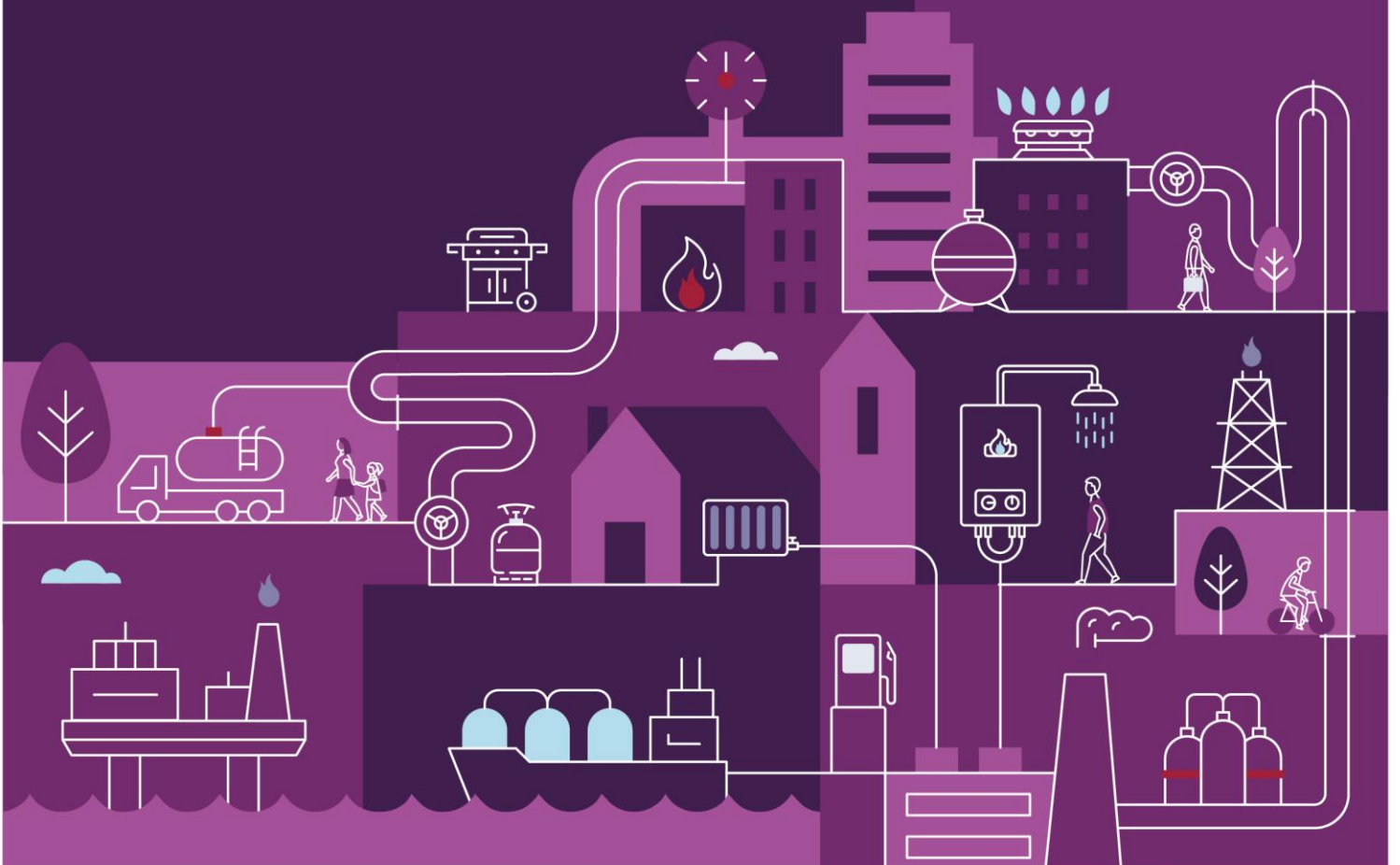


Declared Wholesale Gas Market – Intervention Report

October 2022

Threat to system security

A report into the notice of a threat to system security for
gas days 11 July to 30 September 2022





Important notice

Purpose

AEMO has prepared this report pursuant to rule 351 of the National Gas Rules (NGR), using information available as at 1 October 2022, unless otherwise specified.

Disclaimer

AEMO has made every effort to ensure the quality of the information in this report but cannot guarantee its accuracy or completeness. Any views expressed in this report are those of AEMO unless otherwise stated and may be based on information given to AEMO by other persons.

Accordingly, to the maximum extent permitted by law, AEMO and its officers, employees and consultants involved in the preparation of this document:

- make no representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of the information in this document; and
- are not liable (whether by reason of negligence or otherwise) for any statements or representations in this document, or any omissions from it, or for any use or reliance on the information in it.

Copyright

© 2022 Australian Energy Market Operator Limited. The material in this publication may be used in accordance with the [copyright permissions on AEMO's website](#).



Contents

1	Introduction	1
2	Event Summary	1
2.1	Threat to system security - 11 and 18 July	1
2.2	Intervention in the market – 20 July	3
2.3	Threat to system security update – 2 August	3
2.4	Threat to system security update – 10 August	4
2.5	End of threat to system security – 30 September	5
3	Assessment of event	5
3.1	Adequacy of Part 19 of the NGR	6
3.2	Appropriateness of actions taken by AEMO	7
3.3	Costs of intervention	7
4	Conclusion	8
A1.	Chronology	9



1 Introduction

On 11 July 2022 AEMO issued a Notice of a Threat to System Security and published an additional threat notice on 18 July 2022 in the Victorian Declared Wholesale Gas Market (DWGM), due to low Iona underground gas storage inventory and the risk of supply shortfalls due to the Iona inventory depletion before the end of winter 2022. These notices were to remain in effect until 30 September 2022 unless ended earlier.

AEMO issued revisions to these threat notices on 2 August 2022 and 10 August 2022. AEMO provided notice of the end to the threat to system security on 30 September 2022. The contents of these notices are detailed in the event summary in section 2.

Rule 351 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
- 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 in Australian Eastern Standard Time (AEST) and a chronology of events is included in Appendix A1.

2 Event Summary

2.1 Threat to system security - 11 and 18 July

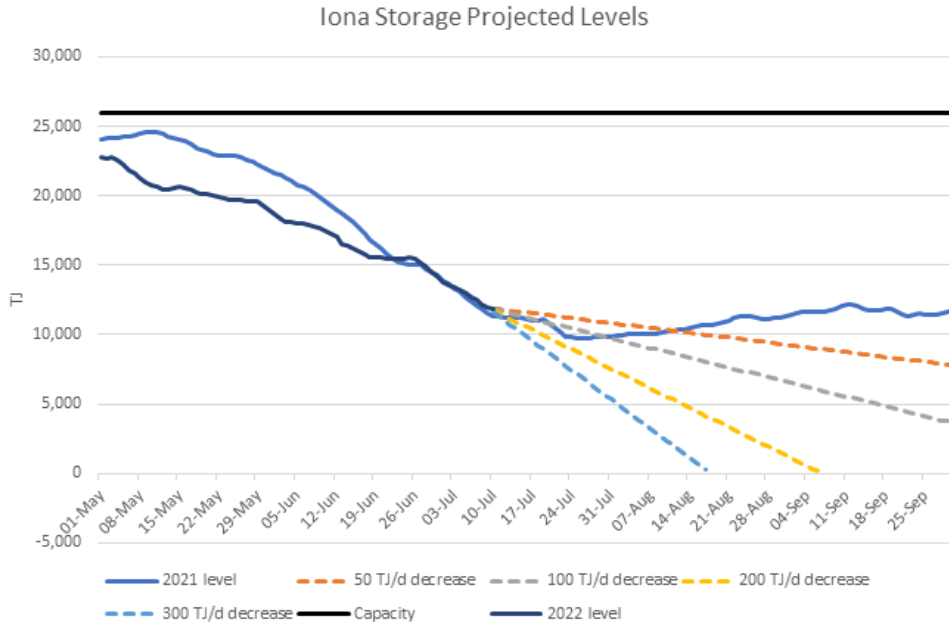
On 11 July 2022 AEMO issued a notice informing participants of a threat to system security due to low Iona underground gas storage (UGS) inventory and the risk of supply shortfalls due to Iona inventory depletion during the winter peak demand period. In the notice, AEMO advised that Iona storage inventory had reduced at an average daily rate of 277 TJ/d since 26 June 2022, dropping from 15.5 PJ to 11.9 on 9 July. At that rate of decline, Iona storage inventory was forecast to reduce to 6 PJ (~25% of total storage capacity) by 31 July. When the storage inventory falls below this level, the reservoir withdrawal capacity will at some point start to reduce and fall progressively to approximately half the usual capacity. Overall withdrawal capacity will decline fast as more of this 6 PJ is withdrawn. The reduction in supply capacity at Iona UGS during winter presents a number of risks, including:

- Potential for curtailment on high demand days due to insufficient supply to meet demand
- Reduced flexibility during the gas day to respond to unexpected reductions in supply or increased demand within the Declared Transmission System (DTS), e.g. unforecast system demand or gas generation
- Reduced resilience to supply disruptions at other facilities due to unplanned outages



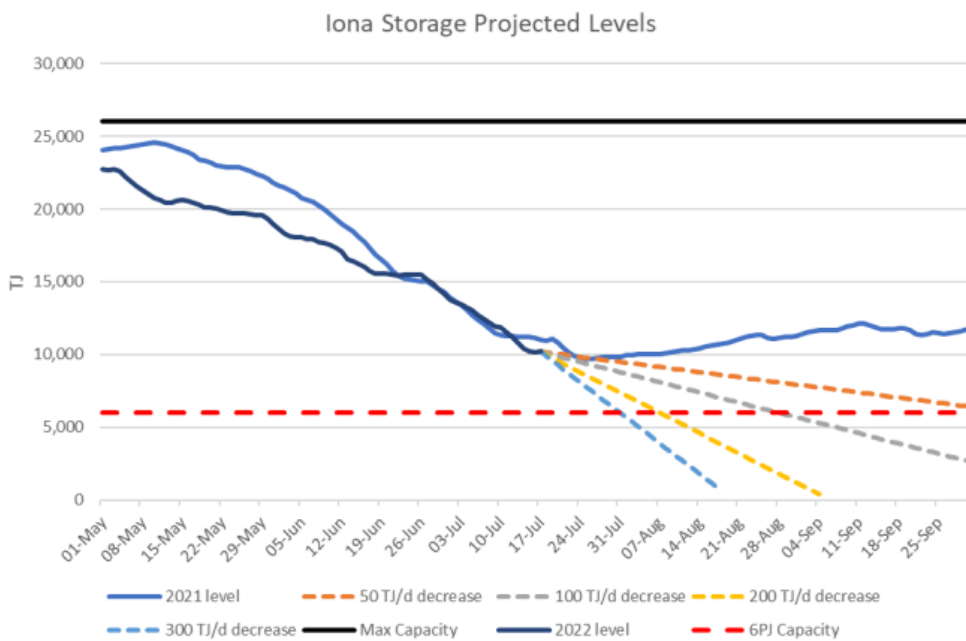
The initial outlook for Iona depletion issued in the threat notice on 11 July 2022 is shown on Figure 1 below.

Figure 1: Iona storage projected levels on 11 July 2022




A further threat notice was published on 18 July, advising that Iona storage inventory depletion had reduced at an average daily rate of 200 TJ/d since 11 July, dropping to 10.2 PJ on 17 July. However, at that rate of depletion, Iona storage inventory would reach the 6 PJ threshold on 6 August. This is shown on figure 2 below.

Figure 2: Iona storage projected levels on 18 July 2022



In these threat notices, AEMO requested:

AEMO acknowledges the Traditional Owners of country throughout Australia and recognises their continuing connection to land, waters and culture. We pay respect to Elders past, present and emerging.

- 
- Market Participants to cease purchasing gas from the DWGM via controllable withdrawals from the DTS – particularly via Culcairn. Market Participants could continue to withdraw gas from the DTS when the Market Participants was supplying sufficient gas into the DTS to supply their customer and gas generation demand, as well as the corresponding quantity of gas to be withdrawn from the DTS.
 - Victorian gas generators connected to the DTS were requested not to generate using gas without supplying a corresponding quantity of gas into the DTS (this was in addition to the gas required to supply their customer demand). AEMO noted that if the generator was unable to source gas supply, the Gas Supply Guarantee process would be triggered.

The threat notice issued on 18 July contained an information request for Market Participants, requesting them to provide a daily forecast of demand and supply into the DWGM to assist with assessing the threat of low Iona inventory affecting ability of the facility to supply the DTS, if the inventory level continued to decline at rates observed.

On 19 July 2022, AEMO hosted an industry teleconference explaining the situation and summarising the notices published on 11 and 18 July. In this teleconference AEMO stated it expected all DWGM participants to have their supply and demand balance to the extent possible. AEMO also noted that the current \$40/GJ administered price cap may not offer an incentive to supply gas into the DTS from outside of Victoria. AEMO's assessment was that a combination of increased supply from Queensland to the southern states, along with current gas production levels in the southern states at the time was needed to slow the rate of Iona inventory decline to a sustainable rate.

AEMO also advised that uncertain system demand and gas generation created significant uncertainty in the Iona storage forecast and that AEMO would continue to monitor the storage levels closely for the remainder of winter.

2.2 Intervention in the market – 20 July

On 20 July 2022, AEMO issued directions for the curtailment of withdrawals for two gas powered generators as a response to the threat to system security.

The direction was to remain in place until:

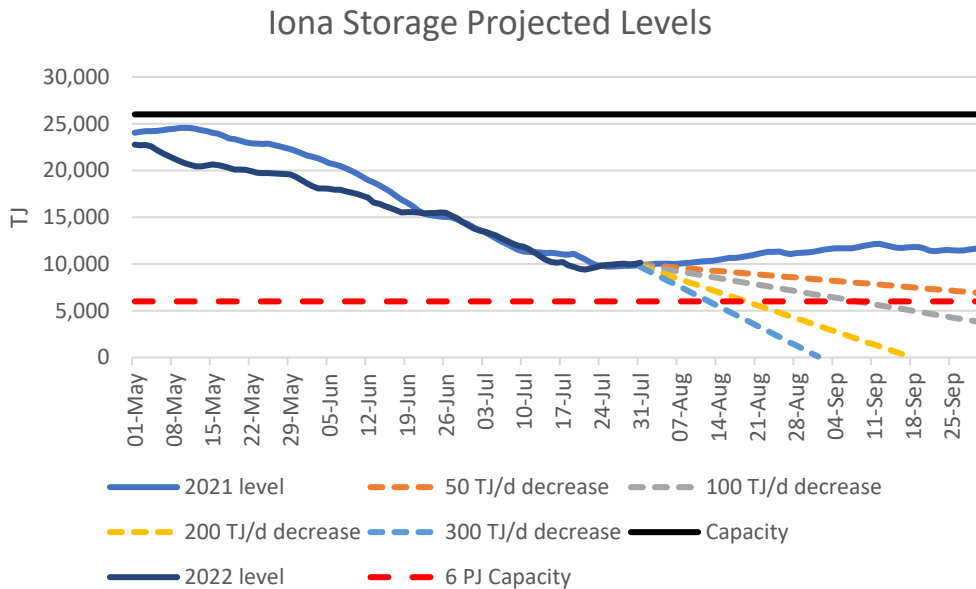
- It could be demonstrated to AEMO that the relevant participant(s) had sourced gas supply to meet their generation demand; or,
- AEMO determined that the threat to system security had ended; or
- AEMO determined that the direction was no longer required to maintain or improve reliability, system security or in the interests of public safety.

2.3 Threat to system security update – 2 August

On 2 August 2022 AEMO revised its threat to system security notices issued on 11 and 18 July 2022. This notice advised that after reviewing information provided by DWGM participants, the risk of Iona inventory depletion continued to exist. However, as Iona storage inventory had remained relatively steady at around 10 PJ in the previous week, Market Participants were no longer requested to support controllable withdrawals to refill Iona storage with corresponding contracted supply.

AEMO acknowledges the Traditional Owners of country throughout Australia and recognises their continuing connection to land, waters and culture. We pay respect to Elders past, present and emerging.

Figure 3: Iona storage projected levels on 2 August 2022



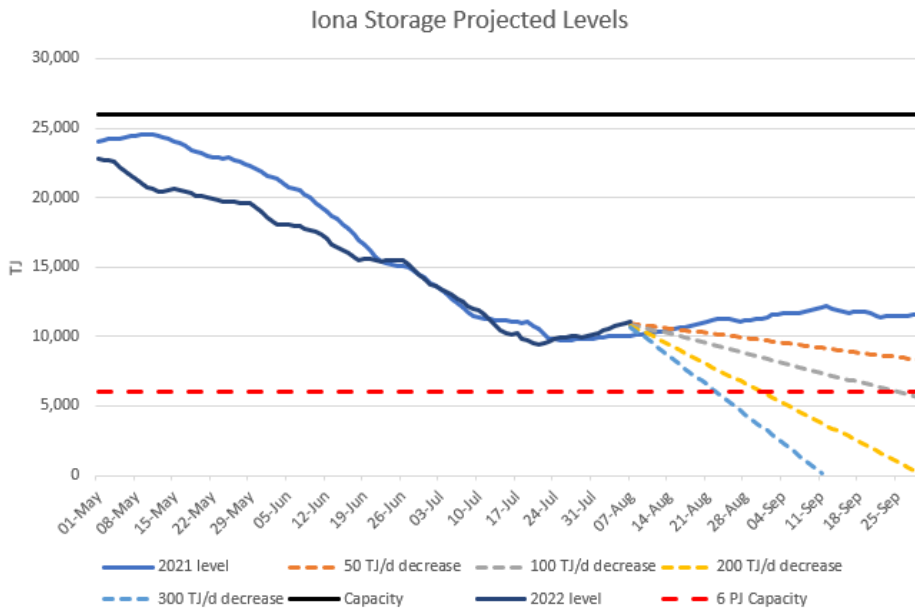
With this update, Market Participants were still requested to:

- Cease purchasing gas from the DWGM via controllable withdrawals from the DTS unless market participants were purchasing gas to refill Iona UGS (i.e. not bid for controlled withdrawals of gas from the DTS without corresponding gas supply scheduled for injection into the DTS).
- Arrange gas injections into the DTS to offset the gas withdrawals to support demand from DTS connected gas powered generators (i.e. not withdraw gas for gas generation without a corresponding gas supply scheduled for injection into the DTS).

2.4 Threat to system security update – 10 August

AEMO issued a further update notice on 10 August 2022. The update advised that the Iona inventory depletion risk continued to exist, however since 21 July Iona inventory had increased from 9.4 PJ to 11 PJ on 7 August. Based on this information and expected supply and demand, Iona was expected to stay above 6 PJ.

Figure 4: Iona storage projected levels on 10 August 2022



This easing of requests under the Threat to System Security resulted in:

- From 2 August 2022, Market Participants were no longer requested to support controllable withdrawals from the DTS into Iona UGS with corresponding supply.
- From the start of gas day 11 August, AEMO would issue amended Directions to allow limited net withdrawals from the DWGM by Victorian gas generators. AEMO notified impacted Market Participants of the quantity of gas that could be purchased from the DWGM.

Market Participants were still requested to cease purchasing gas from the DWGM via controllable withdrawals from the DTS, unless withdrawing from DWGM into Iona UGS (i.e. not bid for controlled withdrawals of gas from the DTS without corresponding gas supply scheduled for injection into the DTS).

2.5 End of threat to system security – 30 September

On 30 September 2022 AEMO advised of the end to the threat to system security, first identified on 11 July 2022. While the threat had ended, AEMO advised it will continue to closely monitor Iona UGS inventory, and if not increasing in line with forecasts, will take necessary action to support refilling ahead of winter 2023.

3 Assessment of event

These events occurred due to low Iona UGS inventory and the risk of supply shortfalls due to Iona inventory depletion during winter 2022. AEMO called for market responses through notices of a threat to system security and subsequent updates in accordance with NGR 342.

3.1 Adequacy of Part 19 of the NGR

In respect to this event, AEMO has assessed the application and adequacy of the NGR, with a primary focus on the following provisions:

- NGR 341 Notice of threat to system security.
- NGR 342 Market response to threat to system security.
- NGR 351 Intervention Reports.

3.1.1 Notice of a threat to system security

Rule 341 requires that if AEMO believes there is a potential threat to system security, it must notify Registered participants, without delay, the details of that threat to system security. In this case, AEMO believed that a threat was indicated by the rapid rate of Iona UGS inventory decline, as identified on 11 July 2022.

AEMO notified the market of the threat to system security, calling for a market response. AEMO acknowledges that there needs to be a balance between informing the market as early as possible and providing the most current information on potential impacts to the market. In this event, the timing of the call for a market response in this case gave participants sufficient time to respond.

3.1.2 Market response

When AEMO reasonably considers that a threat to system security will subside without intervention as per rule 342, calling for a market response from market participants is a process to inform the market of the threat and any actions required that could alleviate the threat.

The request for a market response was for Market Participants to cease purchasing gas from the DWGM via controllable withdrawals from the DTS and to arrange for gas injections to offset gas withdrawals for gas-fired generators. Additionally, Market Participants were requested to inform AEMO of their planned injections and withdrawals to enable AEMO to complete a supply-demand analysis.

AEMO finds that the NGR provisions are adequate.

3.1.3 Market Intervention


If AEMO reasonably considers that a threat to system security is unlikely to subside without intervention, AEMO must intervene in the Market by taking any measures it believes are reasonable and necessary to overcome the threat to system Security. This includes requiring Registered participants to do any reasonable act or thing that AEMO believes necessary in the circumstances, as per NGR 343(1)(e).

Directions were made for the curtailment of withdrawals for two gas powered generators as a response to the threat to system security.

AEMO finds that the NGR provisions are adequate.

3.1.4 Intervention Report timing

Rule 351 places an obligation on AEMO to publish a report within 10 business days after a threat to system security event. AEMO has adopted the following approach to reporting on these events, wherever possible:

- 
- Investigate and publish a report based on immediately available data within 10 business days of the relevant event.
 - Where not all information necessary to complete the required assessment is available, that report will be flagged as preliminary, with a final report to be published once the additional information is received and analysed.

For these events, AEMO believes it has all necessary information and does not intend to publish a subsequent report.

3.2 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.
- Alleviate the threat to system security and return the DWGM to normal operating conditions.

Rule 206 requires that AEMO schedule injections into and withdrawals from the distribution transmission system (DTS) in accordance with bids and must:

- Comply with the gas scheduling procedures; and
- Use its reasonable endeavours to operate within the system security procedures.

In this event, AEMO took all reasonable steps to assess the forecasts and notified the market to alleviate this threat by calling for a market response.

3.3 Costs of intervention

While AEMO did not schedule out of merit order gas during this threat period, Market Participants were impacted in the following way:

- Market Participants were requested to cease purchasing gas from DWGM to ship to other jurisdictions. Those participants who were relying on purchasing gas to ship to other markets would have incurred a cost of either purchasing additional supply from other sources, presumably at a higher price, reducing their demand, or potentially impacting contractual arrangements.
- Victorian gas generators connected to the DTS were requested to not generate using gas without supplying a corresponding quantity of gas into the DTS. This would have impacted Market Participants with gas generators that did not have sufficient gas supply and were therefore either required to switch to an alternate fuel source such as diesel, generate using other generation assets or not generate and purchase electricity. This cost is either a straight dollar cost in additional fuel costs and maintenance costs, or potentially a loss in the National Electricity Market by not generating at all.

AEMO is not able to quantify specific dollar costs to participants on either request, but recognises these requests had the potential to cause significant costs. It should however also be noted that there was an Administered Pricing Period in effect for the Victorian DWGM from 30 May to 31 July 2022 that capped the market price at \$40/GJ for this two month period. This capped DWGM price was often lower than the price of gas in other AEMO administered gas markets including the Short Term Trading Markets and the Gas Supply Hub.



4 Conclusion

AEMO issued a Notice of Threat to System Security for the Victorian DWGM on 11 July 2022, and updated and revised this notice on 18 July, 2 August and 10 August 2022, due to low Iona UGS inventory and the subsequent risk of supply shortfalls during winter 2022. This threat was ended on 30 September 2022, however AEMO continues to monitor Iona inventory, and will take necessary action to support Iona refilling ahead of winter 2023.

The request for Market Participants to cease purchasing gas to ship from DWGM to other jurisdictions, and the request for gas generators connected to the DTS to not generate using gas without supplying a corresponding quantity of gas into the DTS meant additional costs for some participants may have been incurred. AEMO determined that this action was necessary to reduce the risk of insufficient gas to supply the DTS during winter 2022.

Rule 351 of the NGR requires that AEMO investigate and prepare a report following an event which is or may be a threat to system security. 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.

A1. Chronology

Date/Time (AEST)	Event/Action	Details
11 July 2022, 16:29	Notice of a threat to system security	AEMO notified the market of a threat to system security and called for a market response
18 July 2022, 15:43	Notice of a threat to system security update	AEMO provided an update to the market on the threat to system security
19 July 2022 09:30	Industry teleconference	AEMO held an industry teleconference to provide an overview and update to market participants on the notice
20 July 2022 14:22	System wide notice	AEMO issues notice informing participants that it has intervened in the market to curtail two Victorian gas generation facilities
2 August 2022 16:25	Notice of a threat to system security update	AEMO provided an update to the market on the threat to system security
10 August 2022 17:41	Notice of a threat to system security update	AEMO provided an update to the market on the threat to system security
30 September 2022, 09:21	Notice of the end of threat to system security	AEMO ended the threat to system security.