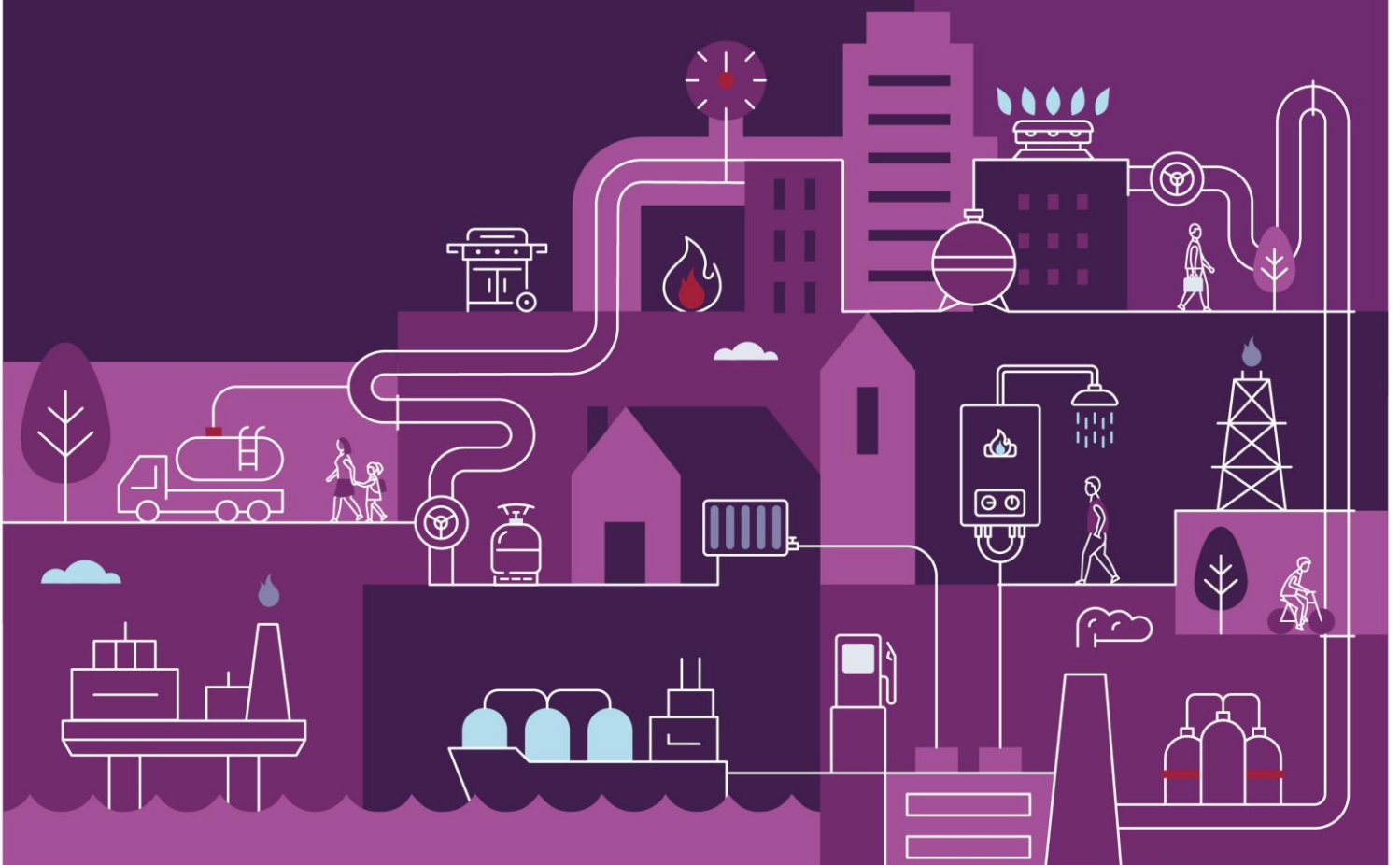


East Coast Gas System – Queensland Gas Pipeline event, Final Post-Intervention Report

December 2024

Notice of east coast gas system threat and direction

A final post-intervention report into the Queensland Gas Pipeline event from 5 March to 10 December 2024.





Important notice

Purpose

AEMO has prepared and published this report in compliance with the requirements of the National Gas Rules, Rule 698, *Publication of post-intervention reports*. This report provides information on the exercise of direction functions in response to the East Coast Gas System threat, Queensland Gas Pipeline (QGP) failure event, from 5 March to 10 December 2024, using information available as of 10 December 2024, unless otherwise specified.

AEMO previously published a preliminary post-intervention report related to this threat on 7 May 2024.

Disclaimer

AEMO has made reasonable efforts 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 report:

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1 Introduction

1.1 Description of the exercise of ECGS functions

On 5 March 2024, after being informed by Jemena Queensland Gas Pipeline (1) P/L (Jemena), AEMO notified relevant entities of an actual risk or threat to supply adequacy within the East Coast Gas System (ECGS). This threat resulted from the isolation of a section of the Queensland Gas Pipeline (QGP) between the Rolleston Compressor Station and Oombabeer due to a rupture of the pipeline. This disrupted the normal supply of gas to Gladstone, Bundaberg, and Maryborough.

In response to the threat, and in consultation with Jemena and the Queensland Government, AEMO determined that the exercise of directions under its ECGS functions were necessary to prevent, reduce or mitigate an actual or potential threat to the adequacy or reliability of supply of covered gas within the QGP and connected facilities and distribution systems (which are part of the east coast gas system).

Directions were given by AEMO to:

- facilitate gas supply into the QGP;
- curtail supply to relevant entities; and to
- maintain supply to end users, necessary to mitigate the consequence of inadequate supply to as low as reasonably practicable (ALARP).

AEMO revoked all directions and the ECGS risk or threat notice on 10 December 2024 following advice from Jemena that the QGP had been restored to its full firm contracted capacity.

In accordance with the National Gas Rules (NGR) 698, AEMO have prepared and published this post-intervention report, to report on the exercise of direction functions in response to the identified ECGS risk or threat (QGP failure event) between 5 March and 10 December 2024.

2 Event Summary

The following sections provide details of the events occurring before the exercise of the functions. A chronology of events is also provided in Appendix A1 of this report.

2.1 Events occurring before the exercise of direction functions

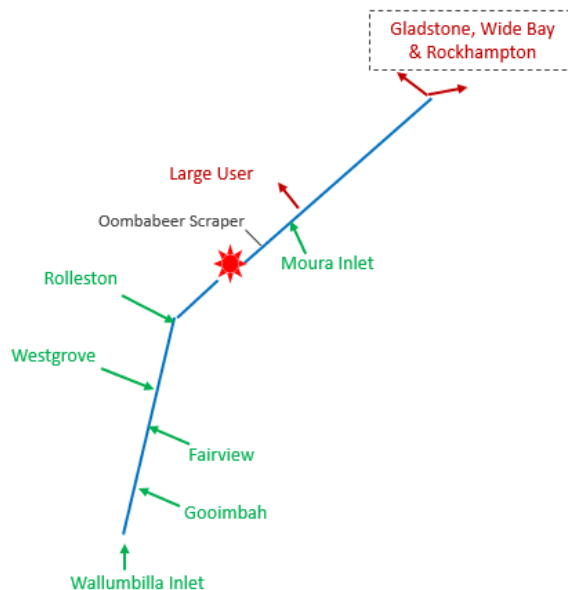
At approximately 09:25 AEST on 5 March 2024, AEMO was made aware of the QGP gas supply disruption by the pipeline operator, Jemena, via the submission of a Red linepack/capacity adequacy (LCA) indicator to the AEMO Gas Bulletin Board as required under NGR 179 (3). In accordance with the AEMO Bulletin Board (BB) Procedures, a Red flag indicates one of the following conditions are met:

- Involuntary curtailment of 'firm' capacity is likely or happening; or
- Linepack has, or is forecast to, drop below minimum operating levels.

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AEMO immediately contacted the pipeline operator to ascertain details of the potential threat and was informed that there had been an uncontrolled release of gas from the QGP and that the pipeline was ‘shut-in’, meaning that it was isolated either side of the failure point to prevent flow into, and release from, the damaged section of pipeline. The shut-in disconnected all receipt connections on the QGP except for the Moura Inlet receipt point, from the pipeline’s end user delivery connections. The Moura Inlet would be the only available source of supply into the pipeline to meet demand for the duration of the shut-in which would extend from 5 March to 17 March 2024.

Figure 1 Simplified schematic illustration of the QGP failure event layout.



The Moura Inlet receipt connection is connected to the Meridian Gas Plant, which on gas day 5 March 2024 had a reported supply capacity of 38 TJ/d. The forecast start-of-day gas demand on the QGP from end user delivery connections (not disconnected by the pipeline shut-in) was estimated to be approximately 128 TJ for gas day 5 March 2024. The potential shortfall in supply, if all supply was redirected into the QGP from the Meridian Gas Plant on gas day 5 March 2024, with no demand reduction, was estimated to be approximately 90 TJ.

AEMO determined the forecast shortfall met or exceeded the criteria as specified in the ECGS Procedures¹, section 3.1.1, for publication of an ECGS risk or threat notice under NGR 695, as the supply of gas in all or part of the east coast gas system may be inadequate to meet demand. AEMO’s exercise of the direction functions as detailed in this report relate to this threat with a chronology of events outlined in section A1.

On gas day 17 March 2024, Jemena advised AEMO that the damaged section of the pipeline was repaired, and necessary changes had been implemented to allow the pipeline to re-commence end-to-end operation at a reduced operating pressure. This enabled supply into the QGP from receipt connections that had been disconnected in response to the failure event. The reduced operating pressure limited the delivery capacity of the pipeline below its firm contracted capacity, and AEMO determined that at the reduced capacity the supply of gas to end users would continue to be inadequate to meet demand and that there remained a threat to supply adequacy.

¹ AEMO, East Coast Gas System Procedures, at https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/gas_consultations/2023/implementation-of-east-coast-gas-system-procedures/notice-of-decision/east-coast-gas-system-procedures.pdf?la=en

2.2 End of direction functions and risk or threat notice

On gas day 6 December 2024, Jemena advised AEMO that repair works, and a pipeline integrity review had been completed and the QGP would be restored to its full firm contracted capacity from 10 December 2024. AEMO subsequently determined:

1. Directions were not required to mitigate the identified risk or threat and must be revoked in accordance with NGR 700(5). On 10 December 2024 AEMO revoked all directions related to the QGP failure event and in accordance with NGR 697 AEMO published a direction revocation notice to its website.
2. The supply of gas in all or part of the east coast gas system is adequate to meet demand and that the QGP failure event no longer met or exceeded the risk or threat notice criteria specified in the ECGS Procedures, and in accordance with NGR 696 AEMO published a revocation of a published ECGS risk or threat notice to its website.

3 Reasons for the exercise of ECGS functions

The following section details the reasons for the exercise of the direction functions, including the matters AEMO considered in deciding whether to exercise the functions. It also gives a detailed description of the exercise of the functions.

3.1 Directions to facilitate supply

Immediately following the pipeline rupture, industry stakeholders (including Westside Corporation Limited and GLNG Operations Pty Ltd) responded to the threat by facilitating supply into the QGP at the Moura Inlet, up to the maximum quantity that could be transferred to the QGP at this location.

AEMO considered the principles listed in NGR 699 in determining whether to exercise a direction function. In consultation with the Queensland Government and industry stakeholders, AEMO determined the following:

- Industry had taken action to mitigate the identified risk or threat however there was a reasonable possibility that this response could change and supply into the QGP could be reduced;
- Any reduction in supply may result in a supply demand imbalance that would likely have an immediate and severe consequence to end users withdrawing from the pipeline, such as plant damage and safety implications; and
- The giving of directions may have distortionary impacts on the east coast gas system and industry and consumer costs.

AEMO concluded that given the nature, timing and circumstances of the threat, and the principles considered under NGR 699, that the exercise of directions were necessary to maintain and improve reliability and adequacy and that the giving of directions were necessary to prevent, reduce or mitigate the identified ECGS risk or threat. On this basis, AEMO determined to exercise the direction function.

A total of six directions were issued to a total of six relevant entities to facilitate supply into the QGP at the Moura Inlet between gas day 5 March and 17 March. Of the six directions, AEMO received one formal notice from a

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relevant entity² of their inability to comply with a direction as permitted under NGR 702(1). AEMO subsequently consulted with the relevant entity and a direction was re-issued to achieve the intent of the original direction.

The types of relevant entities given a direction to facilitate supply during this period include:

- Producer;
- Facility Operator;
- Supplier; and
- Shipper.

On 17 March 2024, Jemena advised AEMO that the QGP could re-enter full service at a reduced operating pressure, allowing for the restoration of gas flows at other QGP receipt connections in addition to the Moura Inlet. AEMO determined that directions to facilitate maximum supply quantities at Moura Inlet were no longer necessary to mitigate the threat. AEMO revoked all standing directions related to facilitating supply into the QGP on gas day 17 March 2024.

3.2 Curtail supply to end users

AEMO was advised that if the pipeline operator curtailment regime, an outcome of individually agreed Gas Transportation Contracts, was implemented it would likely result in severe and major consequences for some end users that are supplied from the pipeline. If Jemena deviated from what was agreed with its customers, it would have been a breach of contract.

On request by the pipeline operator to consider giving directions related to curtailment of supply, AEMO considered the principles listed in NGR 699 in determining whether to exercise a direction function. In consultation with the Queensland Government and industry stakeholders, AEMO determined the following:

- Industry had been given a reasonable period to take action but the available industry response option, that being implementation of the pipeline operator curtailment regime, had the potential for safety to be compromised.
- The giving of directions may have distortionary impacts on the east coast gas system and industry and consumer costs.
- There was insufficient time for the Queensland Government to implement curtailment via emergency powers.

AEMO concluded that given the nature, timing and circumstances of the threat, and the principles considered under NGR 699, that the exercise of directions were necessary to maintain and improve reliability and adequacy and that the giving of directions were necessary to prevent, reduce or mitigate the identified ECGS risk or threat. On this basis, AEMO determined to exercise the direction function.

A total of twenty five curtailment-related directions were issued to a total of six relevant entities³ between gas day 5 and 8 March 2024, to either cease all gas withdrawals until advised by AEMO, or to reduce withdrawals to the minimum quantity possible without causing major damage to plant and equipment or threatening health and safety.

² A relevant entity is defined in the National Gas Law and broadly covers all gas industry participants, excluding small customers.

³ All classified as Registered participant – Large User.

3.3 Maintain supply to end users

On gas day 6 March 2024, a connection was established at Moura Inlet and supply into the QGP was increased in stages through to gas day 8 March. On 8 March, in consultation with stakeholders including the Queensland Government, and having regard to the principles in NGR 699, AEMO minimised its intervention by replacing directions to multiple Large Users for the curtailment of supply, with one direction to the pipeline operator for the purpose of maintaining a minimum quantity of supply to identified end users. Available supply above the minimum directed quantities were available to be allocated by the pipeline operator based on existing contractual agreements.

AEMO gave a total of three directions to the pipeline operator between gas day 8 March and 10 December 2024 related to maintaining supply to end users. During this period AEMO and participants undertook efforts to remove the need for AEMO's directions in their entirety, however it was determined this could not be achieved without risk to some end users withdrawing from the QGP.

4 Assessment of ECGS functions

The following section provides AEMO's assessment of the extent to which the exercise of the direction functions mitigated the identified risk or threat.

4.1 Facilitate supply direction outcomes

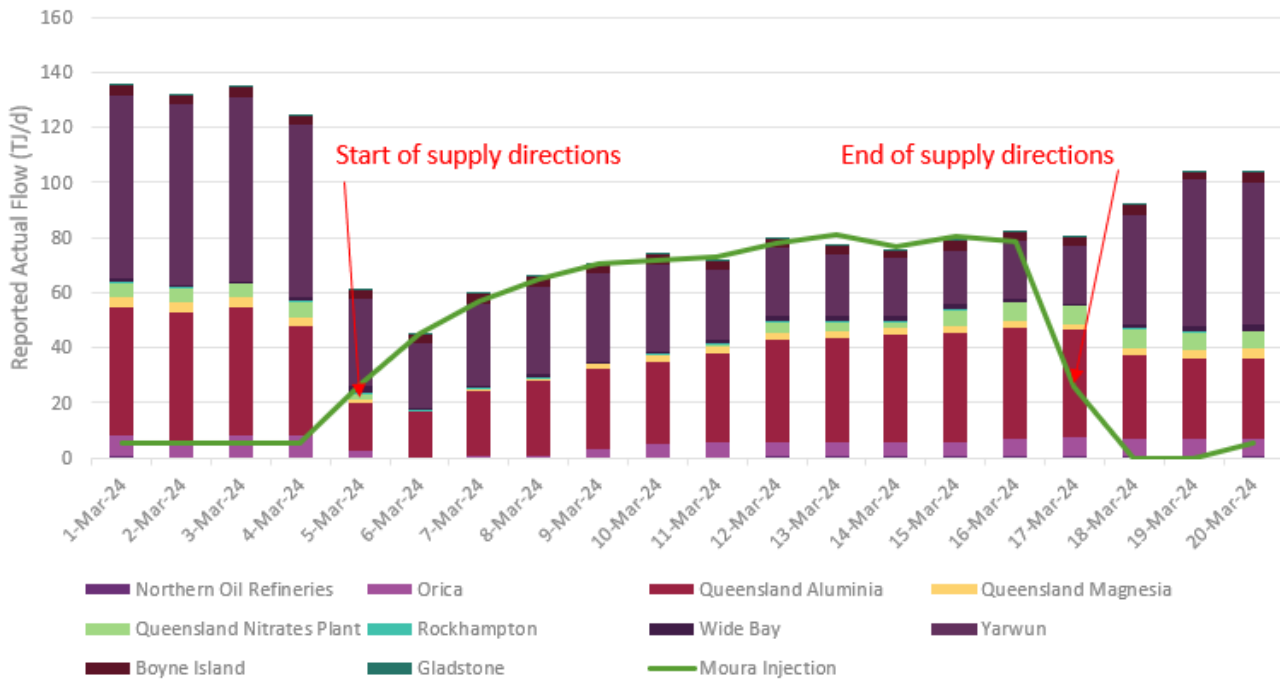
As detailed in section 3.1, AEMO gave directions to maximise supply into the QGP at the Moura Inlet between 5 and 17 March 2024. These directions were necessary to maintain and improve reliability and adequacy of gas supply and necessary to prevent, reduce or mitigate the identified ECGS risk or threat as any reduction in supply was likely to have an immediate and severe consequence to end users withdrawing from the pipeline such as plant damage and safety implications.

It is AEMO's assessment that the directions given adequately mitigated the identified risk or threat. This determination is based on the following:

- Supply into the Moura Inlet increased from an immediate pre-event average of 5.3 TJ/d, to an average of 63.8 TJ/d between 5 and 17 March.
- Daily supply-demand imbalances on the QGP were minimised as directions provided certainty to match the available supply with the quantity of curtailed consumption. The greatest imbalance occurred on 13 March, with supply exceeding consumption by 4 TJ/d. This imbalance was managed through available pipeline linepack.

The actual gas flow through relevant connection points on the QGP as reported to AEMO by relevant entities is provided in Figure 2. This figure illustrates the increase in Moura Inlet supply and the balancing of supply and demand for the period 5 to 17 March 2024.

Figure 2 Impact of directions on QGP connection point flow between 5 and 17 March 2024.



4.2 Curtail and maintain supply direction outcomes

As detailed in 3.2 and 3.3, AEMO gave directions to curtail supply to end users between 5 and 8 March 2024, followed by directions to maintain supply to end users between 8 March and 10 December 2024. These directions were necessary to maintain and improve reliability and adequacy of gas supply and necessary to prevent, reduce or mitigate the identified ECGS risk or threat and the risk that was likely to occur if AEMO had not intervened.

It is AEMO’s assessment that the directions given mitigated the identified risk or threat. AEMO is not aware of any severe or major consequences that may be attributed to the implementation of AEMO’s directions.

5 Other matters AEMO considers appropriate

The following section identifies other matters related to the exercise of AEMO direction functions.

5.1 Curtailment of supply to end users

AEMO consulted with Jemena, end users and the Queensland Government to develop and implemented risk-informed curtailment directions.

For the purpose of improved transparency, reducing risk, and to improve the expediency of response, consideration should be given to the following:

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- Development of published guidelines that relate to AEMO's role in the implementation of curtailment both in a single- and multi-jurisdictional shortfall event. These guidelines could address:
 - The appropriate triggers for AEMO to consider when giving curtailment related directions.
 - How AEMO should structure any curtailment directions, including the information AEMO requires to develop the direction, the intended recipient of the directions (e.g. end user, pipeline operator, distributor) and the information that will be communicated in the direction.
 - Any other matter that may relate to AEMO's involvement in the giving of directions for the purpose of curtailment.
- Development and maintenance of risk-informed curtailment regimes, including the relative priority of different types of end users in a supply shortfall event accounting for any jurisdictional requirements.
- Principles that can be applied in a multi-jurisdictional supply shortfall event.

5.2 Directions to facilitate supply on a contract carriage pipeline

In determining whether to exercise a direction function AEMO must consider the principles outlined in NGR 699. When exercising AEMO's direction functions to facilitate supply into a Short Term Trading Market (STTM) and/or Declared Wholesale Gas Market (DWGM) there are market mechanisms that provide for balancing of energy and financial settlement. However, these market mechanisms do not extend to contract carriage pipelines, like the QGP which operate outside of the STTM and DWGM.

AEMO has identified a range of options through which AEMO may approach exercising the East Coast Gas System direction function on a contract carriage pipeline with potentially varying distortionary and cost impacts. AEMO has presented these options to industry to create awareness and seek feedback.

A1. AEMO event response timeline

All times are in AEST.

Date	Time	Event/Action	Details
5 March 2024	09:25	QGP LCA Red	Jemena submitted an LCA Red Flag for QGP.
	13:08	Supply direction issued	AEMO issued a direction to a relevant entity to maintain and improve supply adequacy to facilitate supply into the QGP.
	14:12	Notice of identified threat and AEMO exercising the ECGS direction function	AEMO published a notice of an identified risk or threat to adequacy or reliability of supply within the East Coast Gas System, and a notice that the direction function has been exercised.
	16:30	Industry teleconference	AEMO held an industry teleconference to provide an overview and update to industry.
	19:20-19:31	Curtailement directions issued	AEMO issued curtailement directions to relevant entities to maintain and improve supply adequacy to reduce risk to ALARP.
6 March 2024	Various	Curtailement direction variations issued	AEMO issued direction variations to relevant entities to maintain and improve supply adequacy to reduce risk to ALARP.
	18:23	Supply direction issued	AEMO issued a direction to a relevant entity to facilitate supply into the QGP.
	19:09	Direction notice issued	AEMO issued a direction notice that the direction function has been exercised.
	21:17	Direction notice issued	AEMO issued a direction notice that the direction function has been exercised.
7 March 2024	9:00	Industry teleconference	AEMO held an industry teleconference to provide an overview and update to industry.
	Various	Curtailement direction variations issued	AEMO issued direction variations to relevant entities to reduce risk to ALARP.
	15:06	AEMO notified of direction non-compliance	AEMO was notified by a relevant entity under NGR 702(1) that it could not comply with a direction.
8 March 2024	14:30	Industry teleconference	AEMO held an industry teleconference to provide an overview and update to industry.
	Various	Curtailement direction and direction variations issued	AEMO issued a direction and direction variations to relevant entities to maintain and improve supply adequacy to reduce risk to ALARP.
	Various	Supply directions issued	AEMO issued a direction to a relevant entity to maintain and improve supply adequacy to facilitate supply into the QGP.
	20:00	Supply direction revocation issued	AEMO revoked a direction to a relevant entity that related to facilitating supply into the QGP.
	20:03	Direction notice issued	AEMO issued a direction notice that the direction function has been exercised.
16 March 2024	Various	Curtailement direction variation issued	AEMO issued a direction variation to relevant entities to maintain and improve supply adequacy to reduce risk to ALARP.
	20:03	Direction notice issued	AEMO issued a direction notice that the direction function has been exercised.
17 March 2024	Various	Supply directions revoked	AEMO revoked directions to relevant entities that relate to facilitating supply into the QGP.

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Date	Time	Event/Action	Details
	16:06	Direction revocation notice issued	AEMO issued a direction notice that previously issued directions have been revoked.
19 March 2024	15:42	Curtailment direction variation issued	AEMO issued a direction variation to a relevant entity to maintain and improve supply adequacy to reduce risk to ALARP.
	20:03	Direction notice issued	AEMO issued a direction notice that the direction function has been exercised.
7 May 2024	-	Publication of the East Coast Gas System Qld Gas Pipeline Preliminary Post Intervention Report	AEMO published the East Coast Gas System Qld Gas Pipeline Preliminary Post Intervention Report to its website
10 December 2024	10:41	Direction revocation notice issued	AEMO issued a direction notice that previously issued directions have been revoked.
	10:50	Revocation of a published east coast adequacy risk or threat notice.	AEMO issued a ECGS risk or threat revocation notice, to provide notice that the identified risk or threat notice had been revoked.