DWGM EVENT – THREAT TO SYSTEM SECURITY, SOUTH WEST PIPELINE TO PORT CAMPBELL

PREPARED BY: Gas Market Monitoring

DOCUMENT REF: DWGM ER 18/002

DATE: 16 April 2018

Final

Contents

IMPORTANT NOTICE

Purpose

AEMO has prepared this report pursuant to rule 351 of the National Gas Rules, using information available as at 10 April 2018, unless otherwise specified.

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1 Introduction

AEMO issued a notice of a threat to system security in the Victorian Declared Wholesale Gas Market (DWGM) on 10 March 2017 due to the potential risk of gas supply sources being incapable of meeting forecast gas demand on the South West Pipeline (SWP) to Port Campbell. This potential threat was identified in the 2017 Victorian Gas Planning Review[1] (VGPR) and was due to the transportation capacity constraint on the SWP to Port Campbell. As a result of this constraint forecasts showed the potential for curtailments in demand, and an inability to sufficiently refill Iona underground gas storage (UGS) prior to winter 2018 and for subsequent winters.

Following AEMO's notification of a threat to system security, APA augmented the SWP relieving the constraint. AEMO rescinded the notification of the threat to system security in the 2018 Victorian Gas Planning Report Update.

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. All times used in this report are AEST (Market Time), and a chronology of events is included in Appendix A – Chronology.

2 Background

The Port Campbell hub consists of the Iona UGS, Minerva Gas Plant and Otway Gas Plant. These facilities supply natural gas to South Australia via the SEA Gas pipeline, provide gas to the Mortlake gas fired power station and deliver gas to the Victorian Declared Transmission System (DTS) via the SWP.

Iona UGS plays an important role in supplying gas to Victoria during the winter peak period. It has a total storage capacity of 26 PJ and is capable of supplying up to 435 TJ/d. Typically storage is depleted in winter to supply peak demand and refilled during non-winter months from gas either produced at Port Campbell or withdrawn from the DTS via the SWP.

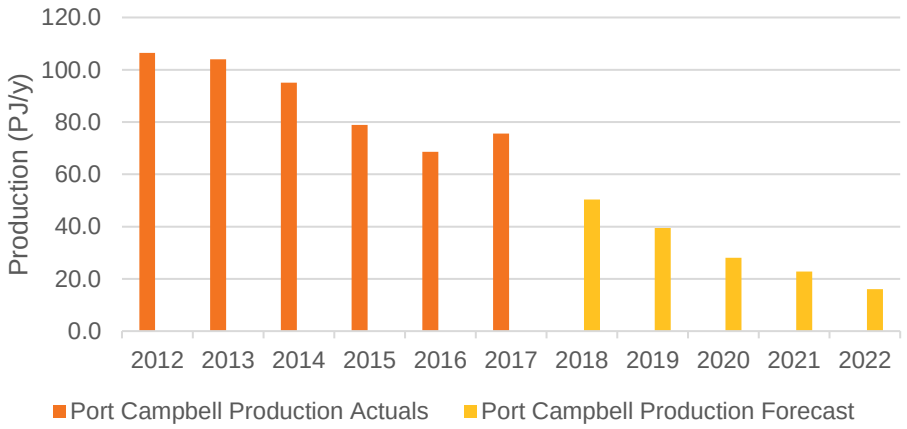

Figure 1: Port Campbell actual and forecast production (as of 2018)

[1] AEMO. 2017 Victorian Gas Planning Report, March 2017. Available at: https://www.aemo.com.au/-/media/Files/Gas/National_Planning_and_Forecasting/VGPR/2017/2017-VICTORIAN-GAS-PLANNING-REPORT.pdf. Viewed: 11 April 2017.

Port Campbell production has been declining since 2012 (**Error! Reference source not found.**). This has a two-fold effect on Iona UGS:

1. Reduced production in Port Campbell places an increased reliance on Iona UGS to supply more gas during the winter period; and
2. Iona UGS has an increased reliance on withdrawing gas from the DTS via the SWP to refill storage during summer.

In October 2015, AEMO presented an issues paper to the Gas Wholesale Consultative Forum (GWCF) highlighting that the SWP withdrawals were likely to become increasingly constrained. The declining Port Campbell production was forecast to impact the ability of Iona UGS to adequately refill. Several options were outlined within the paper to increase SWP withdrawal capacity through system augmentation.

AEMO further highlighted the need for the capacity expansion in two Victorian Gas Planning Reports. These reports are required under NGR 323 to provide an assessment of the adequacy of the DTS to supply peak day demand and annual consumption over a five-year outlook period.

The 2016 VGPR Update, which was published in February 2016, provided further detail of the forecast SWP withdrawal constraint at Port Campbell and outlined five options to augment the system to increase capacity.

On 10 March 2017 AEMO published the 2017 VGPR. In the report, AEMO outlined that a threat to system security had arisen due to a forecast inability to refill Iona UGS prior to winter 2019 and there was uncertainty it could be sufficiently refilled prior to winter 2018. The inability to refill Iona UGS for winter 2019 was forecast to result in a shortfall of 10 PJ which would impact winter peak day supply.

AEMO also made a submission to the AER during the APA Victorian Transmission System Access Arrangement 2018-22 process to highlight the forecast requirement for expansion of the SWP withdrawal capacity. The AER accepted the proposed SWP augmentation works in its draft decision on 6 July 2017[2].

Withdrawals from the SWP at Port Campbell are supported by compression at Brooklyn Compressor Station (BCS). Prior to the augmentation at BCS, gas had to flow via the Brooklyn-Corio Pipeline (BCP) before being transported to Port Campbell along the SWP (Figure 2).

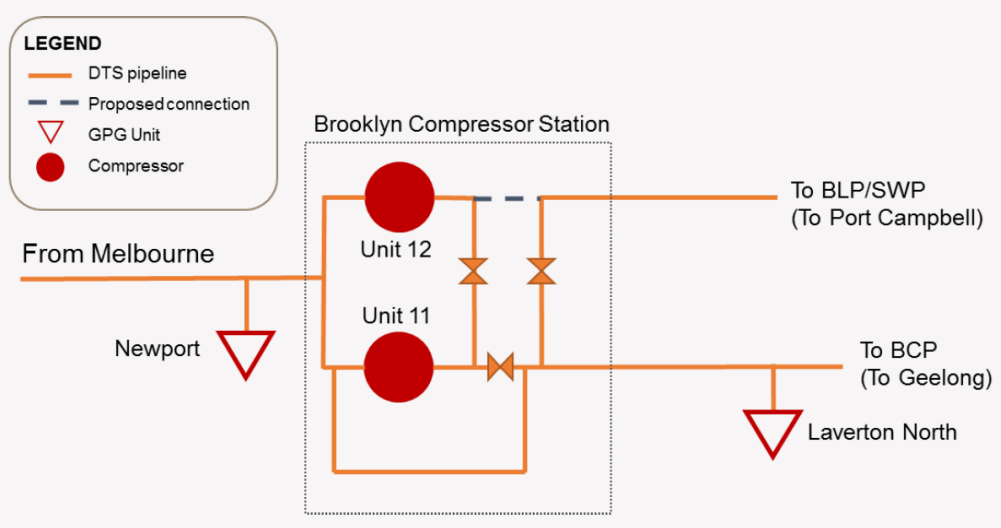

Figure 2: Simple flow diagram of Brooklyn Compressor Station

[2] AER – APA Victorian Transmission System – Access Arrangement 2018-22 Draft Decision - Attachment 6 – Capital expenditure, July 2017, p.20

This transport route via the BCP meant that BCS had to support the entirety of demand at offtakes between Brooklyn and Geelong prior to gas being withdrawn at Port Campbell. This took a large portion of the compressed gas that could otherwise be made available for withdrawal. Figure 3 shows the difference in SWP withdrawal capacity between the pre-augmentation configuration, where gas needed to pass via BCP, versus the post-augmentation direct compression into the BLP and westbound compression at Winchelsea Compressor Station.

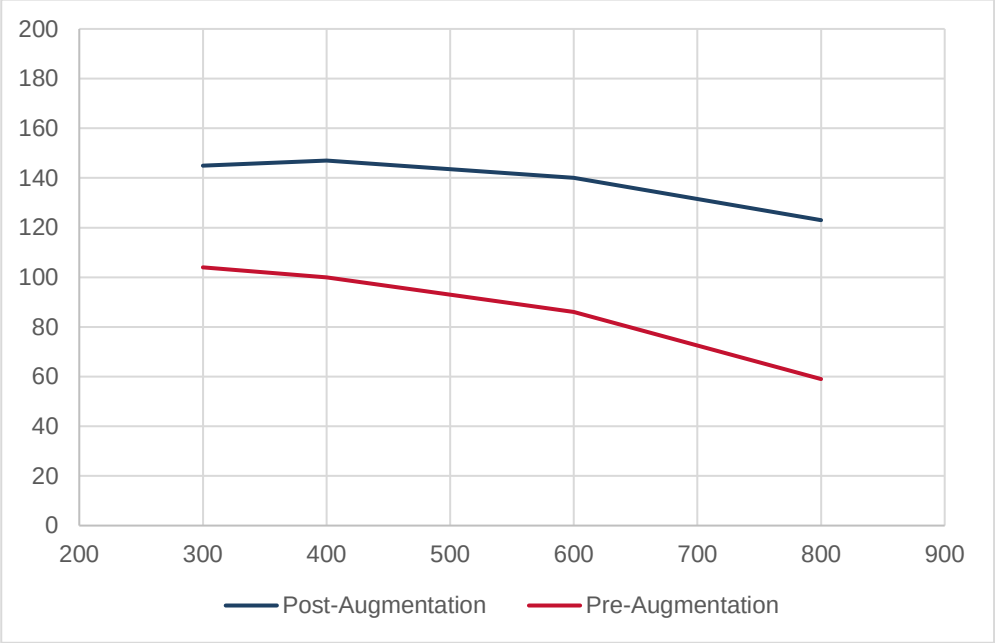

Figure 3 SWP withdrawal capacity pre- vs post-augmentation for varying system demands (2017 VGPR)

Following the identification and communication of the threat to system security, AEMO worked with the APA to augment the system and expand the SWP withdrawal capacity.

The annual net injection quantity into the DTS from the Port Campbell hub (which includes all flows through injection and withdrawal meters at the Iona CPP) hit a record low in 2017 with only 2 PJ supplied (Figure 4). This represented a 73% decline from 2016 and a 94% decline when compared to the 2013-2015 average.

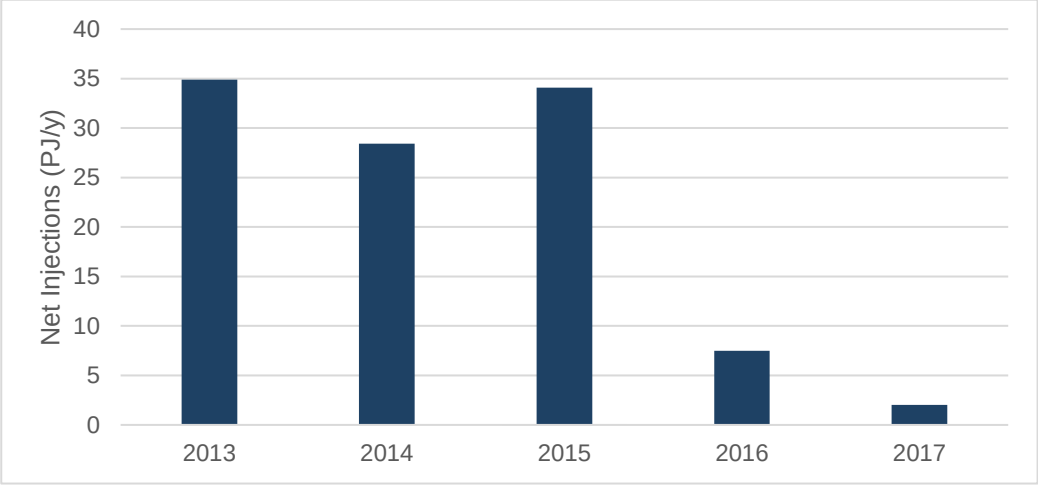

Figure 4 Annual net injection quantities from the Port Campbell hub supplied to the DTS

Net withdrawals from the SWP also increased in 2017, with 6.3 PJ taken between November 2017 and February 2018 (Figure 5). 1.4 PJ of this, or 20% of the total net withdrawal quantity, was

transported using BCS Unit 10 which was made available by the DTSSP to temporarily boost capacity while the augmentation works were in progress.

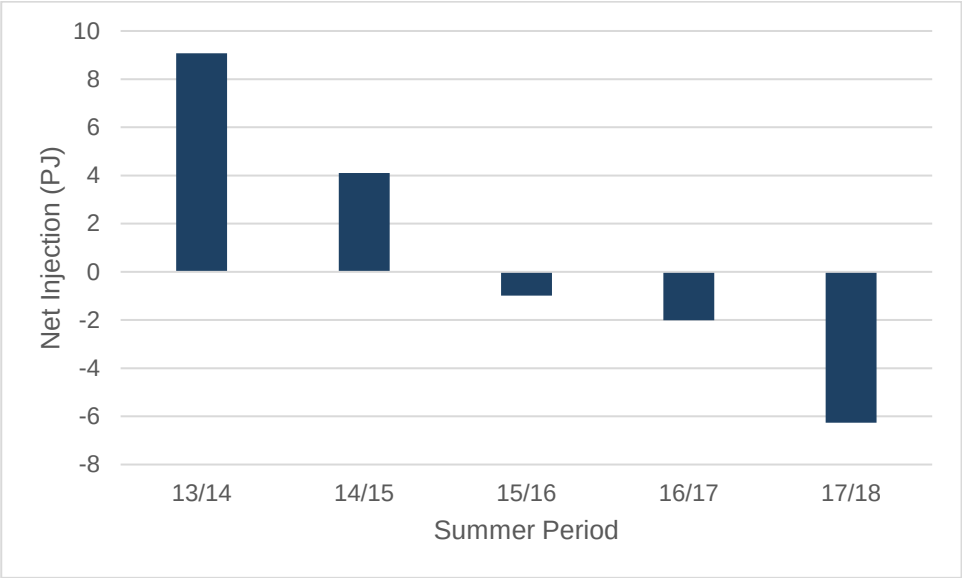

Figure 5 Net injection quantity realised during the last five summer periods (November - February)

The augmentation was officially completed in March 2018 and Figure 6 shows how the augmentation has achieved its objective of relieving the constraint on the SWP. Consequently, AEMO is satisfied that the threat to system security has subsided and rescinded it accordingly on 29 March 2018 in the 2018 VGPR update.

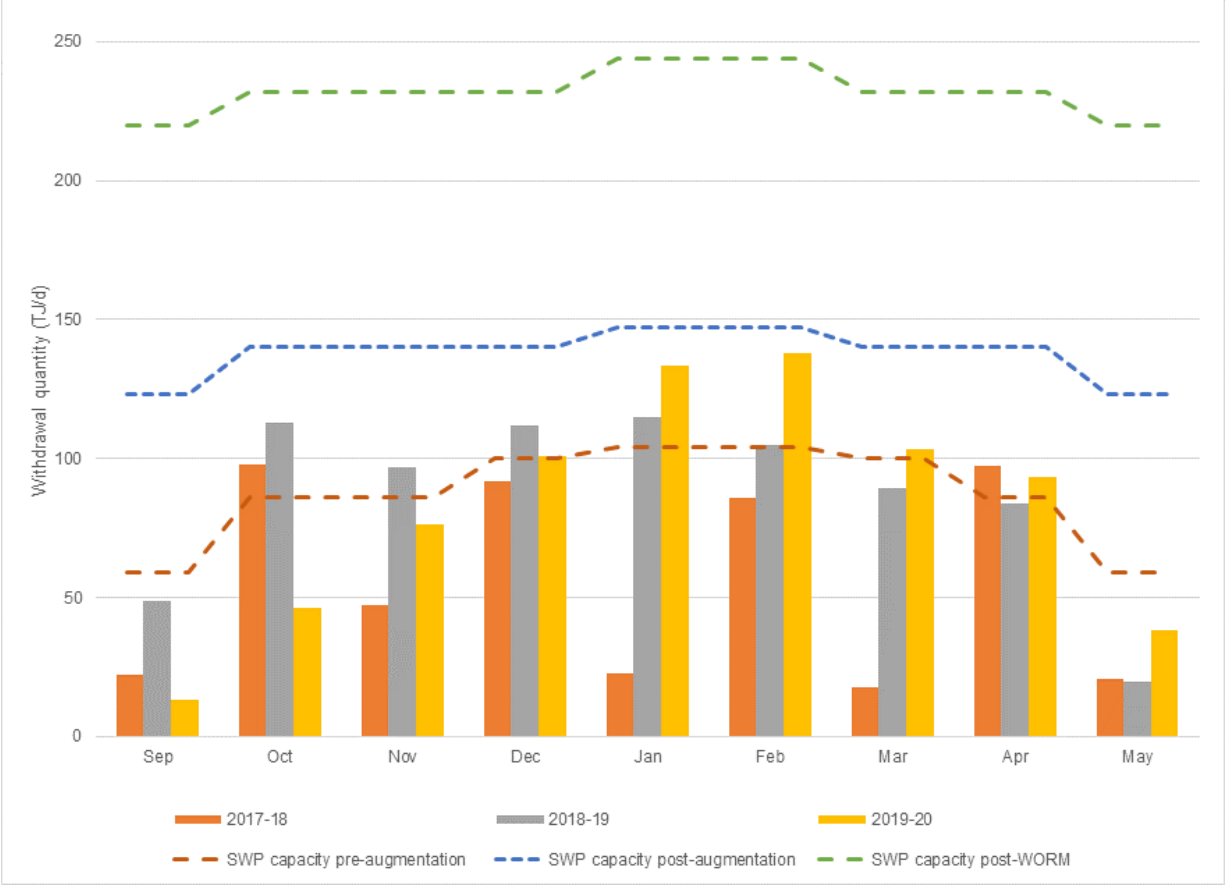

Figure 6 – Comparison of SWP capacities pre and post augmentation

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.

In this case, AEMO issued a notice of a threat to system security to highlight the potential risk to Market Participants with regards to the potential curtailment of demand, and worked closely with the DTSSP to expand SWP's capacity to an adequate level.

4 Financial Impact

4.1 Increased Refill Tariff at Iona

APA determined that the refill tariff at Iona is to be increased from $0.054/GJ to $0.079/GJ over the period 2018-2022 to reflect the cost of the capacity expansion, this was accepted by the AER in its final decision on the access arrangement[3].

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 annual planning reviews, and market notices, maintenance approval, and this intervention report.

5.1 Annual Planning Reviews and Market Notices

NGR 323 requires AEMO to prepare and publish an annual planning review to include forecasts for the DTS, and to include matters such as mismatches between supply, demand and capacity. NGR 341(1)(a) requires that when AEMO believes a threat to system security is indicated by the VGPR, it must notify registered participants as soon as practicable, including AEMO's estimate of the nature and location of the potential threat, whether AEMO will need to intervene, and the system withdrawal zones that are likely to be impacted.

On 10 March 2017, AEMO published the 2017 VGPR highlighting the potential that Iona UGS would not be able to adequately refill for 2018 and 2019, and notified the market of this risk, seeking a market response to the threat to system security.

AEMO's responses to threats to system security are limited to operational responses including the curtailment of customers. If Market Participants and the DTSSP were unable to resolve a threat identified through the Access Arrangement process then AEMO as the transmission network operator would be reliant on operational responses or Government intervention.

AEMO notes that some participants have made submissions regarding the appropriateness of the access arrangement process to the AEMC with regards to their "Review into the scope of economic regulation applied to covered pipelines"[4].

[3] AER – APA Victorian Transmission System – Access Arrangement 2018-22 Draft Decision - Attachment 10 – Reference tariff setting – July 2017.

[4] AEMC, Review into the scope of economic regulation applied to covered pipelines. Available at https://www.aemc.gov.au/markets-reviews-advice/review-into-the-scope-of-economic-regulation-appli

5.2 Intervention Report

NGR 351 places an obligation on AEMO to publish an Intervention Report within 10 business days after an event, which includes an event that in AEMO's reasonably opinion, is or may be a threat to system security (351(b)).

AEMO is of the opinion that NGR 351 should be further clarified, as there is a level of ambiguity in if and when an Intervention Report should be produced where the threat to system security is identified in the VGPR and the threat to system security event is forecast but has not actually occurred.

Also, the requirement for AEMO to publish an Intervention Report within 10 business days following an event limits AEMO's ability to conduct a thorough investigation into the circumstances of the event, given the requirement to assess:

- the adequacy of the Rules;
- the appropriateness of actions taken by AEMO; and
- the costs incurred by AEMO and Registered participants as a consequence of responding to the event or events.

AEMO has previously recommended to allow sufficient time for investigation and subsequent report preparation, the requirement to prepare this report should be aligned with NGR 355 to be:

- within 10 business days notify Participants of this event; and
- within 20 business days following the issue of the final statement for that gas day, publish an Intervention Report.

Given the nature of this Intervention Report, AEMO is of the opinion the previous recommendation should be updated to be:

- within 10 business days, following the end of an event, notify Participants of this event; and
- within 20 business days following the issue of the final statement for that gas day, publish an Intervention Report. Where there is no settlement impact the report is to be published with 20 business days of the event.

6 Conclusion

AEMO issued a notice of a threat to system security in the Victorian DWGM on 10 March 2017 to highlight a potential threat to system security due to the forecast constraint on South West Pipeline's capacity, which may lead to a curtailment of demand that directly impacts on both the operation of the Declared Transmission System, and the refilling of the Iona Underground Storage facility, from 2018 onwards.

On 29 March 2018, the SWP augmentation was officially completed and AEMO rescinded the threat to system security.

Following this event, AEMO has assessed the application and adequacy of associated NGR provisions, and finds that all 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
13 October 2015	GWCF Paper	AEMO presents paper to GWCF outlining the forecast SWP withdrawal constraint.
29 February 2016	2016 VGPR Update	2016 VGPR Update is published informing Market Participants about the forecast SWP withdrawal constraint and presents five options to increase the transport capacity.
3 January 2017	Access Arrangement – Proposal	APA submits Victorian Transmission System – Access Arrangement 2018-22 proposal to the AER. Project to increase SWP westbound capacity is incorporated.
10 March 2017	2017 VGPR	2017 VGRP is published. Market Participants are notified of a threat to system security due to SWP constraint preventing Iona UGS refilling prior to winter 2019 and potentially winter 2018.
6 July 2017	Access Arrangement – Draft Decision	AER accepts the SWP westbound capacity increase in its draft decision.
13 September 2017	BCS Unit 10 released for operation	APA temporarily releases Brooklyn Compressor Station Unit 10 to AEMO for operation to increase SWP withdrawal capacity while SWP augmentation is constructed.
30 November 2017	Access Arrangement – Final Decision	AER publishes the final decision on the access arrangement.
28 March 2018	SWP Augmentation Complete	APA releases the augmented assets to AEMO for operation. SWP capacity increases.
29 March 2018	2018 VGPR Update	2018 Victorian Gas Planning Report Update is published informing Market Participants the SWP augmentation has averted the threat to system security that was highlighted in the 2017 Victorian Gas Planning Report.