

# Trip of Columboola - Wandoan South 8891 and 8892 275 kV Lines on 13 February 2023

July 2023

Reviewable Operating Incident  
Report under the National  
Electricity Rules





# Important notice

## Purpose

AEMO has prepared this report in accordance with clause 4.8.15(c) of the National Electricity Rules, using information available as at the date of publication, unless otherwise specified.

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If you have any questions or comments in relation to this report, please contact AEMO at [system.incident@aemo.com.au](mailto:system.incident@aemo.com.au).

The NEM operates on Australian Eastern Standard Time (AEST). All times in this report are in AEST.

# Abbreviations

Abbreviation	Term
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AEST	Australian Eastern Standard Time
BESS	Battery Energy Storage System
kV	Kilovolt
MW	Megawatts
NEM	National Electricity Market
NER	National Electricity Rules
SF	Solar Farm
TNSP	Transmission Network Service Provider

# Incident review

This reviewable operating incident<sup>1</sup> report is prepared in accordance with National Electricity Rules (NER) clause 4.8.15(c). It has been prepared using information provided by Participant(s)<sup>2</sup> and from AEMO systems.

**Table 1 Summary of event**

Details	
<b>Reviewable operating incident type</b>	Non-credible contingency event impacting critical transmission elements.
<b>Incident details</b>	This report relates to a reviewable operating incident <sup>3</sup> that occurred on 13 February 2023 in Queensland. The incident involved the trip of the Columboola – Wandoan South 275 kilovolt (kV) lines (line 8891 and line 8892) due to a bushfire near Miles <sup>4</sup> . Due to the trip of line 8891 and line 8892, electricity supply west of Yuleba North and Eurombah substations was interrupted.
<b>Incident classification</b>	Environment and Other – Bushfires.
<b>Generation impact</b>	Approximately 114 megawatts (MW).
<b>Customer load impact</b>	Approximately 393 MW.
<b>Pre-incident conditions</b>	<p>Prior to the event, line 8891 and line 8892 were in service and operating normally (see Figure 1). Powerlink has confirmed that:</p> <ul style="list-style-type: none"> <li>From early on 13 February 2023, a bushfire was being monitored and assessed in the Myall area (line 8891 and line 8892 are located near this area).</li> <li>Powerlink received an update from emergency services personnel in the morning of 13 February 2023 confirming that containment lines had been established and that the fire would be attended during the day. Given this information, the risk to line 8891 and line 8892 was not sufficient to reclassify the trip of both transmission lines as credible as per AEMO's published Power System Security Guidelines<sup>5</sup>.</li> </ul>
<b>Incident key events</b>	<ul style="list-style-type: none"> <li>At 1402 hrs on 13 February 2023, line 8891 and line 8892 tripped.</li> <li>Electricity supply west of Yuleba North and Eurombah substations was interrupted, disconnecting approximately 393 MW of load.</li> <li>At Wandoan South substation: <ul style="list-style-type: none"> <li>The Wandoan Battery Energy Storage System (BESS) (discharging 1 MW at the time of the incident) disconnected due to the correct operation of anti-islanding<sup>6</sup> protection/control systems.</li> <li>Gangarri Solar Farm (generating 113 MW at the time of the incident) also disconnected. The cause of the Gangarri Solar Farm disconnection is still under investigation.</li> </ul> </li> <li>At 1436 hrs on 13 February 2023, line 8891 and line 8892 returned to service and the restoration of interrupted load commenced.</li> </ul>
<b>Incident cause</b>	<p>Post incident investigation has confirmed:</p> <ul style="list-style-type: none"> <li>At 1402 hrs on 13 February 2023, multiple high voltage faults occurred on line 8891 and line 8892, causing both lines to trip. These lines tripped due to a bushfire, near Miles, which had broken containment lines. <ul style="list-style-type: none"> <li>Line 8891 and line 8892 are the main source of supply to Wandoan South substation and the Surat network beyond. As a result of this event, there was a loss of high voltage supply and all loads supplied from these substations were lost (see Figure 2).</li> </ul> </li> </ul>

<sup>1</sup> Reviewable operating incidents are defined by NER clause 4.8.15(a) and the AEMC Reliability Panel Guidelines for Identifying Reviewable Operating Incidents.

<sup>2</sup> Powerlink is a Transmission Network Service Provider (TNSP) for Queensland.

<sup>3</sup> See NER clause 4.8.15(a)(1)(i), as the event relates to a non-credible contingency event; and the AEMC Reliability Panel Guidelines for Identifying Reviewable Operating Incidents.

<sup>4</sup> Miles is near Columboola in Queensland

<sup>5</sup> See [https://aemo.com.au/-/media/files/electricity/nem/security\\_and\\_reliability/power\\_system\\_ops/procedures/so\\_op\\_3715-power-system-security-guidelines.pdf?la=en](https://aemo.com.au/-/media/files/electricity/nem/security_and_reliability/power_system_ops/procedures/so_op_3715-power-system-security-guidelines.pdf?la=en).

<sup>6</sup> Anti-islanding protection/control schemes disconnect distributed generation when the grid supply is interrupted.

Details	
<b>Power system response (facilities and services)</b>	<p>AEMO identified that the following generators had unexpected performance or failed to ride through the line 8891 and line 8892 faults:</p> <ul style="list-style-type: none"> <li>• Bluegrass Solar Farm.</li> <li>• Gangarri Solar Farm.</li> <li>• Columboola Solar Farm.</li> </ul> <p>These three generators were in commissioning at the time of the incident. AEMO is investigating the above generators' performance to identify whether further action/rectification is required. There was no further impact on the broader power system, load or generation attributed to the response of these generators.</p>
<b>Rectification</b>	No other action, except reclassification (see reclassification section below).
<b>Power system security</b>	The power system remained in a secure operating state throughout this incident and the power system frequency remained within the Frequency Operating Standard <sup>7</sup> .
<b>Reclassification</b>	<p>AEMO assessed whether to reclassify this incident as a credible contingency event<sup>8</sup>.</p> <p>The cause of this incident was identified. Subsequent to the trip of lines 8891 and 8892, Powerlink received feedback from Queensland Fire and Emergency Services (QFES) that the fire had broken the containment lines. AEMO considered that another occurrence of this event was possible under the current circumstances and correctly reclassified the event as a credible contingency at 1446 hrs on 13 February 2023.</p> <p>At 1100 hrs on 14 February 2023, Powerlink confirmed to AEMO that the bushfire had moved more than 5 km from the affected transmission lines and therefore a re-occurrence of this event was unlikely. Based on this information, AEMO correctly cancelled the reclassification of a credible contingency at 1115 hrs on 14 February 2023.</p>
<b>Market information</b>	<p>For this incident, AEMO issued the following market notices (all market notices for this incident were issued in accordance with NER requirements):</p> <ul style="list-style-type: none"> <li>• Market Notice 105822 at 1434 hrs on 13 February 2023 – Advice of a non-credible contingency event in the Queensland region.</li> <li>• Market Notice 105823 at 1446 hrs on 13 February 2023 – Advice of reclassification of the non-credible contingency loss of line 8891 and line 8892 as a credible contingency.</li> <li>• Market Notice 105842 at 1118 hrs on 14 February 2023 – Advice of cancellation of the reclassification of the loss of line 8891 and line 8892 as a credible contingency event.</li> </ul>
<b>Conclusions</b>	<p>AEMO has concluded that:</p> <ol style="list-style-type: none"> <li>1. At 1402 hrs on 13 February 2023, the Columboola – Wandoan South 275 kV lines (line 8891 and line 8892) tripped due to the impact of a bushfire near Miles in Queensland that broke its containment line and traversed into the vicinity of the affected transmission lines. Due to the trip of line 8891 and line 8892, electricity supply west of Yuleba North and Eurombah substations was interrupted.</li> <li>2. Approximately 393 MW of load supplied from substations west of Yuleba North and Eurombah substation was disconnected, and the Gangarri Solar Farm (generating 113 MW) and the Wandoan South BESS (discharging 1 MW) were also disconnected.</li> <li>3. The power system remained in a secure operating state and the Frequency Operating Standard was met for this incident.</li> </ol>
<b>Recommendations</b>	<ol style="list-style-type: none"> <li>1. AEMO and Powerlink to share the findings of this event with the Power System Security Working Group by Q3 2023.</li> <li>2. AEMO to continue its investigation into the following generators who had unexpected performance or failed to ride through the line 8891 and line 8892 faults: <ul style="list-style-type: none"> <li>– Bluegrass Solar Farm.</li> <li>– Gangarri Solar Farm.</li> <li>– Columboola Solar Farm.</li> </ul> </li> </ol>

<sup>7</sup> Frequency Operating Standard; see <https://www.aemc.gov.au/sites/default/files/2020-01/Frequency%20operating%20standard%20-%20effective%201%20January%202020%20-%20TYPO%20corrected%2019DEC2019.PDF>.

<sup>8</sup> AEMO is required to assess whether or not to reclassify a non-credible contingency event as a credible contingency event – NER clause 4.2.3A(c) – and to report how the reclassification criteria were applied – NER clause 4.8.15(ca).

Figure 1 Pre-incident diagram

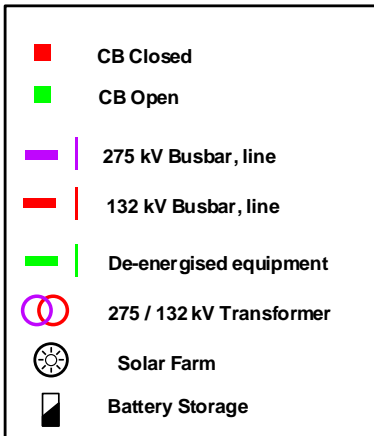
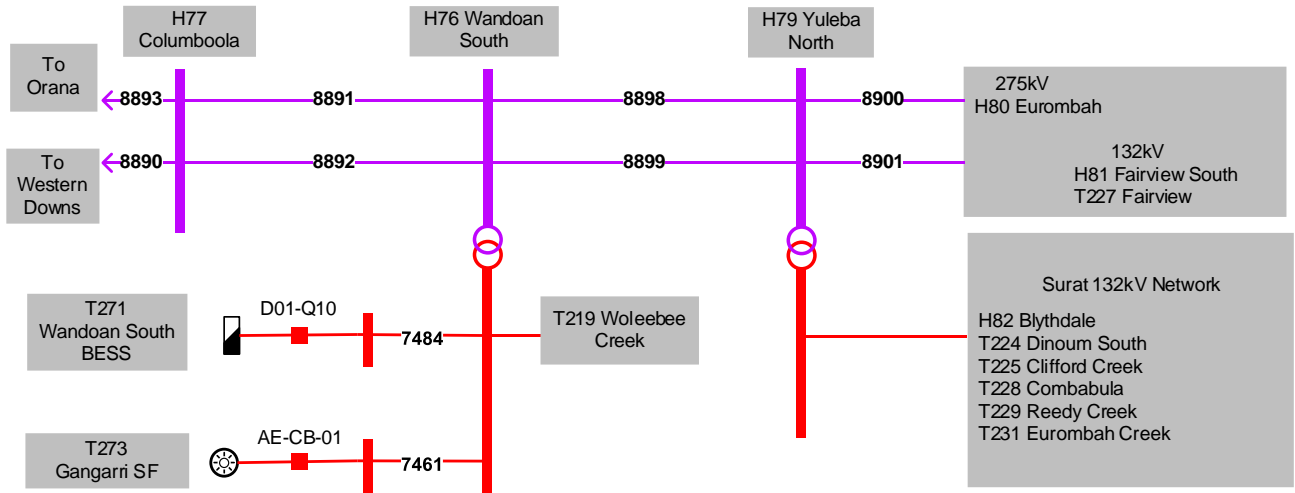


Figure 2 Post-incident diagram

