



Important notice

Purpose

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

Disclaimer

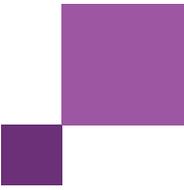
AEMO has made every effort to ensure the quality of the information in this report but cannot guarantee its accuracy or completeness. Any views expressed in this report are those of AEMO unless otherwise stated and may be based on information given to AEMO by other persons.

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.

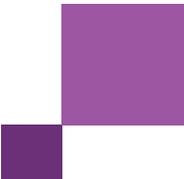
Copyright

© 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 - 14 July	2
2.2	Threat to system security - 18 July	3
2.3	Threat to system security – 19 July	4
3	Assessment of event	5
3.1	Adequacy of Part 19 of the NGR	5
3.2	Appropriateness of actions taken by AEMO	6
3.3	Costs of intervention	7
4	Conclusion	7
A1.	Chronology – 14 July 2022	8
A2.	Chronology – 18 July 2022	8
A3.	Chronology – 19 July 2022	8



1 Introduction

On 14, 18 and 19 July 2022, AEMO notified the market of a threat to system security (TTSS) in the Victorian Declared Wholesale Gas Market (DWGM) due to insufficient offers being made available to meet forecast demand for the declared transmission system (DTS).

All these events are related in circumstance, with the market being in an administered state, as a result of market participants in aggregate not offering sufficient gas and demand being relatively high.

In each of these events AEMO identified that by increasing injections or reducing demand, the threat could be resolved. Consequently, AEMO sought a market response and issued a notice of threat to system security, for each day respectively.

In each event, AEMO observed a response from Market Participants through increased injection offers into the DWGM.

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

While this report focuses on three threat to system security events, there were additional schedules during July that had insufficient offers that were not identified as a threat. Table 1 provides an overview of all the schedules that had insufficient offers and their respective shortfall quantities. Information is also provided about AEMO demand forecasts overrides and demand forecast accuracy by AEMO and Market Participants.

From this information we can see that AEMO overrides are typically minimal in magnitude and were applied in only three out of the fifteen schedules listed. It is AEMO's view that these events were a reflection of the tightness of supply to the market during periods of high demand, both in terms of heating load and gas generation.

As outlined in the report for the threat to system security event on 1 June, there are two practical outcomes when there is a supply shortfall. In the scheduling process, the Market Clearing Engine (MCE) will schedule all available injection offers, reduce price sensitive controllable withdrawals (e.g. Culcairn withdrawals) to zero and then, if necessary, curtail uncontrollable demand to a level that can be supported.

However, curtailment may not actually be required, as AEMO may in some circumstances be able to accommodate a temporary reduction in the End of Day (EOD) linepack target to get through to the next scheduling interval or a slight single day shortfall.

Table 1: Schedules in July with insufficient offers

Schedule Date/Time	Shortfall (TJ)	Threat to System Security on Gas Day	AEMO Override (TJ)	Actual Gas Day Total Demand (TJ)	System Demand Forecast Accuracy at Schedule	
					AEMO	Market Participants
3/07/2022 14:00	-0.01		0	922.1	-0.95%	1.44%
12/07/2022 18:00	-10.1		0	1,178.5	0.31%	-1.96%
14/07/2022 10:00	-7.5		6	1,123.6	-1.05%	-1.28%
14/07/2022 14:00	-14.7	Yes	8		0.96%	-1.22%
15/07/2022 10:00	-15.1		0	999.4	0.34%	2.84%
15/07/2022 14:00	-2.2		0		-1.37%	2.23%
18/07/2022 6:00	-36.0	Yes	0	1,148.4	3.54%	7.14%
18/07/2022 10:00	-30.3	Already in place	0		6.27%	7.51%
18/07/2022 14:00	-4.0	Already in place	9		5.30%	6.85%
18/07/2022 22:00	-11.8	Already in place	0		0.26%	6.01%
19/07/2022 6:00	-58.4	Yes	0	1,096.4	-1.25%	0.59%
19/07/2022 10:00	-54.0	Already in place	0		1.51%	2.30%
20/07/2022 10:00	-12.6		0	1,131.8	-2.78%	2.03%
21/07/2022 10:00	-25.2		0	1,026.9	3.49%	5.42%
21/07/2022 14:00	-13.3		0		3.81%	5.05%

In the situations where AEMO identified a supply shortfall to support uncontrollable demand and did not identify a threat to system security, this was typically because:

- AEMO’s demand forecast was lower than the Market Participant aggregate forecast; or,
- the actual hourly demand was tracking lower than forecast; or,
- AEMO believed that a temporary reduction in EOD linepack target could be accommodated.

Section 3.3 of the Wholesale Market Gas Scheduling Procedures outlines that the EOD linepack target is set by balancing the needs of system security with market requirements.

2.1 Threat to system security - 14 July

Following the 14:00 schedule on 14 July 2022, AEMO determined that there was a threat to system security due to insufficient injection offers to meet forecast demand for gas day 14 July 2022.

At the time of the notification AEMO determined that, given the outlook, a reduction in EOD linepack target could not be supported. The demand outlook and shortfall had increased from the previous schedule to approx. 15 TJ and there was a possibility it could have persisted or increased further without action.

At 15:43 on 14 July 2022, AEMO notified the market of a threat to system security, due to there being insufficient supply offered to meet demand. In the notice AEMO asked for a market response in the form of additional injection offers or a reduction in withdrawals.

At the 18:00 schedule AEMO observed a 22 TJ increase in injection offers and a reduction in forecast demand for gas generation of 10 TJ.

AEMO continued to monitor operations and the market for the remainder of the gas day and notified participants of the end of the threat to system security event at 05:26 on 15 July 2022.

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.

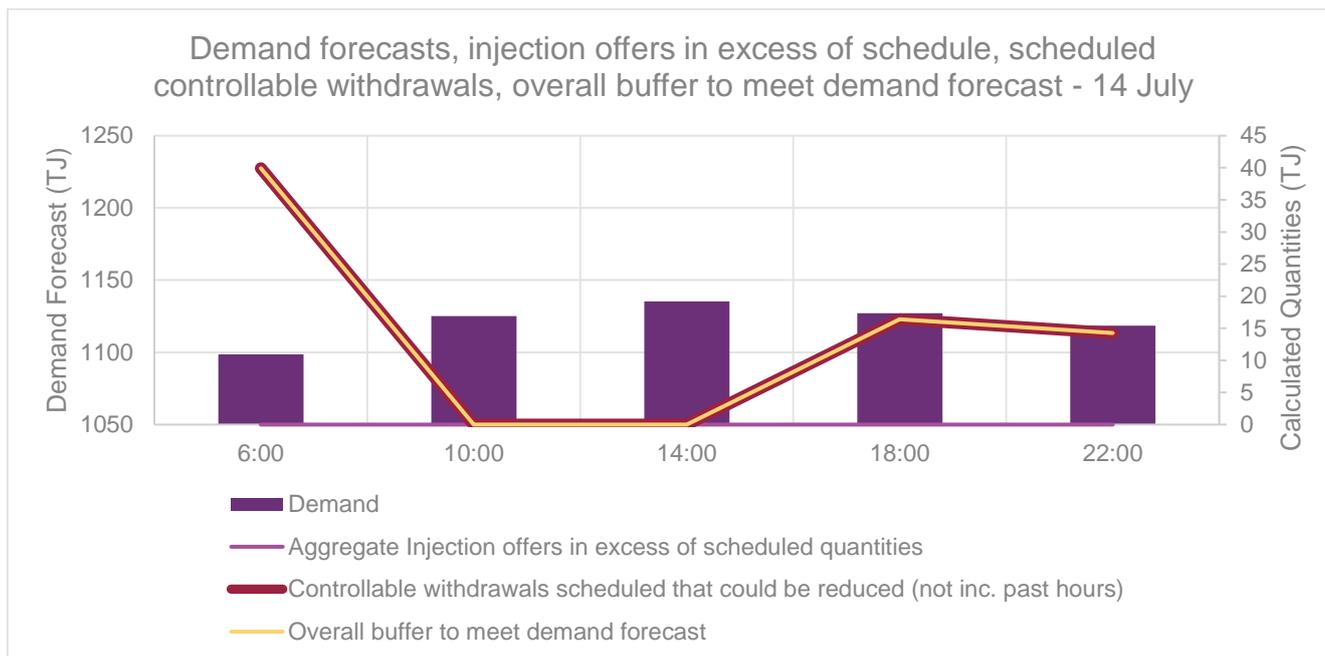


Figure 1: Total demand forecast and supply-demand buffer for each schedule on 14 July

Figure 1, above, shows how the balance in supply and demand tracked across the gas day.

2.2 Threat to system security - 18 July

Following the 16:00 day-ahead schedule on 17 July 2022, AEMO determined that there was a threat to system security due to insufficient injection offers to meet forecast demand for gas day 18 July 2022.

At the time of the notification AEMO determined that, given the outlook, a reduction in EOD linepack target could not be supported during what was expected to be consecutive days of high demand. The shortfall in injection offers identified at the day ahead schedule was approximately 64 TJ.

At 18:29 on 17 July 2022, AEMO notified the market of a threat to system security for gas day 18 July 2022, due to their being insufficient supply to meet demand. In the notice AEMO asked for a market response in the form of additional injection offers or a reduction in withdrawals.

In responding to the notice, market participants increased their injection offers, however by the 06:00 current day schedule there was still a deficit of 36 TJ. After conducting modelling and verifying that current day operations would not be impacted, AEMO decided to hold off taking action until later in the gas day. At 18:00, the shortfall was eliminated, however by the schedule at 22:00 the shortfall had increased back to 11 TJ. At this time, AEMO's demand forecast was within 10 TJ of the market participants' aggregate demand forecast, so AEMO determined that no further action was required.

It should be noted that the Longford Gas Plant requested a constraint to limit injections into the DTS on gas days 18 and 19 July following unplanned maintenance on the evening of 18 July 2022. This reduced the available offers at the 22:00 schedule on 18 July, however this was somewhat offset by the demand forecast also reducing as well.

AEMO continued to monitor operations and the market for the remainder of the gas day and notified participants of the end of the threat to system security event at 06:53 on 19 July 2022.

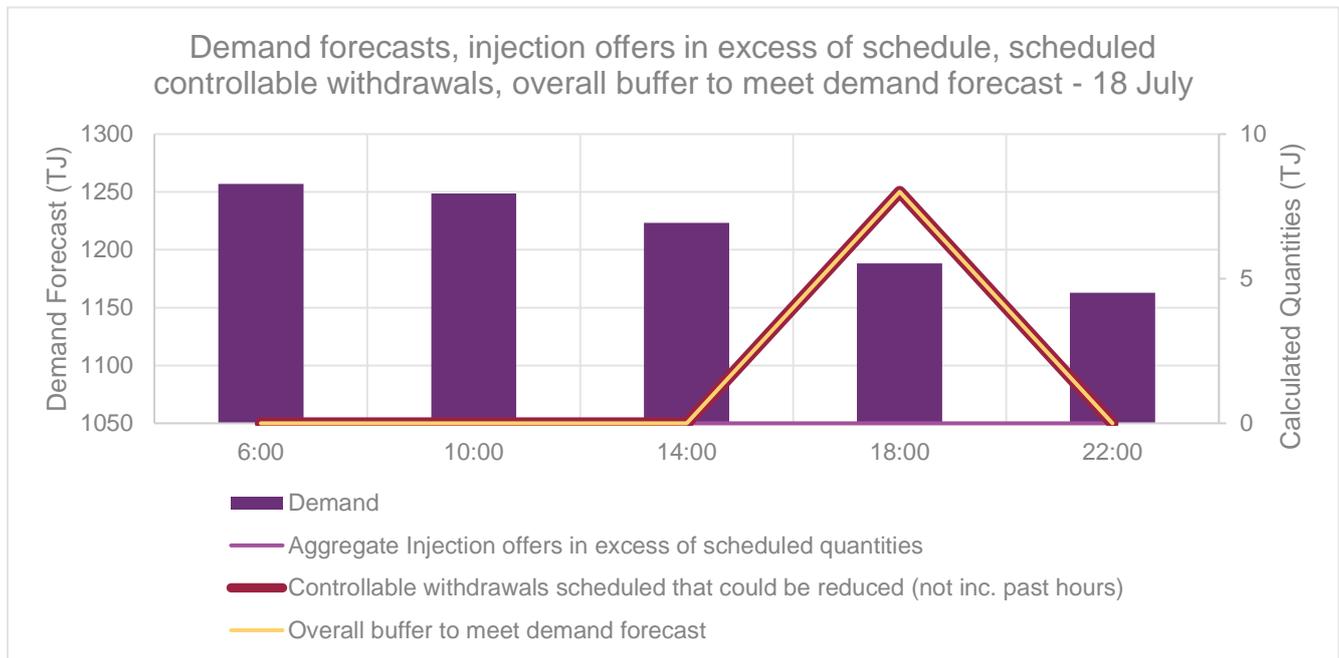


Figure 2: Total demand forecast and supply-demand buffer for each schedule on 18 July

Figure 2, above, shows how the balance in supply and demand tracked across the gas day. Aside from one schedule, market participants did not offer sufficient injection quantities to meet demand.

2.3 Threat to system security – 19 July

Following the 00:00 day-ahead schedule on 18 July 2022, AEMO determined that there was a threat to system security due to insufficient injection offers to meet forecast demand for gas day 19 July 2022.

At the time of the notification, AEMO determined that a reduction in the EOD linepack target could not be supported during what was expected to be consecutive days of high demand. The shortfall in injection offers identified at the day ahead schedule was approximately 133 TJ.

At 22:33 on 18 July 2022, AEMO notified the market of a threat to system security for gas day 19 July 2022, due to their being insufficient supply to meet demand. In the notice AEMO asked for a market response in the form of additional injection offers or a reduction in withdrawals.

At the 06:00 current day schedule, AEMO observed that the shortfall in injection offers had reduced to 58 TJ. This was due to the demand forecast reducing for gas day 19 July as well as the BOD linepack being 50 TJ higher than the EOD linepack target. The higher BOD linepack was due to Longford Gas Plant exceeding their scheduled quantities as well as overnight demand being lower than forecast. No response was observed in the form of increased injection offers in aggregate from market participants at 06:00.

At 10:00, injection offers increased, but this was offset by a similar increase in the demand forecast so no material change in the shortfall in injection offers was realised. By the 14:00 schedule a significant reduction in the demand forecast was observed which resulted in there being sufficient injection offers to meet demand.

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.

This reduction in demand for gas day 19 July was the result of AEMO taking action in response to Notice of a Threat to System Security issued on 18 July 2022 to market participants with gas generation to prevent the depletion of Iona storage inventory. AEMO issued a curtailment direction on 19 July 2022 to a gas generation market participant consistent with this threat notice.

AEMO continued to monitor conditions and notified participants of the end of the threat to system security event at 21:51 on 19 July 2022.

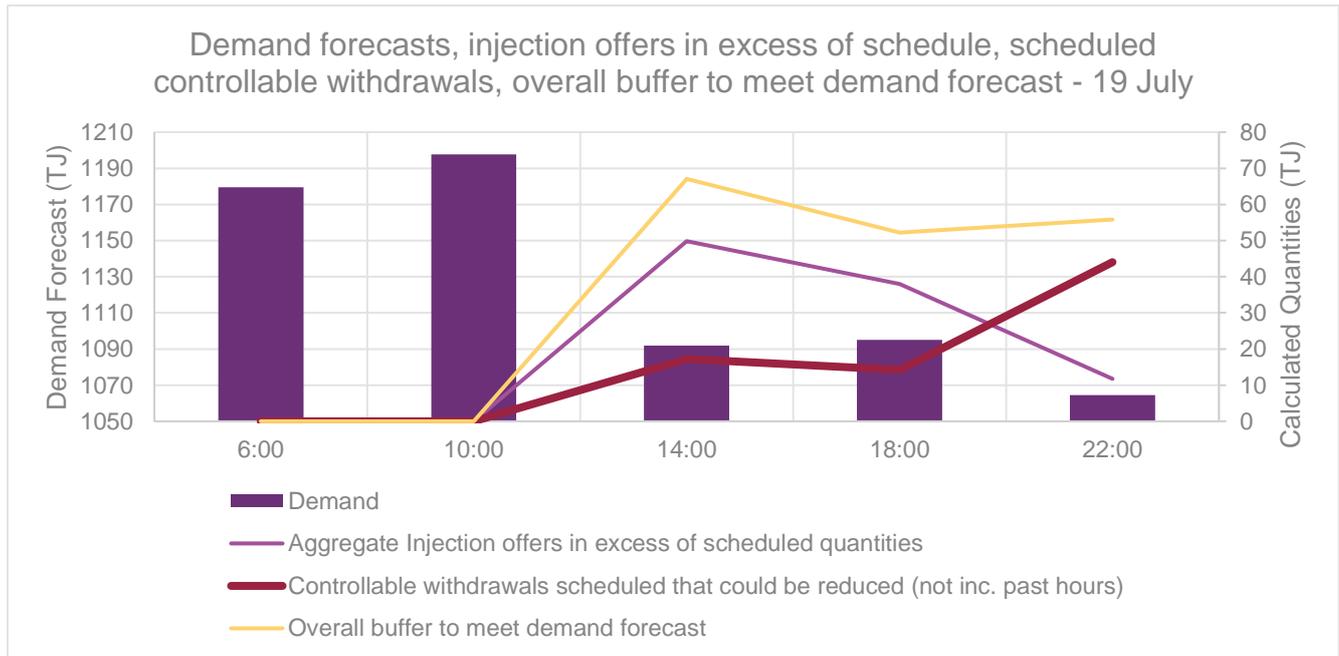


Figure 3: Total demand forecast and supply-demand buffer for each schedule on 19 July

Figure 3, above, shows how the balance in supply and demand tracked across the gas day.

3 Assessment of event

These events occurred due to insufficient supply being offered into the DWGM to meet demand. AEMO called for market responses through the threat to system security notices 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.

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.

3.1.1 Notice of 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 supply offers being insufficient to meet demand on gas days 14, 18 and 19 July 2022.

AEMO notified the market of the threat to system security, calling for a market response, in each event. 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 all three events, 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 increase injection offers or reduce demand to enable supply to meet demand.

AEMO finds that the NGR provisions are adequate.

3.1.3 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.

Note that a separate report on the threat to system security event concerning Iona storage inventory depletion will be published at a later date and will cover the intervention by AEMO to direct the curtailment of withdrawals for gas generation from 19 July 2022.

3.2 Appropriateness of actions taken by AEMO

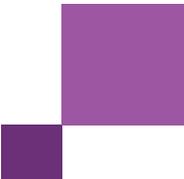
AEMO's objectives during this event were to:

- 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.

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.



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

AEMO did not require any intervention to alleviate the notices of threat to system security for gas day 14, 18 and 19 July 2022. As a result, there was no market impact.

A separate report on the threat to system security event concerning Iona storage inventory depletion will be published at a later date and will cover the intervention by AEMO to direct curtailment of withdrawals for gas generation on 19 July 2022.

4 Conclusion

AEMO issued notices of threat to system security in the Victorian DWGM for gas days 14, 18 and 19 July 2022 due to insufficient available offers in the market to meet forecast demand. No direct intervention was taken by AEMO in respect to these events, however action taken in response to a coincident threat to system security event concerning Iona storage inventory depletion did incidentally reduce the supply shortfall on gas day 19 July.

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 – 14 July 2022

Date/Time (AEST)	Event/Action	Details
14 July 2022, 14:00	Schedule	AEMO determined that there were insufficient injection offers into the DTS to meet forecast demand for gas day 14 July 2022
14 July 2022, 15:43	Notice of a threat to system security	AEMO notified the market of a threat to system security and called for a market response
15 July 2022, 05:26	Notice of the end of threat to system security	AEMO ended the threat to system security.

A2. Chronology – 18 July 2022

Date/Time (AEST)	Event/Action	Details
17 July 2022, 16:00	Schedule	AEMO determined that there were insufficient injection offers into the DTS to meet forecast demand for gas day 18 July 2022
17 July 2022, 18:29	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, 21:32	System Wide Notice	AEMO notified the market of a constraint at the Longford injection meter: Constraint applied at Longford injection meter to 676,862 GJs/hr from 22:00 for gas day 18/07/22 at facility operator request.
19 July 2022, 06:53	Notice of the end of threat to system security	AEMO ended the threat to system security.

A3. Chronology – 19 July 2022

Date/Time (AEST)	Event/Action	Details
18 July 2022, 21:32	System Wide Notice	AEMO notified the market of a constraint at the Longford injection meter: Constraint applied at Longford injection meter to 699,078 GJ/h for gas day 19/07/22 at facility operator request.
18 July 2022, 22:00	Schedule	AEMO determined that there were insufficient injection offers into the DTS to meet forecast demand for gas day 19 July 2022
18 July 2022, 22:33	Notice of a threat to system security	AEMO notified the market of a threat to system security and called for a market response
19 July 2022, 17:45	System Wide Notice	AEMO notified the market of a revision to the constraint at the Longford injection meter: Constraint revised at Longford injection meter to 724,078 GJ/h for gas day 19/07/22 at facility operator request.
19 July 2022, 21:51	Notice of the end of threat to system security	AEMO ended the threat to system security.