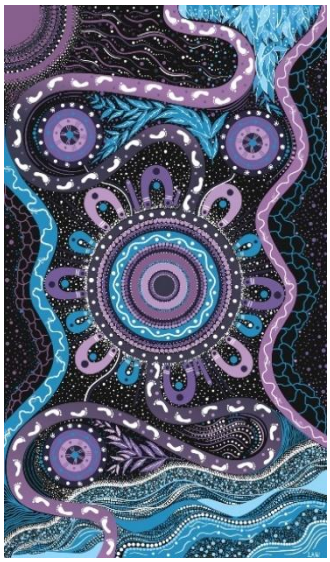
Preliminary Report – Loss of supply to the Geraldton area on 13 December 2025

December 2025

A preliminary incident report for the Wholesale Electricity Market under section 3.8 of the Electricity System and Market Rules – information as at 19/12/2025



We acknowledge the Traditional Custodians of the land, seas and waters across Australia. We honour the wisdom of Aboriginal and Torres Strait Islander Elders past and present and embrace future generations.

We acknowledge that, wherever we work, we do so on Aboriginal and Torres Strait Islander lands. We pay respect to the world's oldest continuing culture and First Nations peoples' deep and continuing connection to Country; and hope that our work can benefit both people and Country.

'Journey of unity: AEMO's Reconciliation Path' by Lani Balzan

AEMO Group is proud to have launched its first Reconciliation Action Plan in May 2024. 'Journey of unity: AEMO's Reconciliation Path' was created by Wiradjuri artist Lani Balzan to visually narrate our ongoing journey towards reconciliation - a collaborative endeavour that honours First Nations cultures, fosters mutual understanding, and paves the way for a brighter, more inclusive future.

Important notice

Purpose

AEMO has prepared this preliminary report under clause 3.8.1 of the Electricity System and Market Rules (ESM Rules) as part of its review of the loss of supply to the Geraldton area that occurred on 13 December 2025.

Disclaimer

While AEMO has made reasonable efforts to ensure the quality of the information in this report, investigations may not be complete, and any findings expressed in it may change if further information becomes available and further analysis is conducted. 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.

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If you have any questions or comments in relation to this report, please contact AEMO at WAElectricityforum@aemo.com.au.

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1 Incident overview

This preliminary report relates to the loss of supply to the Geraldton area[1] that occurred at 2213 hrs Australian Western Standard Time (AWST)[2] on 13 December 2025, interrupting approximately 48 megawatts (MW) and impacting approximately 23,000 customers. The incident occurred due to the loss of both the Mumbida – Three Springs 132 kilovolt (kV) line and the Mungarra – Three Springs 132 kV line during a severe thunderstorm. Prior to the event, Mungarra Gas Turbine 1 (GT1)[3], the only unit capable of restarting the region, was undergoing maintenance. As there was damage to poles on both lines, supply to customers was restored the next evening, after Mungarra GT1 successfully restarted the area.

Clause 3.8.1(a) of the Electricity System and Market Rules (ESM Rules) requires AEMO to investigate incidents that endanger Power System Security[4] or Power System Reliability to a significant extent. AEMO considers that the criteria under clause 3.8.1(a) are met due to the length of the outage, combined with the multiple contingency events and nature of the asset failures. Clause 3.8.3 requires AEMO to publish a report detailing its findings, including a description of any changes to the ESM Rules or Wholesale Electricity Market Procedures (WEM Procedures) that AEMO considers necessary to prevent the future occurrence of similar incidents. This is a preliminary version of that report.

This report provides a summary of the known facts relating to the incident as known at the date of publication and does not attempt to provide any analysis or recommendations. Analysis and recommendations will be provided in the final report, which is expected to be completed by September 2026.

This report details how:

- Supply to the Geraldton area was lost.
- Restoration works are underway.
- AEMO will publish a final report on this event.

Separate to this event, on 14 December 2025, there was further storm activity in the greater Perth area which resulted in several contingencies on the transmission and distribution network, and the loss of approximately 700 MW of load over a 30-minute period. Approximately 120,000 residential and business customers were without power at the peak, which included customers from the Geraldton area who were already without power. Due to the loss of load over 30 minutes, frequency in the South West Interconnected System (SWIS) increased to 50.32 Hertz (Hz). AEMO understands that the loss of this load was largely due to damage to the distribution networks, although analysis on these events is ongoing and is not the subject of this review.

While this report does not speak to the experiences of consumers and communities affected by these incidents, AEMO wishes to acknowledge the uncertainty, complications and challenges events like these can bring to people's lives, livelihoods and wellbeing.

[1] References to the Geraldton area in this report refer to the North Country area located northwest of the Three Springs 132 kV substation.

[2] All times referred to in this report are in AWST.

[3] Mungarra Power Station consists of two GTs (GT1 and GT3) and is a non-market generator contracted by Western Power through the Non-Co-optimised Essential System Services (NCESS) framework to provide reliability services to 64 MW of essential service loads and small use customers in the North Country.

[4] Capitalised terms in this report have the meanings given in the ESM Rules unless the context otherwise requires.

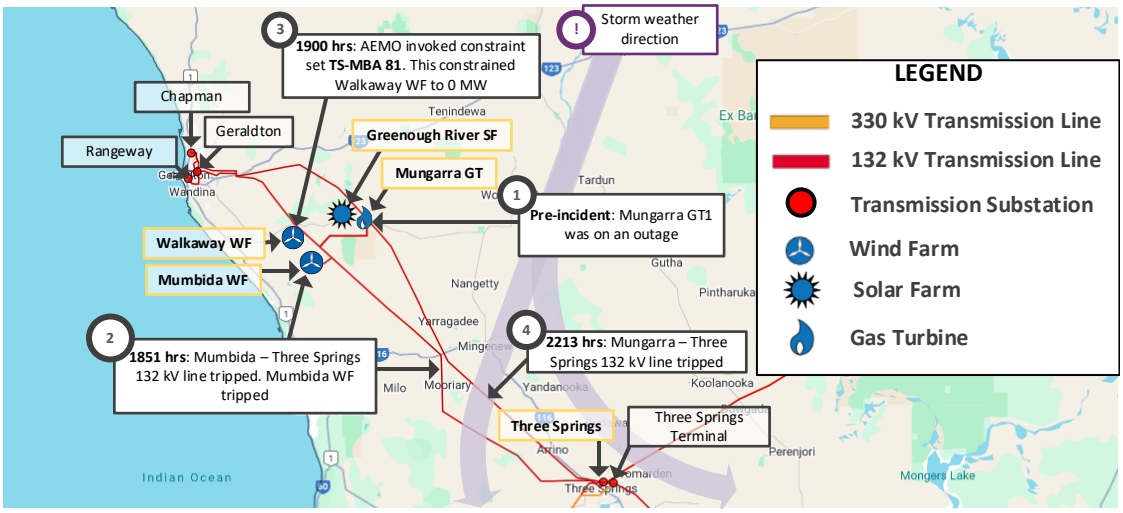
AEMO welcomes feedback

AEMO has prepared a preliminary report on this incident because it is mindful that this event was of significance to stakeholders. AEMO welcomes feedback in relation to this report at the upcoming Western Australian Electricity Consultative Forum (WAECF), which is expected to be held in February 2026, or via email to WAElectricityforum@aemo.com.au. A final report will be published at the conclusion of the incident investigation.

Supply to the Geraldton area was lost

1. Prior to the event, a weather system was moving across the Geraldton area and Mungarra GT1 was out of service on an outage.
2. At 1851 hrs on 13 December 2025, the Mumbida – Three Springs 132 kV line and the Mumbida Wind Farm (WF) tripped. A damaged pole on the Mumbida – Three Springs 132 kV line was later identified by the line patrol.
3. At 1900 hrs, AEMO invoked constraint set TS-MBA 81 to manage the outage of the Mumbida – Three Springs 132 kV line. This constrained Walkaway Wind Farm to 0 MW.
4. At 2213 hrs, the Mungarra – Three Springs 132 kV line tripped. Twenty damaged poles were later identified by the line patrol. As a result, approximately 48 MW of supply to the Geraldton area was lost. AEMO understands that some of these loads remained online, via successful formation of the Kalbarri Township Island[5] and via backup generators.

Figure 1 Incident overview



SF: solar farm

[5] The Kalbarri microgrid is a small-scale power grid connected to the main electricity network to help meet peak demand and improve the reliability of power supply for the town. The microgrid uses local generation and energy storage to provide a supply to the town when the network connection is interrupted. See https://www.westernpower.com.au/resources-education/network-improvements/network-upgrade-projects/kalbarri-microgrid/.

Restoration works are underway

Mungarra GT1, the only black start capable unit in the area, commenced restoration of the Geraldton area at 1835 hrs on 14 December 2025. Mungarra GT3 was synchronised at 1942 hrs, and all transmission interrupted load was restored by 2257 hrs. The Mumbida – Three Springs 132 kV line was restored at 1330 hrs on 15 December 2025. AEMO understands that the Mungarra – Three Springs 132 kV line is expected to return to service on 19 December 2025. However, this is highly uncertain at this stage and subject to change.

AEMO will publish a final report on this incident

AEMO intends to undertake analysis relating to this event and prepare a final report on this incident, which is expected to be completed by September 2026 with the support of Western Power and other participants. The expected scope of this investigation is listed in Section 4.

2 Supply to the Geraldton area was lost

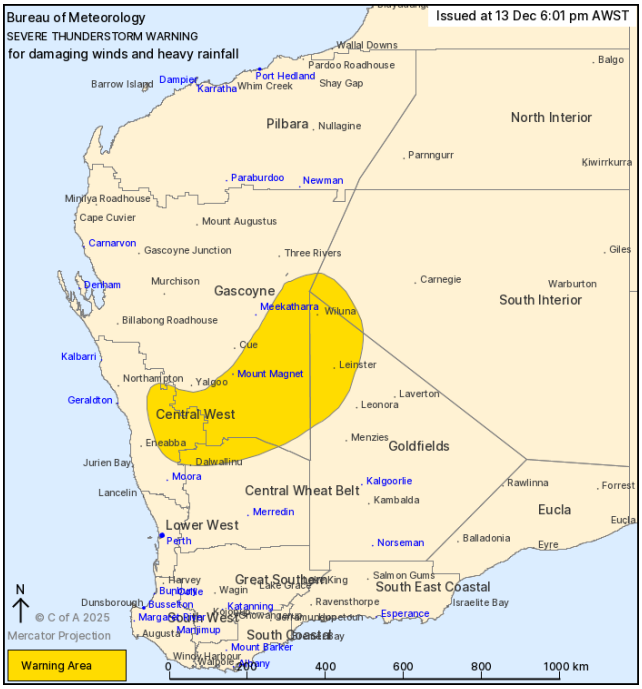
This section describes how the outages to the Mumbida – Three Springs 132 kV line and Mungarra – Three Springs 132 kV line resulted in a loss of supply to the Geraldton area. Section 3 then details the restoration of supply and the lines.

2.1 Severe thunderstorm warnings were issued prior to the event

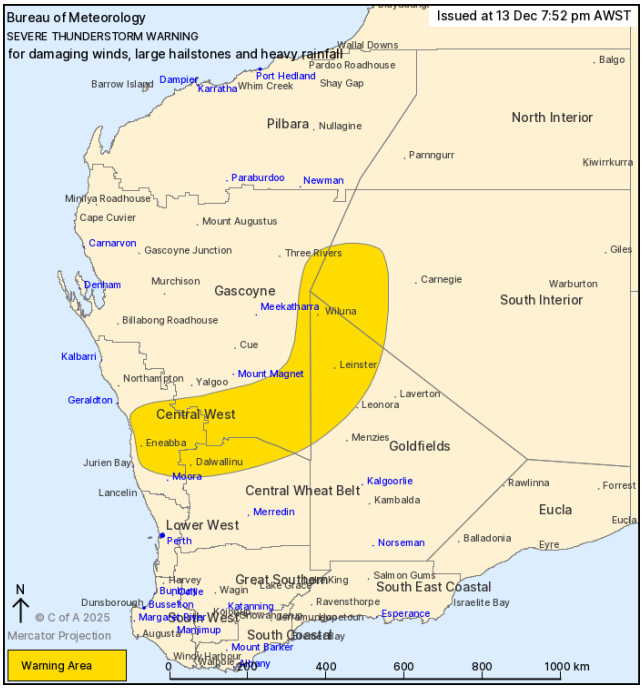
Prior to the event, forecasts from the Bureau of Meteorology (BoM) included a chance of thunderstorms during the afternoon and evening for the central west district and daytime temperatures approaching 40°C on 13 December 2025. Possible severe thunderstorms including a risk of damaging wind gusts exceeding 90 kilometres per hour (km/h) were forecast across much of the Gascoyne and inland Pilbara districts during the afternoon, spreading further south and southeast during the evening.

Figure 2 shows how the area for severe thunderstorm warnings moved southwest to include areas over the SWIS by 1801 hrs as the risk of damaging wind gusts and heavy rainfall increased.

Figure 2 Severe thunderstorm warnings issued by the BoM for 13 December 2025



Severe thunderstorm warning for damaging winds and heavy rainfall, issued at 1801 hrs.



Severe thunderstorm warning update for damaging winds, large hailstones, and heavy rainfall, issued at 1952 hrs.

Actual wind gusts exceeded 100 km/h, there was heavy rainfall, and widespread lightning strikes were observed as the weather system moved southwest. A peak wind gust of 115 km/h was observed at Morawa Airport at 1735 hrs, which is located approximately 50 km from Three Springs.

2.2 The Mumbida – Three Springs 132 kV line tripped

At 1851 hrs on 13 December 2025, the Mumbida – Three Springs 132 kV line tripped, auto-reclosed and tripped again to lock out. **Also at 1851 hrs, Mumbida Wind Farm tripped from 15 MW**. As a result, the Geraldton area was radially supplied via the Mungarra – Three Springs 132 kV line and at credible risk of blackout.

At 1900 hrs, AEMO invoked the constraint set TS-MBA81, which constrained the Walkaway Wind Farm to 0 MW due to the absence of anti-islanding protection at Walkaway Wind Farm. Following the reduction of Walkaway Wind Farm to 0 MW by 1903 hrs, the SWIS was returned to a Secure Operating State.

At 2007 hrs, AEMO issued Market Advisory 212285 to advise Market Participants of the transmission line trip and that it had invoked constraint set TS-MBA 81 to maintain Power System Security and Power System Reliability.

Damage to one pole on the Mumbida – Three Springs 132 kV line was found in the post-incident line helicopter patrol on 14 December 2025.

2.3 The Mungarra – Three Springs 132 kV line tripped

At 2213 hrs on 13 December 2025, the Mungarra – Three Springs 132 kV line tripped, which blacked out the Geraldton area. The area contained approximately 48 MW of load at the time. At 2232 hrs, AEMO issued Market Advisory 212286 to advise Market Participants that the North Country Region had been disconnected from the SWIS and de-energised due to the line outages.

Figure 3 shows how the active power flow on the Mungarra – Three Springs 132 kV line increased following the loss of the Mumbida – Three Springs 132 kV line and Mumbida Wind Farm and further increased due to the constraint on Walkaway Wind Farm. Elsewhere in the SWIS, frequency remained in the Normal Operation Frequency Band (NOFB) and voltages remained within normal operating ranges.

Figure 3 Power flow on 13 December 2025

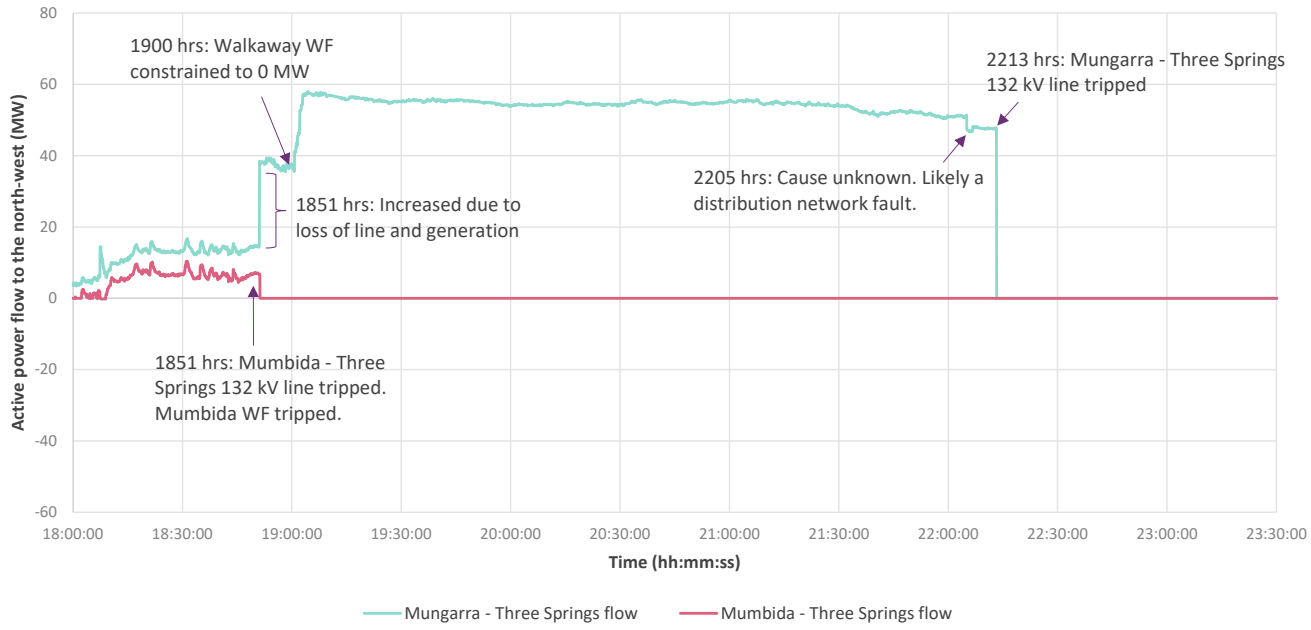


Figure 4 shows multiple damaged poles on the Mungarra – Three Springs 132 kV line. Twenty damaged poles were found in the post-incident line helicopter patrol on 14 December 2025.

Figure 4 Multiple damaged poles on the Mungarra – Three Springs 132 kV lines

Photo provided by Western Power.

3 Restoration works are underway

At 1835 hrs on 14 December 2025, restoration of the Geraldton area was commenced via the Mungarra GT1, the only black start capable unit in the area. Mungarra GT3 was synchronised at 1942 hrs to aid with the supply of load. Power was progressively restored to the Geraldton area, and **all transmission interrupted load was restored by 2257 hrs on 14 December 2025**. The Mumbida – Three Springs 132 kV line was restored at 1330 hrs on 15 December 2025.

At the time of writing this report, AEMO understands that Western Power is continuing to work to return the Mungarra – Three Springs 132 kV line to service. AEMO understands that the anticipated return to service of the Mungarra – Three Springs 132 kV line is 19 December 2025. However, this is uncertain and subject to change.

4 AEMO will publish a final report

AEMO intends to undertake analysis relating to this event and prepare a final report on this incident, which is expected to be completed by September 2026 with the support of Western Power and other participants. The investigation is expected to include, but not be limited to:

- Confirmation of the exact timing and sequence of event based on available high-speed monitoring data.
- Confirmation of the cause of the pole damage.
- Review of Power System Security.
- Review of generator performance, including cause of the Mumbida Wind Farm trip.
- Recommendations to improve power system resilience and address issues identified through the review.
- Identification of any changes to the ESM Rules or WEM Procedures that AEMO considers necessary to prevent the future occurrence of similar incidents.

Abbreviations

Abbreviation	Term
AEMO	Australian Energy Market Operator
AWST	Australian Western Standard Time
BoM	Bureau of Meteorology
ESM Rules	Electricity System and Market Rules
GT	gas turbine
Hz	Hertz
km	kilometre/s
km/h	kilometre/s per hour
kV	kilovolt/s
MW	megawatt/s
NCESS	Non-Co-optimised Essential System Services
NOFB	Normal Operating Frequency Band
SF	solar farm
SWIS	South West Interconnected System
WAECF	Western Australian Electricity Consultative Forum
WEM	Wholesale Electricity Market
WF	wind farm