AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

Review of Power System Reclassification Events 1 May 2019 to 31 October 2019

January 2020

A report for the National Electricity Market

Important notice

PURPOSE

AEMO has prepared this report on its power system reclassification decisions in the National Electricity Market for the period 1 May 2019 to 31 October 2019 in accordance with clause 4.2.3A(i) of the National Electricity Rules.

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1. Introduction

This report sets out AEMO's reasons for decisions to reclassify *non-credible contingency events* as *credible contingency events* under clause 4.2.3A(g) of the National Electricity Rules (NER).

AEMO is required by clause 4.2.3A(i) of the NER to report on reclassification decisions every six months. This report covers the period from 1 May 2019 to 31 October 2019 (reporting period). The report includes:

1. An explanation of how AEMO applied the criteria established in accordance with clause 4.2.3B for each of these decisions.
2. AEMO's analysis of reclassification trends during the reporting period, and its appraisal of the appropriateness of the relevant criteria applied in the case of each reclassification decision.

In this document, a word or phrase in *this style* has the same meaning as given to that term in the NER.

References to times in this report, unless otherwise specified, are to Australian Eastern Standard Time (AEST).

2. Overview

There was a total of 187 reclassification events in this reporting period, compared to 280 reclassification events during the previous winter reporting period (1 May 2018 to 31 October 2018).

All reclassifications in this reporting period were appropriately determined in accordance with the reclassification criteria in AEMO's Power System Security Guidelines SO_OP_3715[1], for bushfires, lightning, or other reasons.

AEMO notified *Market Participants*, via Market Notices (MNs)[2], of the reasons for reclassifying each of these *non-credible contingency events*.

[1] AEMO, Power System Security Guidelines. Power system operating procedures are available at http://aemo.com.au/Electricity/National–Electricity–Market–NEM/Security–and–reliability/Power–system–operation.

[2] A Market Notice is an email notification issued in real time by AEMO to market participants. Market Notices are also published on AEMO's website at https://www.aemo.com.au/Electricity/National–Electricity–Market–NEM/Market–notices–and–events.

3. AEMO's role

In general terms, the *power system* is operated such that it will remain in a *satisfactory operating state*[3] following the loss of a single major *transmission* or *generation* element. These events are defined as *credible contingency events*[4] and include:

- Unexpected loss of a single transmission line, transformer, or reactive plant.
- Unexpected loss of a single generating unit.

AEMO considers the occurrence of these events to be reasonably possible (a *credible contingency event*).

A *non-credible contingency event* is a *contingency event* other than a *credible contingency event*. Examples include:

- Three phase electrical faults.
- The trip of any busbar in the *transmission network*.
- The trip of more than one *transmission element*.
- The trip of *transmission plant* in a manner not considered likely (for example, a *transmission line* that trips at one end only).
- The trip of multiple *generating units*.

AEMO is not required to operate the *power system* with the capability to remain in a *satisfactory operating state* following *non-credible contingency events* (other than any *protected events*), as the likelihood of their occurrence is low.

AEMO must reclassify a *non-credible contingency event* as a *credible contingency event* if the likelihood of this event impacting the *power system* has become reasonably possible due to *abnormal conditions*. *Abnormal conditions* may include severe weather conditions, lightning, and bushfires[5].

[3] Refer to clause 4.2.2 of the NER.

[4] Refer to clause 4.2.3 of the NER.

[5] Refer to clause 4.2.3A (a) of the NER.

4. Reclassification criteria

AEMO has developed criteria for determining whether a *non-credible contingency event* should be reclassified as a *credible contingency event* (reclassification criteria). The reclassification criteria are specified in AEMO's Power System Security Guidelines SO_OP_3715[6]. The reclassification criteria apply to:

- Bushfires.
- Lightning.
- Severe weather.
- Other events (for example, events with the potential to impact multiple generating units, or pollution impacting transmission line insulators).
- Occurrence of a *non-credible contingency event*.

The following section analyses how AEMO reclassified *non-credible contingency events* using the reclassification criteria for the reporting period.

[6] AEMO published a new version of Power System Security Guidelines SO_OP_3715 on 23 September 2019, which introduced two new reclassification criteria, *severe weather conditions* and *non-credible contingency event*.

5. Reclassification events, 1 May 2019 to 31 October 2019

AEMO reclassified 187 events during the reporting period, down by 93 from the same period in 2018. Table 1 summarises these events.

Refer to Appendix A1 for a complete list of events.

Table 1 Reclassification events for period 1 May 2019 to 31 October 2019

Criteria	Number of reclassification events	Incidence of contingency occurring during reclassification
Bushfires	2	0
Lightning	153	0
Other[A]	32	0
Total for period	187	0

A. This includes the *severe weather conditions* and *non-credible contingency event* reclassification criteria.

AEMO reclassified all bushfire and lightning events in accordance with the reclassification criteria specified in Section 8.3 and Section 8.4 of SO_OP_3715 respectively.

There were 32 events reclassified under the 'other' criteria according to Sections 8.5, 8.6, and 8.7 of SO_OP_3715. Most of these were reclassified due to either:

- Forecast abnormal weather conditions (such as severe weather warnings due to high wind or cyclones), or
- Occurrence of a *non-credible contingency event* following which AEMO considered there was a reasonable possibility of reoccurrence.

There were no instances of events occurring while reclassified as credible.

Figure 1 shows the number of reclassification events per region for the reporting period, and Figure 2 shows the historical trend of reclassification events by event criteria.

The total number of reclassification events in this reporting period was close to the historical winter period average (since 2009).

The total number of reclassified elements decreased in this reporting period compared to the previous reporting period (1 November 2018 to 30 April 2019), and decreased compared to the same winter period last year (1 May 2018 to 31 October 2018).

The number of reclassifications decreased by 33% overall from 280 in the previous winter, to 187 this reporting period. The largest decrease compared to the previous winter was observed for reclassifications due to lightning, which decreased from 224 to 153.

Queensland experienced the largest decrease in reclassifications compared to last winter period (122 to 56). The Chinchilla – Columboola No. 7349 and No. 7350 132 kilovolts (kV) lines in Queensland were reclassified 20 times due to lightning last winter period but were not reclassified at all during the current reporting period. These lines were removed from the list of Vulnerable Transmission Lines (Section 8.4.2 of

SO_OP_3715) following the previous winter reporting period, because they had not experienced a trip due to lightning in the previous three years.

Elements in Tasmania which have been prone to reclassifications historically also decreased this reporting period compared to the previous winter period. Most notably, reclassification of the Farrell Reece No. 1 and No. 2 220 kV lines decreased by 14. These lines remain on the list of Vulnerable Transmission Lines in the current version of SO_OP_3715.

Reclassifications due to bushfires and other reasons decreased by 4 and 16 respectively compared to the previous winter period.

Figure 1 Reclassifications per region, 1 May 2019 to 31 October 2019

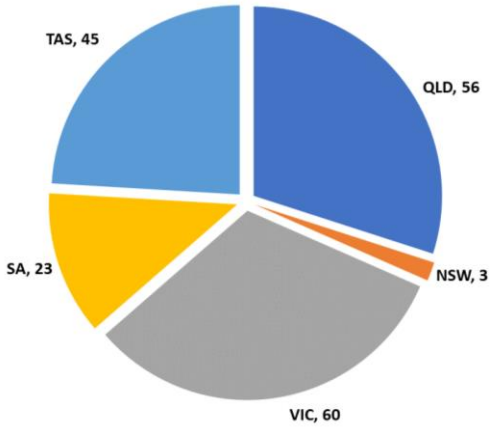
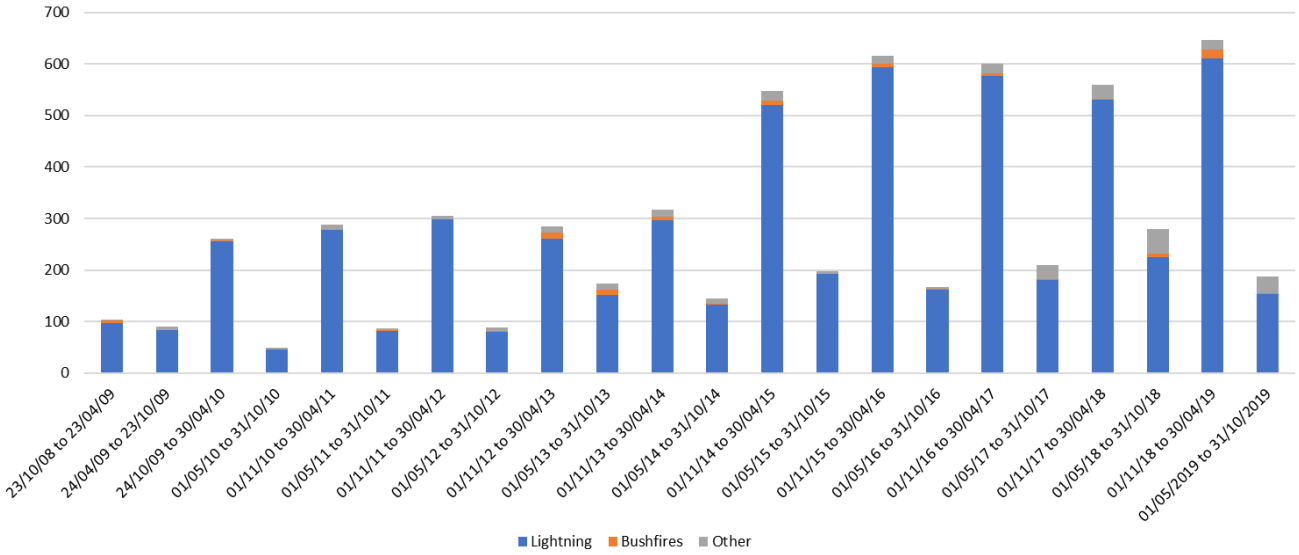


Figure 2 Historical reclassification events, 2009-19



Appendix A2 lists all the reclassified elements and the number of times they were reclassified during the period 1 May 2019 to 31 October 2019.

6. Non-credible contingency events, 1 May 2019 to 31 October 2019

During the reporting period, 23 *non-credible contingency events* occurred. AEMO subsequently reclassified 14 of these events as *credible contingency events*, after assessing there was a risk of the event reoccurring.

Note that the following reclassification events cancelled within this reporting period were initially reclassified before the period, so are not listed in Appendix A1:

- Trip of Tarong – Chinchilla 7168 132 kV line at the Tarong end only, cancelled on 17 May 2019.
- Trip of Brinkworth – Templers West 275 kV Line and Angaston PS generating unit 1 and 2, cancelled on 12 July 2019.
- Trip of Eildon – Mount Beauty No. 2 220 kV line at the Mount Beauty end only, cancelled on 20 August 2019.
- Trip of Chapel St – Gordon No. 2 220 kV line and the Gordon No. 3 generator, cancelled on 3 September 2019.

Appendix A3 lists all *non-credible contingency events* that occurred during the reporting period, and AEMO's assessment of whether to reclassify each event as credible. The rows highlighted in blue in Appendix A3 explain the contingency events corresponding to the reclassifications highlighted in blue in Appendix A1.

The following three non-credible contingency events that occurred in the reporting period remain reclassified at the time of publishing this report.

- Trip of either of the South East 275/132 kV transformers and its associated Static Var Compensator (SVC), reclassified on 20 June 2019.
- Trip of Tungatinah – Butlers Gorge 110 kV Line and all circuit breakers at Tarraleah Power Station, reclassified on 14 July 2019.
- Trip of Darling Downs PS – Braemar R2 8862 275 kV line and Darling Downs Generator GT3, reclassified on 21 July 2019.

The transmission elements that were reclassified prior to the reporting period and remained reclassified at the end of the reporting period are not included in this report.

7. Reclassification constraints

When AEMO reclassifies an event, it seeks to operate the *power system* so it stays in a *satisfactory operating state* should the (now) *credible contingency event* occur. AEMO typically invokes constraint equations to manage the *power system* accordingly while an event is reclassified.

Appendix A4 lists the binding constraint equations during reclassification events over the reporting period.

There were 19 reclassified events that resulted in binding constraint equations. This means that, in the 168 other instances, the reclassification constraint did not affect dispatch outcomes.

8. Conclusion

AEMO concludes that, during the reporting period 1 May to 31 October 2019:

1. AEMO's reclassification decisions were appropriate and consistent with the reclassification criteria.
2. AEMO notified Market Participants of the reasons for reclassifying non-credible contingency events.
3. The total number of reclassification events in the NEM was materially lower than for winter 2018, but close to the historical winter period average.

A1. Reclassification events, 1 May 2019 to 31 October 2019

- **INDJI** – Indji Watch (INDJI) is a system that monitors live information feeds on hazards such as bushfires and displays their positions relative to the locations of transmission assets and is used to provide detection and location of cloud to ground lightning strikes across the National Electricity Market (NEM) transmission system.
- **BOM** – AEMO receives advice from the Bureau of Meteorology (BOM) when severe weather is forecast in regions that may impact the NEM transmission system.

The reclassification events highlighted in blue below were reclassified after a non-credible contingency event occurred. Further details on the reclassifications highlighted blue can be found in Appendix A3.

Table 2 Reclassification events 1 May 2019 to 31 October 2019

Start MN	Start date and time	Actual end date and time	End MN	Reclassified equipment	Region	Reason	Source
68280	01/05/2019 1830 hrs	16/05/2019 1700 hrs	68388	Pioneer Valley – Mackay 132 kV 7451 line at T38 Mackay end only	QLD	Other	Event actually occurred
68282	01/05/2019 2145 hrs	01/05/2019 2245 hrs	68283	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
68284	02/05/2019 0210 hrs	02/05/2019 0640 hrs	68294	Farrell – Sheffield No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
68285	02/05/2019 0215 hrs	02/05/2019 0640 hrs	68295	Farrell Reece No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
68286	02/05/2019 0215 hrs	02/05/2019 0640 hrs	68296	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
68288	02/05/2019 0315 hrs	02/05/2019 0640 hrs	68297	Sheffield – Wesley Vale 110 kV and Sheffield – Devonport 110 kV	TAS	Lightning	INDJI
68289	02/05/2019 0415 hrs	02/05/2019 0920 hrs	68299	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
68290	02/05/2019 0415 hrs	02/05/2019 0520 hrs	68292	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
68291	02/05/2019 0450 hrs	02/05/2019 0855 hrs	68298	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
68305	02/05/2019 1555 hrs	02/05/2019 2355 hrs	68314	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI

Start MN	Start date and time	Actual end date and time	End MN	Reclassified equipment	Region	Reason	Source
68306	02/05/2019 1645 hrs	02/05/2019 2350 hrs	68313	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
68307	02/05/2019 1705 hrs	02/05/2019 2005 hrs	68309	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
68308	02/05/2019 1940 hrs	02/05/2019 2045 hrs	68311	Sheffield – Wesley Vale 110 kV and Sheffield – Devonport 110 kV	TAS	Lightning	INDJI
68310	02/05/2019 2020 hrs	02/05/2019 2320 hrs	68312	Norwood – Scottsdale – Derby 110 kV Line and Norwood – Scottsdale 110 kV Line	TAS	Lightning	INDJI
68333	08/05/2019 1745 hrs	08/05/2019 1845 hrs	68335	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
68337	09/05/2019 0345 hrs	09/05/2019 1045 hrs	68341	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
68346	10/05/2019 1215 hrs	10/05/2019 1315 hrs	68348	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
68349	10/05/2019 1510 hrs	10/05/2019 1810 hrs	68350	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
68372	13/05/2019 2040 hrs	13/05/2019 2050 hrs	68373	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
68374	13/05/2019 2055 hrs	13/05/2019 2110 hrs	68375	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
68377	13/05/2019 2110 hrs	13/05/2019 2215 hrs	68379	Tungatinah – New Norfolk tee Meadowbank No. 1 and No. 2 110 kV lines	TAS	Lightning	INDJI
68376	13/05/2019 2110 hrs	13/05/2019 2210 hrs	68378	Chapel St – Liapootah No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
68394	17/05/2019 1420 hrs	22/05/2019 1735 hrs	68444	Trip of Broken Hill No 2 220/22 kV Transformer, Broken Hill to Mines X 4 220 kV Line, Broken Hill to Silverton Wind Farm X6 220 kV Line and No 2 Section 22 kV Bus	NSW	Other	Event actually occurred
68447	24/05/2019 0625 hrs	24/05/2019 0730 hrs	68449	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
68446	24/05/2019 0625 hrs	24/05/2019 0725 hrs	68448	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
68451	24/05/2019 1655 hrs	24/05/2019 1755 hrs	68452	Farrell Reece No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
68453	24/05/2019 2215 hrs	25/05/2019 0015 hrs	68455	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
68456	25/05/2019 0050 hrs	25/05/2019 0150 hrs	68458	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
68460	25/05/2019 0820 hrs	25/05/2019 1025 hrs	68462	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
68459	25/05/2019 0820 hrs	25/05/2019 1020 hrs	68461	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
68464	25/05/2019 1715 hrs	25/05/2019 1915 hrs	68467	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
68465	25/05/2019 1740 hrs	25/05/2019 1845 hrs	68466	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI

Start MN	Start date and time	Actual end date and time	End MN	Reclassified equipment	Region	Reason	Source
68468	25/05/2019 2230 hrs	25/05/2019 2330 hrs	68469	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
68472	26/05/2019 1235 hrs	26/05/2019 1340 hrs	68474	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
68478	26/05/2019 1530 hrs	26/05/2019 1730 hrs	68479	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
68483	26/05/2019 2055 hrs	26/05/2019 2255 hrs	68484	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
68485	27/05/2019 0005 hrs	27/05/2019 0105 hrs	68486	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
68487	27/05/2019 0135 hrs	27/05/2019 0235 hrs	68488	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
68490	27/05/2019 0955 hrs	27/05/2019 1640 hrs	68495	South East No. 2 275/132 kV Transformer and both the South East No.1 and No.2 275 kV SVCs	SA	Other	TNSP
68491	27/05/2019 1115 hrs	27/05/2019 1215 hrs	68492	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
68493	27/05/2019 1420 hrs	27/05/2019 1620 hrs	68494	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
68497	28/05/2019 1125 hrs	28/05/2019 1225 hrs	68498	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
68499	28/05/2019 2125 hrs	29/05/2019 1740 hrs	68548	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
68544	29/05/2019 1525 hrs	29/05/2019 2110 hrs	68550	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
68672	05/06/2019 1440 hrs	05/06/2019 1640 hrs	68684	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
68749	10/06/2019 0750 hrs	10/06/2019 0850 hrs	68750	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
68751	10/06/2019 0915 hrs	10/06/2019 1150 hrs	68753	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
68752	10/06/2019 1120 hrs	10/06/2019 1220 hrs	68754	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
68787	16/06/2019 1230 hrs	16/06/2019 2030 hrs	68788	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
68789	16/06/2019 2125 hrs	16/06/2019 2325 hrs	68790	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
68794	17/06/2019 1715 hrs	21/06/2019 1640 hrs	68815	Moorabool – Ballarat tee Elaine 220 kV line at the Moorabool end only	VIC	Other	TNSP
68797	18/06/2019 1045 hrs	18/06/2019 1245 hrs	68798	Norwood – Scottsdale – Derby 110 kV Line and Norwood – Scottsdale 110 kV Line	TAS	Lightning	INDJI
68805	20/06/2019 0910 hrs	20/06/2019 1415 hrs	68808	South East No. 2 275/132 kV Transformer and both the South East No.1 and No.2 275 kV SVCs	SA	Other	TNSP
68810	20/06/2019 1420 hrs	TBA		Either of the South East 275/132 kV transformers and its associated SVC	SA	Other	TNSP
68867	29/06/2019 1705 hrs	29/06/2019 1910 hrs	68872	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI

Start MN	Start date and time	Actual end date and time	End MN	Reclassified equipment	Region	Reason	Source
68868	29/06/2019 1730 hrs	29/06/2019 1930 hrs	68873	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
68926	10/07/2019 0535 hrs	10/07/2019 2335 hrs	68941	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
68927	10/07/2019 0535 hrs	10/07/2019 2335 hrs	68940	Brinkworth – Davenport, Brinkworth – Templers West and Para – Templers West 275 kV lines	SA	Other	BOM
68974	14/07/2019 1025 hrs	TBA		Tungatinah – Butlers Gorge 110 kV line and all circuit breakers at Tarraleah Power Station	TAS	Other	Generator
69014	18/07/2019 1455 hrs	18/07/2019 1505 hrs	69015	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
69049	20/07/2019 1855 hrs	21/07/2019 0000 hrs	69051	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
69059	21/07/2019 1605 hrs	TBA		Darling Downs PS to R2 Braemar 8862 275 kV line and Darling Downs Generator GT3	QLD	Other	TNSP, Generator
69065	22/07/2019 0705 hrs	23/07/2019 1915 hrs	69094	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
69095	23/07/2019 2040 hrs	23/07/2019 2140 hrs	69096	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
69163	07/08/2019 2350 hrs	10/08/2019 0510 hrs	69222	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
69162	07/08/2019 2350 hrs	09/08/2019 0625 hrs	69211	Brinkworth – Davenport, Brinkworth – Templers West and Para – Templers West 275 kV lines	SA	Other	BOM
69179	08/08/2019 1235 hrs	09/08/2019 0205 hrs	69184	Brinkworth – Davenport, Davenport – Mt Lock and Davenport – Belalie 275 kV lines	SA	Other	BOM
69233	11/08/2019 0620 hrs	11/08/2019 0905 hrs	69238	Collinsville Nth – Proserpine 7125 line at Collinsville Nth end only	QLD	Other	TNSP
69243	13/08/2019 0915 hrs	16/08/2019 1510 hrs	69289	South East No. 2 275/132 kV Transformer and both the South East No.1 and No.2 275 kV SVCs	SA	Other	TNSP
69299	18/08/2019 0940 hrs	18/08/2019 1545 hrs	69301	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
69323	21/08/2019 0120 hrs	21/08/2019 0225 hrs	69324	Farrell – Sheffield No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
69325	21/08/2019 0410 hrs	21/08/2019 0510 hrs	69329	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
69326	21/08/2019 0450 hrs	21/08/2019 0555 hrs	69334	Chapel St – Liapootah No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
69327	21/08/2019 0450 hrs	21/08/2019 0550 hrs	69333	Tungatinah – New Norfolk tee Meadowbank No. 1 and No. 2 110 kV lines	TAS	Lightning	INDJI
69328	21/08/2019 0455 hrs	21/08/2019 0755 hrs	69336	Farrell Reece No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
69330	21/08/2019 0515 hrs	21/08/2019 0845 hrs	69338	Farrell – Sheffield No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
69331	21/08/2019 0515 hrs	21/08/2019 0815 hrs	69337	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
69349	21/08/2019 1630 hrs	22/08/2019 16:00 hrs	69354	Darling Downs Power Station	QLD	Other	Generator

Start MN	Start date and time	Actual end date and time	End MN	Reclassified equipment	Region	Reason	Source
69452	24/08/2019 1635 hrs	24/08/2019 1930 hrs	69470	Farrell – Sheffield No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
69453	24/08/2019 1635 hrs	24/08/2019 1930 hrs	69469	Farrell Reece No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
69454	24/08/2019 1635 hrs	24/08/2019 1930 hrs	69471	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
69530	28/08/2019 0020 hrs	28/08/2019 0220 hrs	69531	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
69565	28/08/2019 1655 hrs	28/08/2019 1955 hrs	69579	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
69578	28/08/2019 1900 hrs	28/08/2019 2000 hrs	69580	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
69581	28/08/2019 2220 hrs	28/08/2019 2325 hrs	69582	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
69583	29/08/2019 0005 hrs	29/08/2019 0205 hrs	69584	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
69669	31/08/2019 1050 hrs	31/08/2019 1415 hrs	69673	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
69697	01/09/2019 1105 hrs	03/09/2019 1405 hrs	69735	Yuleba North – Eurombah No.8900 275 kV line at the Eurombah end only	QLD	Other	TNSP
69701	01/09/2019 1615 hrs	01/09/2019 1715 hrs	69704	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
69702	01/09/2019 1650 hrs	01/09/2019 1850 hrs	69706	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
69703	01/09/2019 1710 hrs	01/09/2019 1910 hrs	69707	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
69780	05/09/2019 2320 hrs	06/09/2019 1850 hrs	69844	Brinkworth – Davenport, Brinkworth – Templers West and Para – Templers West 275 kV lines	SA	Other	BOM
69781	05/09/2019 2320 hrs	06/09/2019 1845 hrs	69843	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
69782	05/09/2019 2340 hrs	06/09/2019 0040 hrs	69784	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
69783	06/09/2019 0000 hrs	06/09/2019 0200 hrs	69786	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
69839	06/09/2019 1700 hrs	06/09/2019 1900 hrs	69845	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
70012	17/09/2019 1500 hrs	17/09/2019 1700 hrs	70014	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70015	17/09/2019 1705 hrs	17/09/2019 1805 hrs	70016	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70043	19/09/2019 0540 hrs	19/09/2019 2325 hrs	70082	Brinkworth – Davenport, Brinkworth – Templers West and Para – Templers West 275 kV lines	SA	Other	BOM
70042	19/09/2019 0540 hrs	19/09/2019 1800 hrs	70067	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
70120	21/09/2019 0755 hrs	21/09/2019 1100 hrs	70127	Farrell – Sheffield No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI

Start MN	Start date and time	Actual end date and time	End MN	Reclassified equipment	Region	Reason	Source
70121	21/09/2019 0830 hrs	21/09/2019 1035 hrs	70124	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
70122	21/09/2019 0830 hrs	21/09/2019 1035 hrs	70125	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
70126	21/09/2019 1035 hrs	21/09/2019 1140 hrs	70129	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70130	21/09/2019 1220 hrs	21/09/2019 1420 hrs	70134	Norwood – Scottsdale – Derby 110 kV Line and Norwood – Scottsdale 110 kV Line	TAS	Lightning	INDJI
70131	21/09/2019 1300 hrs	21/09/2019 1400 hrs	70133	Sheffield – Wesley Vale 110 kV and Sheffield – Devonport 110 kV	TAS	Lightning	INDJI
70135	21/09/2019 1450 hrs	21/09/2019 1555 hrs	70139	Norwood – Scottsdale – Derby 110 kV Line and Norwood – Scottsdale 110 kV Line	TAS	Lightning	INDJI
70140	21/09/2019 1605 hrs	21/09/2019 1705 hrs	70146	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70182	23/09/2019 1540 hrs	23/09/2019 1640 hrs	70184	Norwood – Scottsdale – Derby 110 kV Line and Norwood – Scottsdale 110 kV Line	TAS	Lightning	INDJI
70259	26/09/2019 2240 hrs	27/09/2019 0040 hrs	70260	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70267	27/09/2019 1540 hrs	27/09/2019 1940 hrs	70279	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70274	27/09/2019 1730 hrs	27/09/2019 1740 hrs	70275	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70282	28/09/2019 1430 hrs	28/09/2019 1530 hrs	70284	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70285	28/09/2019 1630 hrs	29/09/2019 1245 hrs	70294	Armidale – Koolkhan 996 132 kV Line and Armidale – Coffs Harbour 96C 132 kV Line	NSW	Bushfires	INDJI, TNSP
70287	28/09/2019 1755 hrs	28/09/2019 1855 hrs	70288	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70290	28/09/2019 1935 hrs	28/09/2019 2040 hrs	70291	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70310	01/10/2019 1410 hrs	01/10/2019 1550 hrs	70313	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70315	01/10/2019 1700 hrs	01/10/2019 2140 hrs	70323	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70319	01/10/2019 1940 hrs	02/10/2019 0145 hrs	70328	Moranbah Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	INDJI
70322	01/10/2019 2130 hrs	01/10/2019 2235 hrs	70325	Goonyella – North Goonyella Tee – Stoney Creek No. 7122 and the Goonyella – Newlands No. 7155 132 kV lines	QLD	Lightning	INDJI
70326	01/10/2019 2255 hrs	02/10/2019 0200 hrs	70330	Goonyella – North Goonyella Tee – Stoney Creek No. 7122 and the Goonyella – Newlands No. 7155 132 kV lines	QLD	Lightning	INDJI
70355	03/10/2019 1240 hrs	03/10/2019 2105 hrs	70364	Northfield to Torrens Island A Power Station 275 kV line at Northfield end only	SA	Other	TNSP
70402	06/10/2019 0505 hrs	06/10/2019 0610 hrs	70403	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI

Start MN	Start date and time	Actual end date and time	End MN	Reclassified equipment	Region	Reason	Source
70404	06/10/2019 0805 hrs	06/10/2019 1010 hrs	70408	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
70405	06/10/2019 0925 hrs	06/10/2019 1025 hrs	70409	Norwood – Scottsdale – Derby 110 kV Line and Norwood – Scottsdale 110 kV Line	TAS	Lightning	INDJI
70406	06/10/2019 0925 hrs	06/10/2019 1025 hrs	70410	Chapel St – Liapootah No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
70407	06/10/2019 0925 hrs	06/10/2019 1025 hrs	70411	Tungatinah – New Norfolk tee Meadowbank No. 1 and No. 2 110 kV lines	TAS	Lightning	INDJI
70412	06/10/2019 1150 hrs	06/10/2019 1250 hrs	70413	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
70414	06/10/2019 1255 hrs	06/10/2019 1555 hrs	70422	Chapel St – Liapootah No. 1 and No. 2 220 kV lines	TAS	Lightning	INDJI
70415	06/10/2019 1255 hrs	06/10/2019 1555 hrs	70423	Tungatinah – New Norfolk tee Meadowbank No. 1 and No. 2 110 kV lines	TAS	Lightning	INDJI
70426	06/10/2019 2115 hrs	15/10/2019 1420 hrs	70545	Lindisfarne – Sorell 110 kV line and the Lindisfarne – Sorell – Triabunna Tee 110 kV Line	TAS	Lightning	INDJI
70442	08/10/2019 1050 hrs	08/10/2019 1155 hrs	70443	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
70445	08/10/2019 1235 hrs	08/10/2019 1340 hrs	70448	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
70450	08/10/2019 1415 hrs	08/10/2019 1515 hrs	70452	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
70457	08/10/2019 1955 hrs	09/10/2019 1130 hrs	70471	Coffs – Lismore (89) 330 kV Line and Koolkhan – Lismore (967) 132 kV Line	NSW	Bushfires	INDJI
70475	09/10/2019 1455 hrs	10/10/2019 0755 hrs	70476	APD Potline 1 and Potline 2	VIC	Other	TNSP
70481	11/10/2019 0440 hrs	11/10/2019 0710 hrs	70482	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70484	11/10/2019 1005 hrs	11/10/2019 1105 hrs	70485	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70486	11/10/2019 1110 hrs	11/10/2019 1610 hrs	70500	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70487	11/10/2019 1205 hrs	11/10/2019 1605 hrs	70499	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
70488	11/10/2019 1230 hrs	11/10/2019 1530 hrs	70497	Goonyella – North Goonyella Tee – Stoney Creek No. 7122 and the Goonyella – Newlands No. 7155 132 kV lines	QLD	Lightning	INDJI
70489	11/10/2019 1230 hrs	11/10/2019 1430 hrs	70493	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
70490	11/10/2019 1250 hrs	11/10/2019 1350 hrs	70492	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70491	11/10/2019 1350 hrs	11/10/2019 1450 hrs	70495	Collinsville – Mackay tee Proserpine 7125 and 7126 132 kV Lines	QLD	Lightning	INDJI
70494	11/10/2019 1445 hrs	11/10/2019 1550 hrs	70498	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70496	11/10/2019 1455 hrs	11/10/2019 1655 hrs	70504	Collinsville – Stoney Creek No.7306 132 kV line and Collinsville – Newlands No.7121 132 kV line	QLD	Lightning	INDJI

Start MN	Start date and time	Actual end date and time	End MN	Reclassified equipment	Region	Reason	Source
70502	11/10/2019 1630 hrs	11/10/2019 1855 hrs	70507	Collinsville – Mackay tee Proserpine 7125 and 7126 132 kV Lines	QLD	Lightning	INDJI
70501	11/10/2019 1630 hrs	11/10/2019 1805 hrs	70505	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70503	11/10/2019 1650 hrs	11/10/2019 1805 hrs	70506	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70508	11/10/2019 1930 hrs	11/10/2019 2030 hrs	70511	Moranbah Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	INDJI
70509	11/10/2019 1930 hrs	11/10/2019 2030 hrs	70512	Goonyella – North Goonyella Tee – Stoney Creek No. 7122 and the Goonyella – Newlands No. 7155 132 kV lines	QLD	Lightning	INDJI
70510	11/10/2019 1935 hrs	11/10/2019 2140 hrs	70515	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70513	11/10/2019 2040 hrs	11/10/2019 2140 hrs	70514	Moranbah Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	INDJI
70517	11/10/2019 2245 hrs	12/10/2019 1045 hrs	70527	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70516	11/10/2019 2245 hrs	12/10/2019 0245 hrs	70521	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70522	12/10/2019 0410 hrs	12/10/2019 0640 hrs	70523	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70524	12/10/2019 0855 hrs	12/10/2019 0955 hrs	70525	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70546	15/10/2019 1440 hrs	15/10/2019 1640 hrs	70547	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70549	16/10/2019 1450 hrs	16/10/2019 1650 hrs	70552	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70564	16/10/2019 2230 hrs	17/10/2019 0330 hrs	70567	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70565	16/10/2019 2350 hrs	17/10/2019 0450 hrs	70568	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70569	17/10/2019 0520 hrs	17/10/2019 0620 hrs	70570	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70571	17/10/2019 1215 hrs	17/10/2019 1420 hrs	70574	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70572	17/10/2019 1310 hrs	17/10/2019 1610 hrs	70580	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70575	17/10/2019 1430 hrs	17/10/2019 1835 hrs	70582	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70579	17/10/2019 1545 hrs	17/10/2019 1650 hrs	70581	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70584	17/10/2019 2030 hrs	17/10/2019 2130 hrs	70585	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
70595	18/10/2019 1945 hrs	18/10/2019 2050 hrs	70597	Moranbah Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	INDJI

Start MN	Start date and time	Actual end date and time	End MN	Reclassified equipment	Region	Reason	Source
70596	18/10/2019 1945 hrs	18/10/2019 2050 hrs	70598	Goonyella – North Goonyella Tee – Stoney Creek No. 7122 and the Goonyella – Newlands No. 7155 132 kV lines	QLD	Lightning	INDJI
70601	19/10/2019 0855 hrs	19/10/2019 1000 hrs	70602	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
70603	19/10/2019 1030 hrs	19/10/2019 1135 hrs	70604	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70605	19/10/2019 1140 hrs	19/10/2019 1640 hrs	70622	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70663	24/10/2019 1900 hrs	25/10/2019 0240 hrs	70680	Brinkworth – Davenport, Brinkworth – Templers West and Para – Templers West 275 kV lines	SA	Other	BOM
70664	24/10/2019 1905 hrs	25/10/2019 0240 hrs	70679	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
70683	25/10/2019 1305 hrs	25/10/2019 1410 hrs	70684	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70685	25/10/2019 1435 hrs	25/10/2019 1540 hrs	70687	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
70686	25/10/2019 1450 hrs	25/10/2019 1755 hrs	70695	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
70696	25/10/2019 1915 hrs	26/10/2019 0810 hrs	70714	Para – Templers West and Magill – Torrens Island A 275 kV lines	SA	Other	BOM
70698	26/10/2019 0215 hrs	26/10/2019 0320 hrs	70700	Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS	Lightning	INDJI
70699	26/10/2019 0310 hrs	26/10/2019 0415 hrs	70701	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70715	26/10/2019 1025 hrs	26/10/2019 1530 hrs	70724	Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC	Lightning	INDJI
70716	26/10/2019 1150 hrs	26/10/2019 1550 hrs	70725	Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC	Lightning	INDJI
70717	26/10/2019 1200 hrs	26/10/2019 1300 hrs	70718	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70719	26/10/2019 1400 hrs	26/10/2019 1805 hrs	70747	Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC	Lightning	INDJI
70726	26/10/2019 1610 hrs	26/10/2019 1910 hrs	70749	Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD	Lightning	INDJI
70751	27/10/2019 1625 hrs	27/10/2019 1930 hrs	70752	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI
70767	28/10/2019 1450 hrs	28/10/2019 1650 hrs	70768	Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD	Lightning	INDJI

A2. Number of reclassification events on each element, 1 May 2019 to 31 October 2019

Table 3 Number of times reclassification events occurred on each element, 1 May 2019 to 31 October 2019

Element	Region	Number of times reclassified			
		Bushfires	Lightning	Other	Total
Armidale – Koolkhan 996 132 kV Line and Armidale – Coffs Harbour 96C 132 kV Line	NSW	1			1
Coffs – Lismore (89) 330 kV Line and Koolkhan – Lismore (967) 132 kV Line	NSW	1			1
Trip of Broken Hill No 2 220/22 kV Transformer, Broken Hill to Mines X 4 220 kV Line, Broken Hill to Silverton Wind Farm X6 220 kV Line and No 2 Section 22 kV Bus	NSW			1	1
Bulli Creek – Dumaresq 8L and 8M 330 kV line	QLD		17		17
Collinsville – Mackay tee Proserpine 7125 and 7126 132 kV Lines	QLD		2		2
Collinsville – Stoney Creek No.7306 132 kV line and Collinsville – Newlands No.7121 132 kV line	QLD		1		1
Collinsville Nth – Proserpine 7125 line at Collinsville Nth end only	QLD			1	1
Darling Downs Power Station	QLD			1	1
Darling Downs PS to R2 Braemar 8862 275 kV line and Darling Downs Generator GT3	QLD			1	1
Goonyella – North Goonyella Tee – Stoney Creek No. 7122 and the Goonyella – Newlands No. 7155 132 kV lines	QLD		5		5
Moranbah Goonyella 7369 and 7370 132 kV lines	QLD		4		4
Pioneer Valley – Mackay 132 kV 7451 line at T38 Mackay end only	QLD			1	1
Tarong – Chinchilla 7183 and 7168 132 kV Lines	QLD		22		22
Yuleba North – Eurombah No.8900 275 kV line at the Eurombah end only	QLD			1	1

Element	Region	Number of times reclassified			
		Bushfires	Lightning	Other	Total
Brinkworth – Davenport, Brinkworth – Templers West and Para – Templers West 275 kV lines	SA			5	5
Brinkworth – Davenport, Davenport – Mt Lock and Davenport – Belalie 275 kV lines	SA			1	1
Either of the South East 275/132 kV transformers and its associated SVC	SA			1	1
Northfield to Torrens Island A Power Station 275 kV line at Northfield end only	SA			1	1
Para – Templers West and Magill – Torrens Island A 275 kV lines	SA			12	12
South East No. 2 275/132 kV Transformer and both the South East No.1 and No.2 275 kV SVCs	SA			3	3
Chapel St – Liapootah No. 1 and No. 2 220 kV lines	TAS		4		4
Farrell – John Butters 220 kV line & Farrell – Rosebery Tee Queenstown – Newton 110 kV line	TAS		17		17
Farrell – Sheffield No. 1 and No. 2 220 kV lines	TAS		5		5
Farrell Reece No. 1 and No. 2 220 kV lines	TAS		4		4
Lindisfarne – Sorell 110 kV line and the Lindisfarne – Sorell – Triabunna Tee 110 kV Line	TAS		1		1
Norwood – Scottsdale – Derby 110 kV Line and Norwood – Scottsdale 110 kV Line	TAS		6		6
Sheffield – Wesley Vale 110 kV and Sheffield – Devonport 110 kV	TAS		3		3
Tungatinah – Butlers Gorge 110 kV line and all circuit breakers at Tarraleah Power Station	TAS			1	1
Tungatinah – New Norfolk tee Meadowbank No. 1 and No. 2 110 kV lines	TAS		4		4
APD Potline 1 and Potline 2	VIC			1	1
Eildon – Mt Beauty No. 1 and No. 2 220 kV lines	VIC		16		16
Glenrowan – Dederang No. 1 and No. 3 220 kV lines	VIC		20		20
Hazelwood PS – Rowville No. 1 and 2 220 kV lines	VIC		22		22
Moorabool – Ballarat Tee Elaine 220 kV line at the Moorabool end only	VIC			1	1

A3. Non-credible contingency events, 1 May 2019 to 31 October 2019

Table 4 lists all *non-credible contingency events* that occurred during the reporting period, and AEMO's assessment of whether to reclassify each event as credible. The rows highlighted in blue in Table 4 explain the contingency events corresponding to the reclassifications highlighted in blue in Appendix A1.

Table 4 Non-credible contingency events, 1 May 2019 to 31 October 2019

Date of contingency	Description	Region	Primary cause	Was the contingency then reclassified?	Comments
01/05/2019 1649 hrs	Trip of the Pioneer Valley – Mackay 7451 132 kV line at Mackay end only.	QLD	Protection and Control	Yes	The cause was not immediately identified and the event was reclassified as credible. Powerlink found a faulty card associated with the substation control system. The faulty card was replaced and the reclassification was cancelled at 1700 hrs on 16/05/2019.
10/05/2019 2158 hrs	Trip of Basslink interconnector at Loy Yang end only.	VIC	Protection and Control	No	AusNet and Basslink advised that the trip was due to a fault on blue phase of the filter bank circuit breaker at Loy Yang. The protections operated as designed. AEMO was satisfied that the cause was identified and resolved.
17/05/2019 1143 hrs	Trip of the Broken Hill No. 1 220/22 kV transformer and No. 1 section 22 kV bus.	NSW	Bird Encroachment	No	TransGrid advised the event was caused by a bird strike on the No. 1 section 22 kV bus. The cause had been identified and therefore reclassification was not required.
17/05/2019 1208 hrs	Trip of the Broken Hill No.2 220/22 kV transformer, Broken Hill to Mines X4 220 kV line, Broken Hill to Silverton Wind Farm X6 220 kV line and No.2 section 22 kV bus.	NSW	Protection and Control	Yes	TransGrid advised the cause of the event was unable to be determined, and AEMO reclassified it as credible. TransGrid later advised the trip was due to a faulty protection operation on the No.2 220/22 kV transformer. The faulty protection relay has been replaced and the reclassification was cancelled on 22/05/2019 at 1730 hrs.
28/05/2019 2113 hrs	Trip of the Farrell – John Butters 220 kV Line and Farrell – Rosebery – Newton – Queenstown 110 kV line.	TAS	Lightning	Yes	The cause of the event was not identified initially and AEMO reclassified it as credible. TasNetworks later confirmed that the trip was caused by lightning. The reclassification was cancelled on 29/05/2019 at 1657 hrs.

Date of contingency	Description	Region	Primary cause	Was the contingency then reclassified?	Comments
29/05/2019 1933 hrs	Trip of Penola West – Ladbroke Grove 132 kV line and Ladbroke Grove G2.	SA	Protection and Control	No	Origin advised that the G1 circuit breaker failure at Ladbroke Grove power station was due to a faulty trip coil. AEMO did not reclassify the event as a credible since the cause has been identified and the generator circuit breaker has been replaced.
17/06/2019 1431 hrs	Trip of the Moorabool – Ballarat Tee Elaine 220 kV line at the Moorabool end only.	VIC	Protection and Control	Yes	The cause of the trip was initially unknown and AEMO reclassified the event as credible. AusNet later confirmed that the trip was caused by an issue with protection settings. The reclassification was cancelled on 21/06/2019 at 1635 hrs since the cause has been identified and the issue has been rectified.
20/06/2019 0747 hrs	Trip of the South East No.1 275/132 kV transformer and South East No.2 275 kV SVC.	SA	Protection and Control (for the transformer trip) Supply Issues (for the SVC trip)	Yes	AEMO reclassified the event as credible when SVC 2 was returned to service. The trip of transformer 1 was due to low oil levels and the protection operated as expected. The trip of SVC 2 was due to the loss of the 415 V supply to the SVC cooling system resulting from the failure of the 415 V supply auto-changeover system after the loss of transformer 1. ElectraNet has not yet identified the cause of the failure of the auto-changeover system for SVC 2 therefore the reclassification will remain in place until further notice.
13/07/2019 0539 hrs	Trip of Tungatinah – Butlers Gorge 110 kV line and Tarraleah PS.	TAS	Broken Conductor (for the line trip) Protection and Control (for the transformers trip)	Yes	The cause was initially unknown and AEMO reclassified the event as credible. TasNetworks and Hydro Tasmania advised that the trip of the line was caused by a broken conductor on the line and the trip of transformers was due to a protection grading issue. The reclassification will remain in place until further notice.
21/07/2019 1400 hrs	Trip of the Darling Downs PS to R2 Braemar 8862 275 kV line and Darling Downs Generator GT3.	QLD	Protection and Control	Yes	The cause was initially unknown and AEMO reclassified the event as credible. Origin later advised that DDPS GT3 CB fail protection operated unexpectedly. Origin has modified the relay logic. The reclassification will remain in place until Origin advises there is no risk of similar events occurring.
11/08/2019 0046 hrs	Trip of the Collinsville Nth – Proserpine 7125 line at Collinsville Nth end only.	QLD	Protection and Control	Yes	The cause of the event was initially unknown and AEMO reclassified this event as credible. Powerlink later advised that the trip was due to a faulty protection operation. The reclassification was cancelled on 11/08/2019 at 0900 hrs as the cause of the event has been identified.
21/08/2019 0400 hrs	Trip of the Farrell – Roseberry – Newton – Queenstown 110 kV line and Farrell – John Butters 220 kV line.	TAS	Lightning	Yes	The trip of multiple transmission elements was due to lightning. AEMO has reclassified this non-credible contingency event as credible. The reclassification was cancelled on 24/08/2019 at 1930 hrs as the cause had been identified.

Date of contingency	Description	Region	Primary cause	Was the contingency then reclassified?	Comments
25/08/2019 1409 hrs	Trip of the Nebo No.2 275 kV bus.	QLD	Human Error	No	The trip was due to the prior outage of Broadsound – Nebo 834 275 kV line. AEMO did not reclassify this as a credible contingency event as Powerlink advised that the bus trip was due to a secondary system issue. Powerlink has isolated the suspect system and advised that a bus trip is not reasonably possible.
01/09/2019 0932 hrs	Trip of the Yulebah North – Eurombah 8900 line at Eurombah end only.	QLD	Protection and Control	Yes	Powerlink identified that CB had tripped on operation of Y protection and AEMO reclassified this event as credible. The reclassification was cancelled on 03/09/2019 at 1400 hrs as the relay has been replaced.
03/09/2019 0122 hrs	Trip of the Tomago Potline 1 and 2.	NSW	Protection and Control	No	Transgrid and Tomago advised that the cause of trip was attributed to a fault on the auxiliary transformer and rectifier on the Tomago 330 kV No.2 transformer. AEMO did not reclassify this event as credible as Transgrid and Tomago have advised that the simultaneous trip of Potline 1 and Potline 2 is not likely to reoccur.
24/09/2019 1450 hrs	Trip of the Calvale 275 kV No.2 bus.	QLD	Human Error	No	The trip was caused by a human error. AEMO did not reclassify this event as credible as the TNSP confirmed that the issue was not likely to reoccur.
27/09/2019 0020 hrs	Trip of the Quarantine Power Station units 1 and 5.	SA	Gas Pipeline Issues	No	The trip was due to a Seagas pipeline issue. AEMO did not reclassify this event as credible as Origin and Seagas advised that cause of trip had been rectified and was unlikely to occur again.
01/10/2019 1234 hrs	Trip of the Wodonga 330 kV No.2 bus.	VIC	Protection and Control	No	AusNet advised that the trip was due to Wodonga 330/66 kV No.2 transformer protection during the planned outage of Wodonga 330/66 kV No.2 transformer. The protection of Wodonga 330/66 kV No.2 transformer was isolated prior to returning Wodonga No.2 bus to service. AEMO did not reclassify this event as credible since the cause has been identified.
03/10/2019 1130 hrs	Trip of the Northfield to Torrens Island A Power Station 275 kV line at Northfield end only.	SA	Protection and Control	Yes	The cause of trip was initially unknown and AEMO reclassified the event as credible. ElectraNet advised AEMO that the reason for the line opening at one end only was related to issues with the protection relay. The reclassification was cancelled on 03/10/2019 at 2025 hrs as the cause has been identified and rectified.
06/10/2019 1300 hrs	Trip of the Lindisfarne – Sorell and Lindisfarne – Sorell – Triabunna Tee 110 kV lines.	TAS	Lightning	Yes	The cause was initially unknown. TasNetworks later confirmed a 3-phase simultaneous trip of a double circuit transmission line was due to lightning and AEMO reclassified this event as credible. The reclassification was cancelled on 15/10/2019 at 1420 hrs since there was no lightning in the vicinity of the line.
08/10/2019 1438 hrs	Trip of the Coffs Harbour – Lismore 89 330 kV line and Koolkhan – Lismore 967 132 kV line.	NSW	Bushfire	Yes	TransGrid informed AEMO that 89 line and 967 line had tripped due to a bushfire. AEMO has reclassified this event as credible. The reclassification was cancelled on 09/10/2019 at 1130 hrs as the as the risk of tripping had reduced.

Date of contingency	Description	Region	Primary cause	Was the contingency then reclassified?	Comments
09/10/2019 0634 hrs	Trip of APD Potline 1 and 2.	VIC	Protection and Control	Yes	APD advised the cause of trip was identified as CVT supply for the under-frequency relay not being able to change over to A3 transformer when de-energising A2 transformer during the planned outage. APD's interim procedures are not effective for an unplanned outage of the A2 or A3 transformer. AEMO therefore reclassified this event as credible. The reclassification was cancelled on 10/10/2019 at 0755 hrs as the faulty auto-changeover relay has been replaced.
11/10/2019 2125 hrs	Trip of the Barron Gorge units 1 and 2.	QLD	Faulty Equipment	No	Stanwell advised that the cause was an issue with the weir height measuring instrument and it was unlikely for the event to reoccur. AEMO did not reclassify this event as credible.

A4. Binding reclassification constraints, 1 May 2019 to 31 October 2019

Table 5 Reclassification constraints that bound, 1 May 2019 to 31 October 2019

Reclassification start time	Reclassification end time	Reclassified equipment	Constraint	Number of Dispatch Intervals binding
24/05/2019 1655 hrs	24/05/2019 1755 hrs	Farrell Reece No.1 and No.2 220 kV lines	F_T+FARE_N-2_TG_R6_2	5
			F_T+FARE_N-2_TG_R5	5
			F_T+FARE_N-2_TG_R60	4
			F_T+FARE_N-2_RREG	2
			F_T++FARE_N-2_TG_R5	1
			F_T++FARE_N-2_TG_R6	1
05/06/2019 1440 hrs	05/06/2019 1640 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	17
21/08/2019 0120 hrs	21/08/2019 0225 hrs	Farrell – Sheffield No.1 and No.2 220 kV lines	F_T+FASH_N-2_RREG	12
			F_T++FASH_N-2_TG_R6	13
			F_T++FASH_N-2_TG_R60	11
			F_T++FASH_N-2_TG_R5	1
21/08/2019 0455 hrs	21/08/2019 0755 hrs	Farrell Reece No.1 and No.2 220 kV lines	F_T++FARE_N-2_TG_R60	5
			F_T++FARE_N-2_TG_R6	10
			F_T++FARE_N-2_TG_R5	1
			F_T+FASH_N-2_RREG	1

Reclassification start time	Reclassification end time	Reclassified equipment	Constraint	Number of Dispatch Intervals binding
			T>T_FASH_1_N-2	1
21/08/2019 0515 hrs	21/08/2019 0845 hrs	Farrell – Sheffield No.1 and No.2 220 kV lines	F_T++FASH_N-2_TG_R60	4
			F_T++FASH_N-2_TG_R6	16
			T>T_FASH_1_N-2	28
			F_T+FASH_N-2_TG_R6_1	7
			F_T+FASH_N-2_RREG	31
			F_T+FARE_N-2_TG_R60	2
			F_T+FASH_N-2_TG_R60	2
			F_T++FASH_N-2_TG_R5	6
24/08/2019 1635 hrs	24/08/2019 1930 hrs	Farrell – Sheffield No.1 and No.2 220 kV lines	F_T+FASH_N-2_TG_R6_1	31
			F_T+FASH_N-2_RREG	35
			F_T+FASH_N-2_TG_R60	35
			F_T+FASH_N-2_TG_R6_2	12
			F_T+FASH_N-2_TG_R5	34
28/08/2019 1655 hrs	28/08/2019 1955 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	34
17/09/2019 1500 hrs	17/09/2019 1700 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	10
17/09/2019 1705 hrs	17/09/2019 1805 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	9
21/09/2019 0755 hrs	21/09/2019 1100 hrs	Farrell – Sheffield No.1 and No.2 220 kV lines	F_T+FASH_N-2_RREG	66
26/09/2019 2240 hrs	27/09/2019 0040 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	23

Reclassification start time	Reclassification end time	Reclassified equipment	Constraint	Number of Dispatch Intervals binding
27/09/2019 1540 hrs	27/09/2019 1940 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	27
01/10/2019 1410 hrs	01/10/2019 1550 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	13
01/10/2019 1700 hrs	01/10/2019 2140 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	12
11/10/2019 0440 hrs	11/10/2019 0710 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	30
11/10/2019 1005 hrs	11/10/2019 1105 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	5
11/10/2019 1110 hrs	11/10/2019 1610 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	11
11/10/2019 2245 hrs	12/10/2019 1045 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	58
15/10/2019 1440 hrs	15/10/2019 1640 hrs	Bulli Creek – Dumaresq 8L and 8M 330 kV lines	I_QNI_ONE_PHASE_N-2	8