



Trip of Burnie No. 2 Transformer

September 2021

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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CONTACT

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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
CB	Circuit breaker
hrs	Hours
kV	Kilovolt
MW	Megawatts
NEM	National Electricity Market
NER	National Electricity Rules
TNSP	Transmission Network Service Provider

Incident review

This reviewable operating incident¹ report is prepared in accordance with clause 4.8.15(c) of the National Electricity Rules (NER). It has been prepared using information provided by TasNetworks² and from AEMO systems.

Table 1 Summary of event – Trip of Burnie No.2 220:110 kV transformer, 12 May 2021

	Details
Reviewable operating incident type	Non-credible contingency event impacting critical transmission elements.
Incident details	This report relates to a reviewable operating incident ³ that occurred on 12 May 2021 in Tasmania. This incident involved the tripping of the Burnie No. 2 220/110 kilovolt (kV) transformer on the 220 kV side only due to the opening of the B452 circuit breaker (CB).
Incident classification	Operating error.
Generation impact	There was no loss of generation as a result of this incident.
Customer load impact	No customer load was tripped or automatically shed in response to this incident.
Pre-incident conditions	Prior to this incident, the Burnie 110 kV A bus was out of service for planned maintenance. The bus was taken out of service for the trip testing of the Hampshire K152 CB. The B452 CB was closed and the Burnie No. 2 220/110 kV transformer was energised. Onsite staff were performing secondary isolations within the 110 kV Bus Zone Panel at the time of the incident.
Incident key events	<ol style="list-style-type: none"> At 1027 hrs on 12 May 2021: <ul style="list-style-type: none"> The B452 CB at Burnie was inadvertently operated. The protection schemes operated successfully to trip the B452 CB, de-energising the Burnie No.2 220/110 kV transformer on the 220 kV side only. At 1030 hrs on 12 May 2021, TasNetworks advised AEMO that the B452 CB was inadvertently operated during a planned protection outage at Burnie and that the event was unlikely to reoccur. The Burnie No. 2 220/100 kV transformer was successfully returned to service at 1034 hrs on 12 May 2021 through the manual close of the B452 CB. <p>Figure 1 shows the system conditions immediately after the incident.</p>
Incident cause	<p>TasNetworks confirmed to AEMO that:</p> <ul style="list-style-type: none"> At 1027 hrs on 12 May 2021, staff onsite inadvertently tripped the B452 CB during the planned protection outage of the Burnie A 110 kV bus. At the time of the incident, staff were performing in-service isolations within the 110 kV Bus Zone Protection Panel. The trip was caused by one of the technicians creating a short circuit via an insulated screwdriver between the Trip Pos Bus and the B452 CB trip link when they were isolating the B452 trip circuit as per TasNetworks' procedure. The control wiring configuration and trip location is shown in Figure 2.

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

² Participant is the Distribution Network Service Provider (DNSP) and the Transmission Network Service Provider (TNSP) for Tasmania.

³ 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.

	Details
	<ul style="list-style-type: none"> The B452 CB was the only CB within the 110 kV Bus Panel wired using a Trip Pos Bridging Comb mounted on top of the URTK/S links (the proximity of the Trip Pos Bridging Comb to the URTK/s links increases the risk of incidents like this occurring).
Power system response (facilities and services)	The protection systems operated as designed and successfully tripped the B452 CB.
Rectification	Immediately following this incident, the Trip Pos Bus bridging combs were replaced with building wire during the isolation. This removes the risk of future inadvertent tripping of the B452 CB due to the bridging combs being in the location of isolation. The control wiring configuration after the replacement of the bridging combs is shown in Figure 2.
Power system security	The power system remained in a secure operating state throughout this incident and the Frequency Operating Standards ⁴ was met for this incident.
Reclassification	<p>AEMO assessed whether to reclassify this incident as a credible contingency event⁵.</p> <p>At 1030 hrs on 12 May 2021, TasNetworks advised AEMO that the B452 CB was inadvertently operated during a planned protection outage at Burnie and that the event was unlikely to reoccur.</p> <p>Based on this advice, AEMO determined the incident was unlikely to reoccur and therefore correctly determined that reclassification as a credible contingency event was not required.</p>
Market information	<p>For this incident, AEMO issued the following market notices (issued in accordance with NER requirements):</p> <ul style="list-style-type: none"> AEMO issued Market Notice 85358 at 1053 hrs on 12 May 2021 to advise of the non-credible contingency event.
Conclusions	AEMO has concluded that the B452 circuit breaker was inadvertently tripped during planned in-service isolations and this is unlikely to reoccur.
Recommendations	AEMO recommends that TasNetworks replaces any bridging combs mounted on top of URTK/S links to reduce potential for inadvertent tripping at other sites.

⁴ Frequency Operating Standard, effective 1 January 2020, available at <https://www.aemc.gov.au/media/87484>.

⁵ 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 Incident diagram – System configuration immediately following the incident

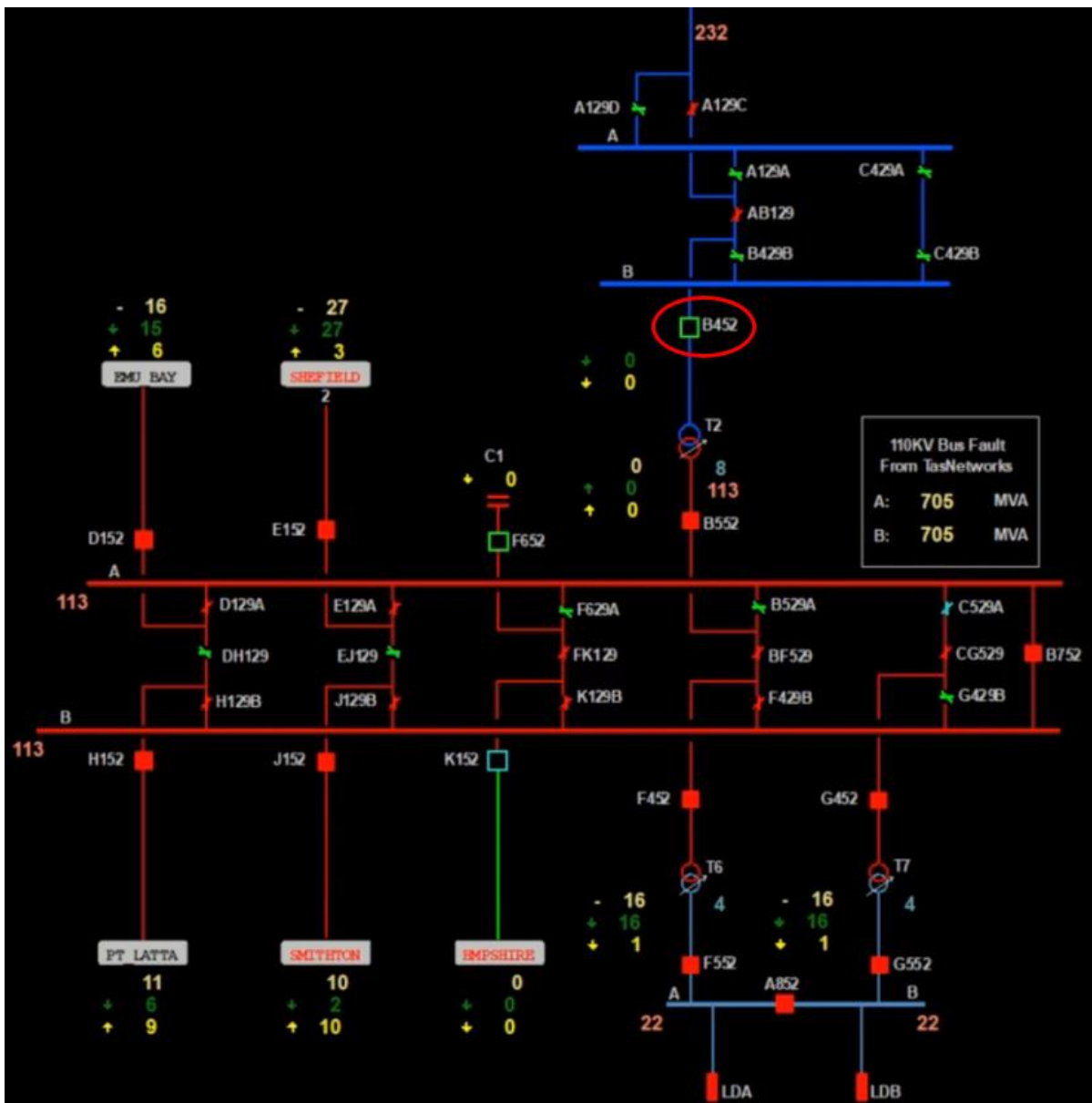


Figure 2 Incident diagram – B452 circuit breaker control wiring before and after replacement of bridging comb

