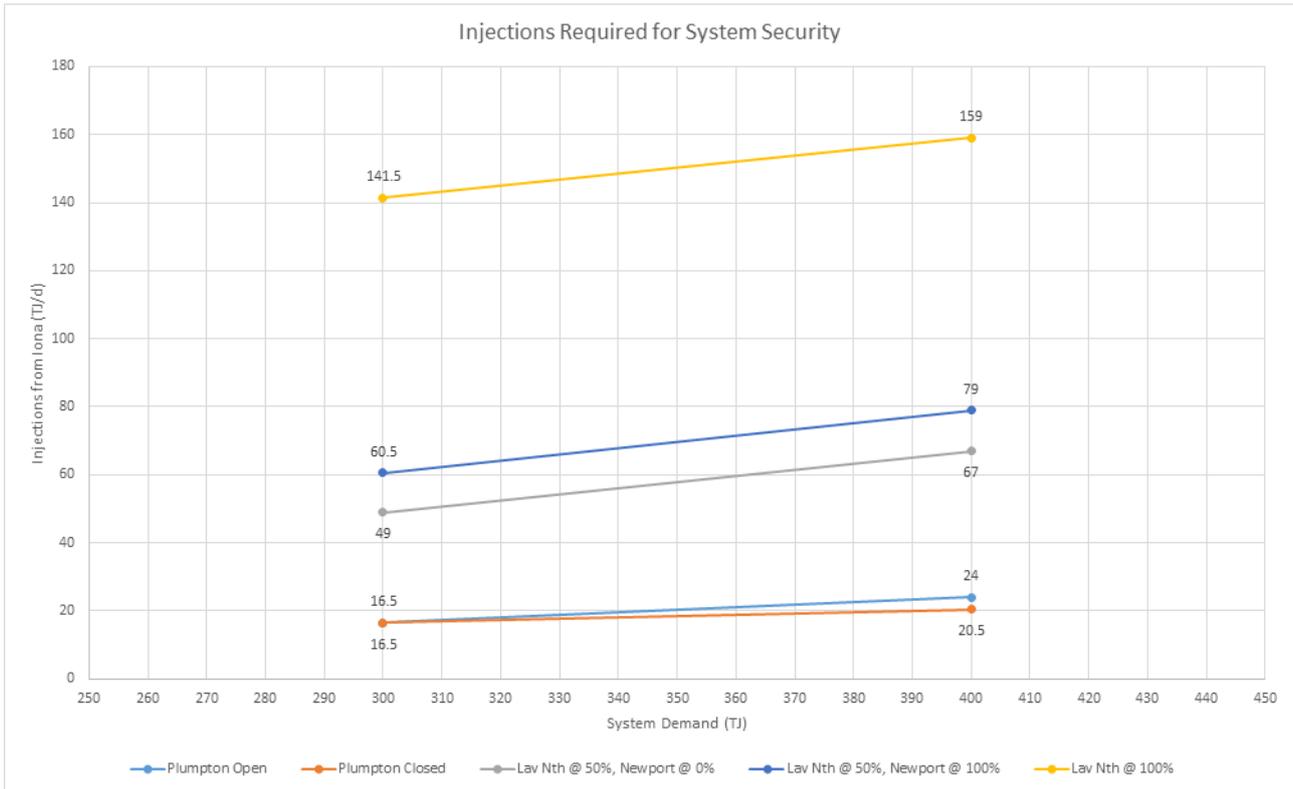


Figure 1: Minimum Port Campbell net injections required to meet system demand on the SWP

On 14 December 2017, AEMO held an industry conference to inform participants of the:

- scope of BCS work and operational impact on the DTS;
- Iona CPP net injections being required to ensure security of supply;
- potential market impact resulting from scheduling out-of-merit-order injections at the Iona CPP and other locations; and
- possibility the work would be delayed if there was high GPG demand forecasted for 19 December.

On 15 December AEMO advised APA the outage would not be permitted to occur on 19 December due to an expectation of high GPG demand to support Victorian electricity demand. AEMO advised that the outage could be taken on 20 December as this day was not expected to have high levels of GPG demand in Victoria, due to the cooler weather forecast.

After close of business on 15 December 2017, APA confirmed they could proceed with the work on 20 December. On 18 December AEMO issued a System Wide Notice (SWN) advising participants of:

- A delay to the BCS outage until 20 December due to the high temperatures forecast on 19 December, which increased the likelihood of high GPG demand, which could limit gas supply from the Port Campbell region for power generation including to South Australia if additional injections into the SWP were required for system security during the BCS outage (as Laverton North Power Station is usually supplied using the BCS);
- Iona CPP withdrawals to be constrained from 10.00 pm on gas day Tuesday 19 December, to ensure sufficient line-pack could be stored in the SWP prior to the outage commencing;
- AEMO would allow controllable withdrawal bids to be scheduled, on the condition that there was sufficient injection bids from Port Campbell to support the withdrawals while still having

sufficient net injections for the level of demand on the day. If insufficient physical injections were scheduled, AEMO would restrict controllable withdrawal bids to be scheduled;

- If pressures within the system were forecast to fall below minimum operating limits, AEMO would indicate to the market that there is a threat to system security and will schedule out-of-merit-order injections, to ensure sufficient supply from this zone in the DTS.

For the 6.00 am schedule on 20 December 2017 AEMO determined that SWP linepack was sufficient to not require out-of-merit-order injections to be scheduled to support system demand on SWP, BLP, and the WTS, with the BCP being supplied by free flowing gas from the Melbourne inner ring main.

Prior to the 10.00 am schedule on 20 December the operator of the Laverton North Power Station informed the AEMO Gas Control Room, in accordance with their operating agreement, of their intention to generate until 6 pm. This GPG demand had not been forecast earlier.

Modelling by AEMO determined this would result in the requirement to schedule net injections from the Iona CPP. AEMO issued a notice of a threat to system security at 9.36 am and scheduled 40 TJ of out-of-merit-order gas in the 10.00 am schedule. The threat to system security was due to:

- A supply and demand imbalance as a result of there being insufficient net injections at Iona CPP to support GPG demand at the Laverton North Power Station, and system demand on SWP, BLP, BCP and the WTS; and
- The supply shortfall was expected to occur from 10.00 am until at least 6.00 pm (20 December 2017).

3 Appropriateness of actions taken by AEMO

AEMO's objectives during this event were to:

- Operate in accordance with the NGR and the Wholesale Market Procedures,
- Limit the risk of involuntary curtailment to customers including the Laverton North Power Station,
- Alleviate the threat to system security and return the DTS to normal operating conditions.

3.1 Out-of-merit-order injections

In response to the threat to system security on 20 December 2017, AEMO scheduled the minimum required net injections at the Iona CPP, which included out-of-merit-order injections (above market price bids) at the Iona CPP. This was consistent with the approach outlined in the market notices issued to participants prior to the planned outage.

No out-of-merit-order injections were needed for the 6.00 pm and 10.00 pm schedules, as the maintenance had concluded and BCS was restored to normal operations at 4.46 pm.

4 Costs of intervention

4.1 Total Ancillary Payments and Uplift Payments

The market impact resulting from a threat to system security is in the form of additional Ancillary Payments (AP) and corresponding Uplift Payments (UP).

The table below lists these payments by type for 20 December 2017.

Gas Day	Ancillary Payments (\$)	Congestion Uplift Payments (\$)	Surprise Uplift Payments (\$)	Common Uplift Payments (\$)
20 December 2017	1,854.70	979.08	875.10	0

The results can be summarised as follows:

- Uplift payments were categorised as approximately 53% congestion uplift, 47% surprise uplift, and 0% common uplift. The categories are applied as follows:
 - Congestion uplift is allocated to Market Participants when their daily profiled demand forecasts and scheduled controllable withdrawal quantities exceed their AMIQ (profiled uplift hedge);
 - Surprise uplift is allocated to Market Participants who were deemed to have worsened the constraint at reschedules. For example, this can occur when participants under-inject or over-withdraw in the preceding schedule (for positive APs);
 - Common uplift is any remaining uplift that cannot be allocated as congestion or surprise uplift, and is applied across Market Participants in proportion to their actual withdrawal quantities over a gas day.

5 Adequacy of Part 19 of the NGR

In respect of this event, AEMO has assessed the application and adequacy of NGR provisions relating to maintenance approval, market notices, and this intervention report.

5.1 Maintenance approval

NGR 326(1) requires that AEMO coordinate maintenance to ensure that system security is not threatened, while NGR 326(4) requires AEMO and service providers to cooperate to minimise any threat to system security that would likely result from proposed maintenance.

In this case, AEMO had delayed the outage due to the higher likelihood of a threat to system security occurring on 19 December, and considered that high GPG demand was unlikely on 20 December due to the cooler weather forecast for Victoria.

AEMO finds that these NGR provisions were applied correctly in this case, though NGR 326(1) could be better clarified to acknowledge that coordination may not be sufficient to remove all threats to system security associated with planned maintenance activities.

5.2 Market notices

NGR 341(1) requires that when AEMO identifies a potential threat to system security, it must notify registered participants as soon as practicable – including details of the nature and location of potential threat, and AEMO's estimate about whether intervention will be required.

An industry conference was held on 14 December 2017 to explain the scope of maintenance, proposed AEMO scheduling process, and market notification protocol.

AEMO issued market notices on 18 December 2017 advising registered participants:

- of the planned BCS outage to be conducted on 20 December, and the implications of this outage;
- of an OS only constraint at Iona CPP to restrict withdrawal quantities to zero from 10.00 pm to 5.00 am for gas day 19 December;

- seeking a market response as a result of a threat to system security, due to a supply shortfall, that is likely to impact on the Geelong and Western Withdrawal Zones.
- scheduling out-of-merit-order injections at Iona CPP for 20 December, and seeking a market response to the potential for AEMO to issue a notice of threat to system security for the outage if pressures within the system were forecast to fall below minimum operating limits.

Further notices were issued on 19 December indicating out-of-merit-order gas would be required at Iona CPP for 20 December.

On 20 December, AEMO issued market notices:

- placing an OS only constraint at Iona CPP for gas day 20 December to reduce controllable withdrawals for the BCS outage;
- issuing a notice of threat to system security, and scheduling 40 TJ of out-of-merit-order injections at Iona CPP;
- ceasing the need for out-of-merit-order injections at Iona CPP;
- of the return to service of BCS, ending the threat to system security; and
- removing the OS only constraint from Iona CPP.

AEMO finds that these NGR provisions are generally adequate, and were applied correctly in this case. The requirement to prepare this report within 10 business days should be extended to 20 business days, to allow sufficient time for investigation and subsequent report preparation.

6 Conclusion

AEMO issued a notice to threat to system security in the Victorian DWGM for gas day 20 December 2017 during a planned outage of the BCS, due to insufficient market response injections from the Iona CCP to meet the demand on the SWP, BLP, BCP and the WTS. Demand was also higher than forecast due to unforecast GPG demand.

On this gas day, AEMO scheduled out-of-merit-order injections at the 10.00 am schedule. This resulted in approximately \$1,854 of additional ancillary and uplift payments.

Following this event, AEMO has assessed the application and adequacy of associated NGR provisions, and finds that these provisions were applied correctly.

Please direct any feedback or questions regarding this report to GasMarket.Monitoring@aemo.com.au.

Appendix A – Chronology

Date/Time (AEST)	Event/Action	Details
July 2017	APA advise of outage	APA advise that a full outage of BCS would be required, with the tentative date to occur in November 2017.
13 Dec 2017	AEMO advises APA of possible high GPG demand	APA confirmed the outage date as 19 December, AEMO advises APA this may not be possible given the potential for high GPG demand.
14 Dec 2017	Teleconference	AEMO teleconference with regards to BCS outage, outlining potential market impacts. Outage is scheduled for Tuesday 19 December, but could be delayed until 20 December due to high forecast GPG demand.
15 Dec 2017	AEMO advises APA the outage cannot proceed	AEMO notify APA the outage would not be permitted to occur on 19 December due to an expectation of high GPG demand. After close of business APA advised AEMO that APA could complete the outage on 20 December.
18 Dec 2017	Outage delay	AEMO issue a SWN indicating the outage has been delayed due to high temperatures forecast on 19 December, and the outage will now occur on 20 December.
18 Dec 2017	Call for Market Response	AEMO issue a notice of a threat to system security, seeking a market response.
20 Dec 2017	Change in generator dispatch	Laverton North Power Station informs the AEMO Gas Control Room of upcoming generator dispatch. Modelling indicates this will require out-of-merit-order gas from Iona.
20 Dec 2017 9:36 am	Notice of threat to system security	AEMO issue a notice of threat to system security for BCS maintenance and schedules 40 TJ of out-of-merit-order injections at Iona CPP in the 10.00 am schedule.
20 Dec 2017 1:34 pm	Out-of-merit-order injections no longer required	AEMO issue a notice indicating out-of-merit-order gas injections at Iona CPP have been removed.
20 Dec 2017 3:59 pm	Brooklyn CS Return to Service	AEMO issue a notice indicating APA has returned BCS to service at 3.45 pm and the threat to system security has ended.