

REVIEW OF POWER SYSTEM RECLASSIFICATION EVENTS 1 NOVEMBER 2012 TO 30 APRIL 2013

PREPARED BY: Systems Capability

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FINAL

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1 Executive Summary

The power system is operated such that the loss of single elements in the transmission network such as circuits or transformers or the loss of single generating units (known as “credible contingency events”) can be accommodated without causing further problems and thus avoiding a cascade failure. This is known as a “secure operating state”.

It cannot be guaranteed that at all times the power system will withstand the simultaneous loss of multiple transmission elements or generating units or loss of more secure elements such as busbars (known as “non-credible contingency events”).

However under abnormal conditions where the likelihood of multiple failures is increased then AEMO will may temporarily adjust the operation of the power system so that it can withstand the loss of certain multiple elements which are at that time under a known threat. This process is termed “reclassification of a contingency event”. Abnormal conditions are conditions posing added risks to the power system, including without limitation, severe weather conditions, lightning, storms and bushfires.

Examples of such reclassifications might be a reclassification of the loss of both circuits of a double transmission line in the presence of lightning or loss of two transmission circuits in a common easement under threat from bushfires.

Rule 4.2.3B was introduced into the National Electricity Rules on the 23 October 2008 to ensure that such reclassification processes are undertaken in a methodical and organised manner.

This Rule requires AEMO to establish criteria that it must use when considering whether the existence of *abnormal conditions* makes the occurrence of a *non-credible contingency event* reasonably possible under NER clause 4.2.3A (e).

The decision making processes have been designed with a view to providing effective actions on a practical basis. This improves the efficiency of criteria assessment and decision delivery. For instance, to be effective any decision making process regarding reclassification needs to be capable of being made within about 15 minutes of the receipt and assessment of information.

National Electricity Rule 4.2.3 A (i) requires AEMO to issue a report at intervals of six months setting out the reasons for all decisions to reclassify *non-credible contingency events* to be *credible contingency events* under clause 4.2.3A (g) during the relevant period.

The report:

1. must include an explanation of how AEMO applied the criteria established in accordance with 4.2.3B for each of those decisions; and
2. may also include AEMO’s analysis of re-classification trends during the relevant period and its appraisal of the appropriateness and effectiveness of the relevant criteria that were applied in the case of each reclassification decision.

This report provides compliance with the above rule requirements.

2 References

National Electricity Rules (NER).

3 Definitions

GPATS: Global Positioning and Tracking System. This is a Lightning Detection System used by AEMO Operations.

INDJI: (Indji Watch): used by AEMO Operations : is an internet based system that monitors live information feeds on hazards such as bushfires and compares them with locations of transmission assets.

4 Development of Criteria for Re-classifying Contingency Events

AEMO has established three categories of criteria required for the assessment of whether a *non-credible contingency event* is reclassified as a *credible contingency event*. They are

1. **Bushfires**
2. **Lightning** and,
3. **Other** - comprises of but not limited to;
 - the threat of disconnection of multiple generating units,
 - the impact of pollution on transmission insulators,
 - the impact of protection or control systems malfunction on plant or
 - extreme weather conditions.

Following consultation with the relevant stakeholders, the criteria for assessing reclassifications is published in the AEMO Operating Procedure Power System Security Guidelines SO_OP3715, located on the AEMO website at <http://www.aemo.com.au/electricityops/3715.html>.

5 Analysis of Reclassification Events over the Reporting Period

A total of 284 reclassification events occurred over the reporting period 1 November 2012 to 30 April 2013.

In the period there were 32 non-credible contingencies events. None of these were reclassified prior to the event. Seven of these though led to reclassification (highlighted in **red** in Table 5) post event.

5.1 Bushfires

Reclassifications for bushfires during the period were performed on the basis of established criteria as specified in SO_OP3715. There were 13 reclassifications due to bushfires in the reporting period.

5.2 Lightning

Reclassifications for lightning during the period were performed on the basis of established criteria. Table 6 in Appendix A lists out the vulnerable transmission lines which are eligible to be reclassified as a credible contingency event during a lightning storm if lightning activity is detected in the vicinity of the lines.

Information from the AEMO GPATS was utilised in the assessment process.

For lightning a total of 260 reclassification events occurred over this reporting period an increase of 181, compared to 79 events in the previous reporting period.

5.3 Other

Under the “Other” category eleven reclassification events occurred over the reporting period. These events were reclassified on the basis of participant information. Five of these resulted from actual multiple contingent events, and are highlighted in **red** in Table 4.

5.4 Reclassification Events that had a market impact

For the reporting period there were 25 occurrences of reclassification where the corresponding constraint bound. Further details of these events are provided in Table 1.

Table 1 Reclassification events where constraints bound.

Start	Actual End Date	Reclassified Equipment	Region	Constraint ID	No. of Dispatch Intervals Constraint Bound
05/11/2012 16:10	05/11/2012 23:30	Para – Robertstown and Robertstown –Tungillo 275kV lines	SA	S>>V_RBTU_N-2_RBTX1	7
				V>>S_RBTU_N-2_WEWT	37
12/11/2012 12:20	12/11/2012 13:05	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	T>T_GTSH_220_1_N-2	9
20/11/2012 15:00	20/11/2012 20:10	Para – Robertstown and Robertstown –Tungillo 275kV lines	SA	S>>V_RBTU_N-2_RBTX1	17
				V>>S_RBTU_N-2_WEWT	17
29/11/2012 21:20	30/11/2012 09:25	Liapootah Waddamana (tee) Palmerston No.1 and No.2 220 kV lines	TAS	T>T_NIL_LIPM_N-2_2A	70
				T>T_NIL_LIPM_N-2_2B	8
30/11/2012 06:35	30/11/2012 12:00	Para – Robertstown and Robertstown –Tungillo 275kV lines	SA	S>>V_BGPA_RBTU_N-2_1	11
				V>>S_RBTU_N-2_WEWT	1
30/11/2012 17:20	01/12/2012 00:15	Para – Robertstown and Robertstown –Tungillo 275kV lines	SA	S>>V_DB_RBTU-2_RBTX1	57
				V>>S_DB_RBTU-2_WEWT	49
01/12/2012 08:50	01/12/2012 15:15	Para – Robertstown and Robertstown –Tungillo 275kV lines	SA	S>>V_DB_RBTU-2_RBTX1	37
				V>>S_DB_RBTU-2_WEWT	7
08/12/2012 19:10	08/12/2012 21:05	Farrell - Sheffield No. 1 and No. 2 220kV lines	TAS	T_T_FASH_8_N-2	22
13/12/2012 06:10	13/12/2012 08:05	Farrell - Sheffield no.1 and no.2 220 kV lines and the loss of 100 MW of load at Rio Tinto	TAS	T_T_FASH_5_N-2	2
				T_T_FASH_6_N-2	19
19/12/2012 09:40	19/12/2012 14:45	Farrell - Sheffield No. 1 and No. 2 220kV lines	TAS	T>T_FASH_1_N-2	19
19/12/2012 10:20	19/12/2012 11:35	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	T>T_GTSH_220_1_N-2	4
24/12/2012 09:50	24/12/2012 10:35	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	T>T_HAPM_220_5A_N-2	1
06/02/2013 20:35	11/02/2013 08:30	Chapel Street -Gordon no.1 and no.2 220 kV Lines	TAS	T_GO_250	30
19/02/2013 09:00	19/02/2013 10:15	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	T>T_HAPM_220_5A_N-2	10
19/02/2013 09:30	19/02/2013 10:45	George Town - Hadspen No. 1 and No. 2 220kV lines	TAS	T>T_GT_HA_3A_N-2	12
02/03/2013 08:10	04/03/2013 13:50	Northern PS 1 & 2 Unit	SA	V::S_MAXG_NPS_N-2	50
07/03/2013 15:00	07/03/2013 16:05	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	T>T_HAPM_220_5A_N-2	13
10/03/2013 11:40	10/03/2013 19:30	Liapootah - Palmerston No. 1 and No. 2 220kV lines	TAS	T>T_NIL_LIPM_N-2_2A	93

Start	Actual End Date	Reclassified Equipment	Region	Constraint ID	No. of Dispatch Intervals Constraint Bound
10/03/2013 12:45	10/03/2013 16:50	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	T>T_HAPM_220_5A_N-2	15
10/03/2013 12:55	10/03/2013 14:40	Rowville Yallourn No. 5 and No. 6 220kV lines	VIC	V>V_NIL_ROYP56_R5_1	1
10/03/2013 13:00	10/03/2013 19:10	Farrell - Sheffield No. 1 and No. 2 220kV lines	TAS	T>T_FASH_1_N-2	3
10/03/2013 15:20	10/03/2013 16:50	George Town - Hadspen No. 1 and No. 2 220kV lines	TAS	T>T_GT_HA_3A_N-2	18
10/03/2013 16:35	10/03/2013 17:45	Rowville Yallourn No. 5 and No. 6 220kV lines	VIC	V>V_NIL_ROYP56_R5_1	13
21/03/2013 19:25	21/03/2013 21:45	Liapootah - Palmerston No. 1 and No. 2 220kV lines	TAS	T>T_NIL_LIPM_N-2_2A	28
29/04/2013 18:45	17/05/2013 19:00	Millmerran power station generator 1 and Millmerran power station generator 2	QLD	N^^Q_MPP_N-2	21

6 Analysis Summary

AEMO has analysed the re-classification trends during the relevant reporting period and has assessed the appropriateness and effectiveness of the relevant criteria that were applied in the case of each re-classification decisions and has deemed they are appropriate.

Analysis of the reclassifications occurring over the reporting period 1 November 2012 to 30 April 2013 is summarised in the Table 2. Although the actual incidence of the event occurring is very low, generally the incidence of a normal credible contingency is also very low under similar conditions.

For the reporting period there were no occurrences where the reclassification event was actually realised.

Table 2 Statistics for reclassifications over the reporting period 1 November 2012 to 30 April 2013.

Category	Number Reclass Events	Actual Incidence of Event Occurring during reclassification
Bushfires	13	0
Lightning	260	0
Other	11	0
Total for Period	284	0

Figure 1 shows the number of reclassification events per region over the reporting period 1 November 2012 to 30 April 2013.

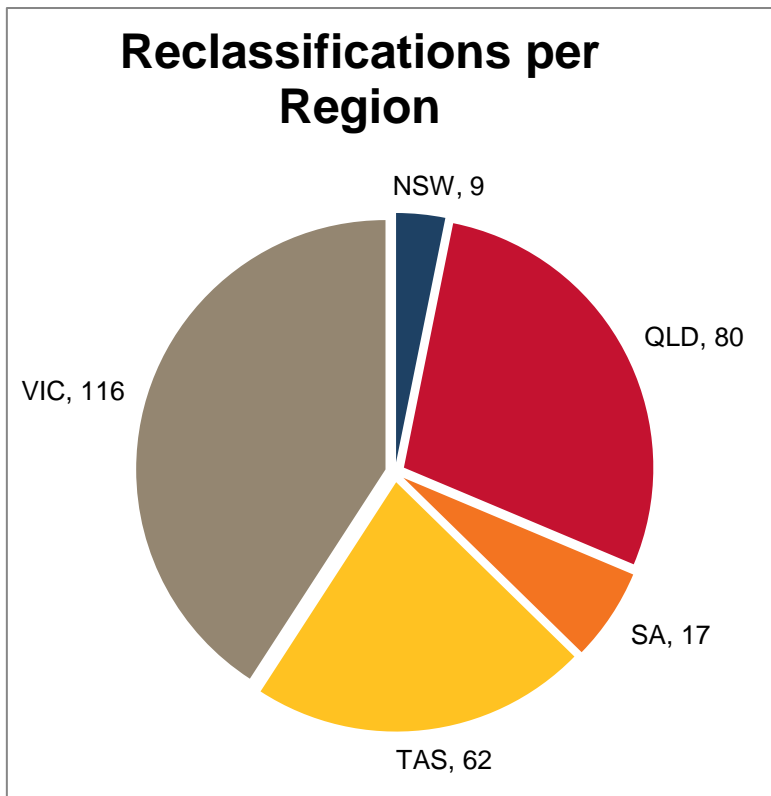


Figure 1 Reclassifications per region

Table 3 and Figure 2 below show the historical statistics for reclassification events that occurred since October 2008.

Table 3 Historical statistics for reclassifications

Reporting Period	Bushfires		Lightning		Other ¹												Totals for Period		
	Reclass Events	Actual Incidence	Reclass Events	Actual Incidence	Unknown		Protection		Pollution		Weather conditions		Station configuration		Auxiliary supply outage		Reclass Events	Actual Incidence	
23/10/08 to 23/04/09	6	2	96	1	0	0	1	0	0	0	0	0	0	0	0	0	0	103	3
24/04/09 to 23/10/09	1	0	83	0	0	0	4	0	2	0	0	0	0	0	0	0	0	90	0
24/10/09 to 30/04/10	2	0	256	1	0	0	2	0	0	0	1	0	0	0	0	0	0	261	1
01/05/10 to 30/10/10	0	0	46	1	0	0	1	1	0	0	0	0	1	0	1	0	0	49	2
01/11/10 to 30/04/11	0	0	278	8	1	0	6	0	0	0	3	0	0	0	0	0	0	288	8
01/05/11 to 31/10/11	2	0	81	0	1	0	2	0	0	0	0	0	0	0	1	0	0	87	0
01/11/11 to 30/4/12	0	0	299	2	7	3	0	0	0	0	0	0	0	0	0	0	0	306	5
01/05/12 to 31/10/12	3	0	79	0	3	0	1	0	0	0	0	0	3	0	0	0	0	89	0
01/11/12 to 30/04/13	13	0	260	0	6	0	3	0	0	0	1	0	0	0	1	0	0	284	0
Totals	27	2	1478	13	18	3	20	1	2	0	5	0	4	0	3	0	1557	19	

¹ These are the only instances of Reclassification under the “Other” category

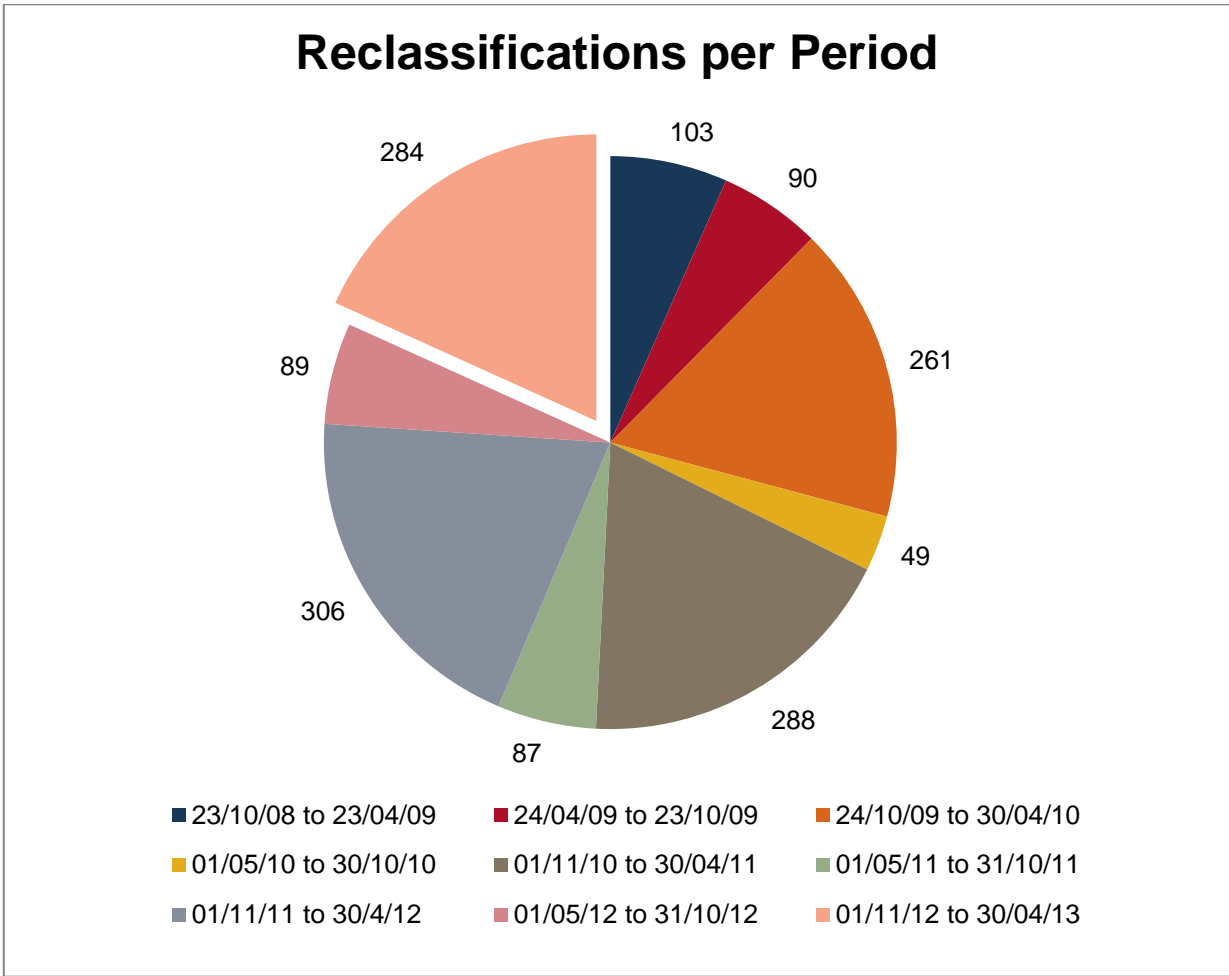


Figure 2 Reclassifications per period

7 Record of Reclassification Events

Table 4 Reclassification events from 1 November 2012 to 30 April 2012

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
40164	01/11/2012 16:20	01/11/2012 17:30	40165	Chalumbin Woree No.876 and No. 877 275kV lines	QLD	Bushfires	INJI
40177	04/11/2012 16:05	04/11/2012 16:40	40178	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
40179	04/11/2012 20:45	04/11/2012 22:25	40180	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
40188	05/11/2012 16:10	05/11/2012 23:30	40193	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
40194	06/11/2012 00:05	06/11/2012 01:05	40196	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
40200	06/11/2012 11:55	06/11/2012 12:55	40203	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS
40201	06/11/2012 12:15	06/11/2012 13:25	40206	George Town - Hadspen No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS
40204	06/11/2012 13:05	06/11/2012 16:10	40208	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS
40210	06/11/2012 19:00	06/11/2012 20:05	40211	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS
40213	07/11/2012 12:05	07/11/2012 12:45	40214	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS
40217	08/11/2012 04:45	08/11/2012 06:30	40219	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS
40220	08/11/2012 07:55	08/11/2012 11:35	40224	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS
40221	08/11/2012 08:50	08/11/2012 11:35	40225	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS
40228	08/11/2012 12:40	08/11/2012 15:05	40232	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS
40229	08/11/2012 12:45	08/11/2012 15:05	40233	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS
40231	08/11/2012 14:25	08/11/2012 15:10	40234	Chapel St - Liapootah No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS
40235	09/11/2012 10:35	09/11/2012 11:50	40236	Chapel St - Liapootah No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS
40238	09/11/2012 13:55	09/11/2012 15:05	40240	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS
40251	12/11/2012 10:10	12/11/2012 11:10	40253	Farrell - Reece no.1 and no.2 220 kV lines	TAS	Lightning	GPATS
40254	12/11/2012 12:20	12/11/2012 13:05	40255	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS
40304	18/11/2012 06:25	18/11/2012 07:45	40305	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
40307	18/11/2012 11:30	18/11/2012 12:45	40308	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
40310	18/11/2012 15:10	18/11/2012 16:25	10312	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
40313	18/11/2012 16:30	18/11/2012 17:20	10314	Moranbah - Goonyella 7369 and 7370 132kV Lines	QLD	Lightning	GPATS
40316	18/11/2012 20:45	18/11/2012 22:00	40317	Kemmis-Moranbah Tee Burton Downs 7117 and Nebo-Moranbah Tee Coppabella 7118 132kV lines	QLD	Lightning	GPATS
40318	18/11/2012 22:50	19/11/2012 01:30	40319	Collinsville-Mackay Tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS
40324	19/11/2012 13:30	19/11/2012 18:20	40328	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
40325	19/11/2012 13:55	19/11/2012 16:15	40327	Kemmis - Moranbah tee Burton Downs 132kV line 7117 and Nebo - Moranbah tee Coppabella 132 kV line 7118 132kV line	QLD	Lightning	GPATS;#INJI
40331	19/11/2012 22:10	20/11/2012 01:00	40333	Kemmis-Moranbah Tee Burton Downs and Nebo-Moranbah Tee Coppabella 7117 and 7118 132kV Lines	QLD	Lightning	GPATS
40332	20/11/2012 00:15	20/11/2012 02:30	40334	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS
40338	20/11/2012 14:00	20/11/2012 18:50	40350	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS
40340	20/11/2012 15:00	20/11/2012 20:10	10351	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
40344	20/11/2012 15:25	20/11/2012 20:20	40353	Kemmis-Moranbah Tee Burton Downs and Nebo-Moranbah Tee Coppabella 7117/7118 132kV lines	QLD	Lightning	GPATS
40342	20/11/2012 15:25	20/11/2012 20:20	40352	Moranbah - Goonyella 7369/7370 132kV lines	QLD	Lightning	GPATS
40356	21/11/2012 15:10	21/11/2012 16:45	40358	emmis-Moranbah Tee Burton Downs 7117 and Nebo-Moranbah Tee Coppabella 7118 132kV lines	QLD	Lightning	GPATS;#INJI
40357	21/11/2012 15:25	21/11/2012 16:45	40359	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
40366	22/11/2012 16:10	22/11/2012 16:45	40368	Moranbah - Goonyella 7369 and 7370 132 kV lines in Queensland	QLD	Lightning	GPATS;#INJI;#TNSP
40369	22/11/2012 18:00	22/11/2012 19:00	40370	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
40384	25/11/2012 02:35	25/11/2012 06:00	40386	Moranbah - Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	GPATS;#INJI
40389	25/11/2012 17:35	25/11/2012 18:40	40390	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
40392	26/11/2012 04:15	26/11/2012 05:35	40394	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
40395	26/11/2012 05:30	26/11/2012 07:05	40396	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
40398	26/11/2012 16:15	26/11/2012 21:00	40400	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
40401	27/11/2012 00:15	27/11/2012 03:10	40405	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
40402	27/11/2012 00:30	27/11/2012 01:35	40404	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS
40408	27/11/2012 04:50	27/11/2012 10:35	40419	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS
40412	27/11/2012 07:10	27/11/2012 12:45	40423	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS
40415	27/11/2012 08:05	27/11/2012 10:55	40420	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS
40424	27/11/2012 13:30	01/01/2014 00:00	xx	Berri No. 1 66kV Bus & Murraylink	SA	Other	TNSP
40425	27/11/2012 13:40	27/11/2012 14:30	40426	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS
40447	29/11/2012 21:20	30/11/2012 09:25	40454	Liapootah Waddamana (tee) Palmerston No.1 and No.2 220 kV lines	TAS	Bushfires	TNSP
40450	30/11/2012 03:30	30/11/2012 06:00	40451	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
40452	30/11/2012 06:35	30/11/2012 12:00	40456	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
40458	30/11/2012 15:15	30/11/2012 19:40	40461	Liapootah Waddamana (tee) Palmerston No.1 and No.2 220 kV transmission lines and Palmerston Waddamana 110kV transmission line	TAS	Bushfires	TNSP
40460	30/11/2012 17:20	01/12/2012 00:15	40469	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
40464	30/11/2012 21:20	02/12/2012 08:15	40503	Liapootah Waddamana (tee) Palmerston No.1 and No.2 220 kV transmission lines and Palmerston Waddamana 110kV transmission line	TAS	Bushfires	TNSP

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
40466	30/11/2012 23:45	01/12/2012 03:05	40473	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS
40467	30/11/2012 23:45	01/12/2012 03:05	40474	Rowville-Yallourn No 5 & No. 6 220kV lines	VIC	Lightning	GPATS
40471	01/12/2012 02:00	01/12/2012 04:30	40476	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS
40475	01/12/2012 03:15	01/12/2012 04:30	40477	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS
40479	01/12/2012 08:50	01/12/2012 15:15	40488	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
40489	01/12/2012 15:55	01/12/2012 17:45	40497	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
40490	01/12/2012 15:55	01/12/2012 17:45	40498	Rowville - Yallourn PS No.5 and No.6 220kV Lines	VIC	Lightning	GPATS;#INJI
40494	01/12/2012 17:55	01/12/2012 20:10	40501	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
40493	01/12/2012 17:55	01/12/2012 20:00	40500	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
40550	05/12/2012 15:20	05/12/2012 19:05	40560	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#TNSP
40590	08/12/2012 19:10	08/12/2012 21:05	40599	Farrell - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40591	08/12/2012 19:35	08/12/2012 23:00	40606	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40593	08/12/2012 20:15	08/12/2012 23:55	40601	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
40594	08/12/2012 20:15	08/12/2012 23:55	40600	Rowville - Yallourn PS No.5 & No.6 220kV lines	VIC	Lightning	GPATS;#INJI
40595	08/12/2012 20:25	08/12/2012 23:00	40598	George Town - Hadspen No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40596	08/12/2012 20:25	08/12/2012 23:00	40597	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40602	08/12/2012 21:30	08/12/2012 23:20	40603	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
40608	09/12/2012 01:05	09/12/2012 05:00	40613	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
40609	09/12/2012 01:05	09/12/2012 05:00	40614	Rowville-Yallourn No 5 & No. 6 220kV lines	VIC	Lightning	GPATS;#INJI
40611	09/12/2012 04:20	09/12/2012 09:15	40621	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
40616	09/12/2012 06:00	09/12/2012 08:55	40620	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS
40631	10/12/2012 19:05	10/12/2012 20:40	40632	Sheffield Burnie 220kV line and Sheffield Burnie 110kV transmission line	TAS	Bushfires	TNSP
4660	13/12/2012 06:00	13/12/2012 08:05	40665	Farrell- Reece No.1 and No.2 220 kV lines	QLD	Lightning	GPATS
40661	13/12/2012 06:10	13/12/2012 08:05	40664	Farrell - Sheffield no.1 and no.2 220 kV lines and the loss of 100 MW of load at Rio Tinto	QLD	Lightning	GPATS;#INJI
40705	15/12/2012 06:30	15/12/2012 20:15	40720	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
40706	15/12/2012 06:55	15/12/2012 12:10	40713	Glenrowan - Dederang No. 1 and No. 3 220kV lines	NSW	Lightning	GPATS;#INJI
40708	15/12/2012 07:05	15/12/2012 10:15	40708	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
40707	15/12/2012 07:05	15/12/2012 10:15	40711	Rowville - Yallourn No.5 & No.6 220kV transmission lines	VIC	Lightning	GPATS;#INJI
40716	15/12/2012 15:50	15/12/2012 17:20	40717	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
40718	15/12/2012 18:05	15/12/2012 20:15	40719	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
40739	19/12/2012 06:10	19/12/2012 07:35	40742	Farrell - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40740	19/12/2012 06:15	19/12/2012 07:25	40741	Farrell- Reece No.1 and No.2 220 kV lines	TAS	Lightning	GPATS;#INJI
40743	19/12/2012 09:40	19/12/2012 14:45	40757	Farrell - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40744	19/12/2012 09:40	19/12/2012 12:30	40750	Farrell- Reece No.1 and No.2 220 kV lines	TAS	Lightning	GPATS;#INJI
40745	19/12/2012 10:20	19/12/2012 11:35	40749	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40748	19/12/2012 11:10	19/12/2012 13:05	40752	Chapel St - Liapootah No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40747	19/12/2012 11:10	19/12/2012 13:05	40753	Liapootah - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40751	19/12/2012 12:45	19/12/2012 14:45	40758	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40780	23/12/2012 12:40	23/12/2012 16:50	40784	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
40779	23/12/2012 12:40	23/12/2012 16:50	40783	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
40789	24/12/2012 09:50	24/12/2012 10:35	40790	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI;#TNSP
40793	24/12/2012 13:45	24/12/2012 16:20	40798	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
40796	24/12/2012 14:10	24/12/2012 16:30	40799	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
40807	25/12/2012 16:10	25/12/2012 17:15	40808	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
40811	27/12/2012 19:40	27/12/2012 20:45	40814	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40812	27/12/2012 19:40	27/12/2012 20:45	40815	Liapootah - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40813	27/12/2012 20:15	27/12/2012 21:35	40816	Chapel St - Liapootah No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
40821	30/12/2012 09:45	30/12/2012 10:20	40823	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
40825	30/12/2012 14:30	30/12/2012 16:50	40828	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
40826	30/12/2012 15:20	30/12/2012 16:50	40830	Kemmis-Moranbah Tee Burton Downs 7117 and Nebo-Moranbah Tee Coppabella 7118 132kV Lines	QLD	Lightning	GPATS;#INJI
40827	30/12/2012 15:20	30/12/2012 16:50	40829	Moranbah-Goonnyella 7369 and 7370 132kV Lines	QLD	Lightning	GPATS;#INJI
40831	31/12/2012 01:35	31/12/2012 02:35	40832	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
40835	31/12/2012 15:05	31/12/2012 16:05	40836	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
40838	01/01/2013 11:15	01/01/2013 13:00	40839	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
40851	02/01/2013 15:15	02/01/2013 18:10	40852	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
40869	04/01/2013 11:10	04/01/2013 14:10	40877	Bayswater Regentville (31) and Bayswater Sydney West (32) 330kV transmission lines	NSW	Bushfires	INJI
40915	05/01/2013 07:20	05/01/2013 08:20	40917	Farrell - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	INJI
40913	05/01/2013 07:20	05/01/2013 08:20	40916	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	INJI
40930	05/01/2013 16:25	05/01/2013 19:15	40934	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
40931	05/01/2013 16:30	05/01/2013 19:15	40935	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
40957	07/01/2013 20:00	08/01/2013 06:45	40961	Heywood South East (No1 and No2) 275kV transmission lines	VIC	Bushfires	INJI
40966	08/01/2013 13:45	08/01/2013 14:10	40968	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Bushfires	INJI
40970	08/01/2013 14:05	08/01/2013 17:30	40973	3W Kangaroo Valley Capital 330kV line and A 330k bus at Capital	NSW	Other	TNSP
40970	08/01/2013 14:10	08/01/2013 17:30	40973	Canberra to Capital 6 330kV line and Capital to Kangaroo Valley 3W 330kV lines	NSW	Other	TNSP;#AEMO EMS
41024	12/01/2013 19:55	13/01/2013 13:05	41031	Bayswater-Mt Piper 5A3 500kV Line and the Bayswater-Wollar 5A4 500kV Line	NSW	Bushfires	INJI;#TNSP
41134	18/01/2013 00:40	18/01/2013 10:40	41152	Scottsdale 22kV D252 fdr and Temco load	TAS	Other	event
41155	18/01/2013 14:00	18/01/2013 14:30	41157	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41158	18/01/2013 15:25	18/01/2013 16:05	41159	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41160	18/01/2013 16:20	18/01/2013 17:25	41161	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41165	18/01/2013 22:35	18/01/2013 23:10	41166	Eraring - Kemps Creek No.1 and No.2 500kV lines	NSW	Bushfires	INJI;#TNSP
41199	21/01/2013 11:45	21/01/2013 13:50	41201	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41198	21/01/2013 11:45	21/01/2013 13:50	41200	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41202	21/01/2013 21:00	21/01/2013 23:00	41205	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41215	24/01/2013 02:20	24/01/2013 07:30	41216	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41235	25/01/2013 13:40	25/01/2013 15:40	41237	Sydney South - Wallerawang (76) 330kV line and Ingleburn - Wallerawang (77) 330kV line	NSW	Bushfires	Event occurred
41240	26/01/2013 01:45	26/01/2013 06:35	41242	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41241	26/01/2013 04:15	26/01/2013 06:35	41243	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41245	26/01/2013 07:35	26/01/2013 10:00	41249	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41246	26/01/2013 07:55	26/01/2013 09:15	41248	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41257	26/01/2013 09:00	11/03/2013 11:50	41840	Gladstone - Calliope River (8876) 275kV line and the Gladstone no.1 Generator	QLD	Other	Event
41251	26/01/2013 15:20	26/01/2013 20:00	41255	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41256	26/01/2013 20:35	27/01/2013 01:20	41260	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41279	28/01/2013 19:20	28/01/2013 20:45	41283	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41296	29/01/2013 13:15	29/01/2013 17:05	41302	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41301	29/01/2013 16:30	29/01/2013 17:40	41303	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41315	30/01/2013 13:50	30/01/2013 22:00	41320	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41316	30/01/2013 16:20	30/01/2013 22:00	41319	Kemis-Moranbah Tee Burton Downs 7117 and Nebo-Moranbah Tee Coppabella 7118 132kV lines	QLD	Lightning	GPATS;#INJI
41317	30/01/2013 17:50	30/01/2013 22:00	41321	Moranbah - Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	GPATS;#INJI
41322	31/01/2013 16:05	31/01/2013 18:40	41327	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
41323	31/01/2013 16:25	31/01/2013 19:00	41328	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
41324	31/01/2013 16:25	31/01/2013 19:00	41329	Rowville – Yallourn Power Station No.5 and No.6 220kV Lines	VIC	Lightning	GPATS;#INJI
41346	01/02/2013 18:20	01/02/2013 21:30	41347	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41387	06/02/2013 20:35	11/02/2013 08:30	41431	Chapel Street -Gordon no.1 and no.2 220 kV Lines	TAS	Bushfires	INJI;#TNSP
41390	07/02/2013 12:00	07/02/2013 14:40	41391	Chapel St - Liapootah No. 1 and No. 2 220kV lines	TAS	Bushfires	INJI;#TNSP
41461	13/02/2013 15:15	13/02/2013 18:30	41463	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	INJI
41462	13/02/2013 15:35	15/04/2013 20:30	42178	Darling Downs power station	QLD	Other	Participant
41467	14/02/2013 05:40	14/02/2013 13:35	41486	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	INJI
41468	14/02/2013 05:45	14/02/2013 13:35	41487	Rowville - Yallourn no.5 and no.6 220kV lines	VIC	Lightning	INJI
41472	14/02/2013 11:40	14/02/2013 19:30	41499	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	INJI
41507	14/02/2013 13:10	14/02/2013 13:45	41507	97G & Murray Tie Transformer	NSW	Lightning	TNSP
41490	14/02/2013 15:30	14/02/2013 19:30	41498	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	INJI
41506	15/02/2013 07:50	15/02/2013 08:30	41530	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS
41514	15/02/2013 11:55	15/02/2013 20:00	41526	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41516	15/02/2013 13:35	15/02/2013 19:30	41525	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41534	16/02/2013 14:00	16/02/2013 17:15	41542	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41537	16/02/2013 15:10	16/02/2013 17:15	41541	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41538	16/02/2013 16:00	16/02/2013 17:10	41540	Moranbah - Goonyella 7369 & 7370 132kV transmission lines	QLD	Lightning	GPATS;#INJI
41547	17/02/2013 15:20	17/02/2013 16:20	41548	Kemmis-Moranbah Tee Burton Downs 7117 and Nebo-Moranbah Tee Coppabella 7118 132kV lines	QLD	Lightning	GPATS;#INJI
41546	17/02/2013 15:30	17/02/2013 16:20	41549	Moranbah - Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	GPATS;#INJI
41556	18/02/2013 18:40	18/02/2013 21:25	41558	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS
41560	19/02/2013 03:55	19/02/2013 05:15	41561	Chapel St - Liapootah No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41562	19/02/2013 09:00	19/02/2013 10:15	41564	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41563	19/02/2013 09:30	19/02/2013 10:45	41565	George Town - Hadspen No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41567	19/02/2013 14:00	20/05/2013 13:15	42426	Hummocks-Waterloo 132kV line and Kadina East 132kV line	SA	Lightning	INJI;#TNSP
41570	19/02/2013 15:00	19/02/2013 19:00	41571	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41573	20/02/2013 15:10	20/02/2013 18:00	41575	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41576	20/02/2013 18:55	20/02/2013 21:30	41578	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41577	20/02/2013 19:25	20/02/2013 21:30	41579	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41582	21/02/2013 02:50	21/02/2013 03:50	41584	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
41585	21/02/2013 05:20	21/02/2013 08:15	41589	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41592	21/02/2013 12:05	21/02/2013 21:30	41608	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41598	21/02/2013 14:10	21/02/2013 21:30	41609	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
41599	21/02/2013 14:10	21/02/2013 21:30	41610	Rowville-Yallourn No 5 & No. 6 220kV lines	VIC	Lightning	GPATS;#INJI
41603	21/02/2013 15:55	21/02/2013 17:50	41604	: Kemmis-Moranbah Tee Burton Downs 7117 and Nebo-Moranbah Tee Coppabella 7118 132kV lines	QLD	Lightning	INJI
41605	21/02/2013 18:35	21/02/2013 22:45	41612	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI;#TNSP
41606	21/02/2013 19:40	21/02/2013 21:30	41607	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41614	22/02/2013 01:25	22/02/2013 02:25	41615	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41619	23/02/2013 19:40	24/02/2013 00:10	41623	Kemmis-Moranbah Tee Burton Downs 7117 and Nebo-Moranbah Tee Coppabella 7118 132kV lines	QLD	Lightning	INJI
41619	23/02/2013 19:40	24/02/2013 00:30	41622	Moranbah - Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	INJI
41621	23/02/2013 22:00	24/02/2013 03:00	41624	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	INJI
41628	24/02/2013 15:55	24/02/2013 17:40	41631	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	INJI
41629	24/02/2013 15:55	24/02/2013 17:40	41632	Rowville-Yallourn No 5 & No. 6 220kV lines.	VIC	Lightning	INJI
41634	24/02/2013 18:25	24/02/2013 21:05	41638	Moranbah - Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	INJI
41635	24/02/2013 19:25	24/02/2013 21:15	41639	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	INJI
41636	24/02/2013 20:10	24/02/2013 21:00	41637	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	INJI
41641	25/02/2013 14:30	25/02/2013 18:20	41642	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	INJI
41644	25/02/2013 18:00	25/02/2013 21:30	41646	Rowville-Yallourn No 5 & No. 6 220kV lines	VIC	Lightning	INJI
41643	25/02/2013 18:55	25/02/2013 21:30	41645	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	INJI
41651	26/02/2013 06:45	26/02/2013 08:45	41657	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
41650	26/02/2013 06:45	26/02/2013 08:45	41655	Rowville-Yallourn No 5 & No. 6 220kV lines	VIC	Lightning	GPATS;#INJI
41661	26/02/2013 11:55	26/02/2013 16:40	41664	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41622	26/02/2013 12:00	26/02/2013 16:40	41665	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41670	27/02/2013 07:05	27/02/2013 12:10	41672	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41673	27/02/2013 12:50	27/02/2013 16:45	41677	Hazelwood PS - Rowville No. 1 and 2 220kV lines	QLD	Lightning	GPATS;#INJI
41674	27/02/2013 12:50	27/02/2013 16:45	41678	Rowville Yallourn 5 & 6 220kV lines	VIC	Lightning	GPATS;#INJI
41676	27/02/2013 15:50	27/02/2013 19:05	41681	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41680	27/02/2013 17:05	27/02/2013 21:00	41684	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41682	27/02/2013 19:55	27/02/2013 21:00	41683	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41663	28/02/2013 10:25	28/02/2013 21:45	41694	Northern Power Station units 1 and 2	SA	Other	Generator

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
41695	01/03/2013 16:05	01/03/2013 22:00	41699	Kemmis-Moranbah Tee Burton Downs 7117 and Nebo-Moranbah Tee Coppabella 7118 132kV lines	QLD	Lightning	GPATS;#INJI
41698	01/03/2013 17:50	01/03/2013 22:00	41700	Moranbah - Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	GPATS;#INJI
41702	02/03/2013 08:10	04/03/2013 13:50	41725	Northern PS 1 & 2 Unit	SA	Other	Generator
41704	02/03/2013 15:25	02/03/2013 19:50	41708	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41706	02/03/2013 18:30	02/03/2013 23:10	41709	876 and 877 Chalumbin Woree 275kV lines	QLD	Lightning	System event
41712	03/03/2013 16:50	03/03/2013 17:50	41713	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	INJI
41714	03/03/2013 18:20	03/03/2013 20:30	41716	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41720	04/03/2013 09:05	04/03/2013 09:40	41721	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	INJI
41726	04/03/2013 14:10	04/03/2013 19:25	41728	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	INJI
41730	04/03/2013 21:55	04/03/2013 22:45	41731	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41732	05/03/2013 02:50	05/03/2013 03:20	41733	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	INJI
41737	05/03/2013 14:25	05/03/2013 15:45	41741	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41742	05/03/2013 16:35	05/03/2013 18:35	41748	Chalumbin Woree 876 and 877 275kV lines	QLD	Lightning	GPATS;#INJI
41779	07/03/2013 15:00	07/03/2013 16:05	41785	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	INJI
41813	10/03/2013 11:40	10/03/2013 19:30	41836	Liapootah - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41814	10/03/2013 12:45	10/03/2013 16:50	41827	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41815	10/03/2013 12:55	10/03/2013 14:40	41818	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
41816	10/03/2013 12:55	10/03/2013 14:40	41819	Rowville Yallourn No. 5 and No. 6 220kV lines	VIC	Lightning	GPATS;#INJI
41817	10/03/2013 13:00	10/03/2013 19:10	41834	Farrell - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41822	10/03/2013 15:20	10/03/2013 16:50	41828	George Town - Hadspen No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41824	10/03/2013 16:20	10/03/2013 17:50	41833	Farrell Reece No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41825	10/03/2013 16:35	10/03/2013 17:45	41832	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
41826	10/03/2013 16:35	10/03/2013 17:45	41831	Rowville Yallourn No. 5 and No. 6 220kV lines	VIC	Lightning	GPATS;#INJI
41829	10/03/2013 17:30	10/03/2013 19:30	41835	Chapel St - Liapootah No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41890	16/03/2013 13:35	16/03/2013 15:15	41893	George Town - Hadspen No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41891	16/03/2013 13:35	16/03/2013 15:15	41892	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41925	20/03/2013 16:00	20/03/2013 16:45	41926	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	INJI
41927	20/03/2013 16:55	20/03/2013 19:50	41929	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	INJI
41930	20/03/2013 19:50	20/03/2013 22:15	41933	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41931	20/03/2013 20:35	20/03/2013 22:15	41934	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
41937	21/03/2013 01:55	21/03/2013 02:55	41940	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41939	21/03/2013 02:40	21/03/2013 03:55	41943	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41940	21/03/2013 02:50	21/03/2013 06:40	41951	Farrell - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41942	21/03/2013 03:20	21/03/2013 04:10	41944	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
41947	21/03/2013 04:55	21/03/2013 07:00	41953	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41948	21/03/2013 05:05	21/03/2013 05:45	41950	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
41949	21/03/2013 05:35	21/03/2013 07:00	41952	George Town - Hadspen No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41959	21/03/2013 15:30	21/03/2013 19:00	41967	Rowville Yallourn No. 5 and No. 6 220kV lines	VIC	Lightning	GPATS;#INJI
41960	21/03/2013 15:40	21/03/2013 19:00	41968	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
41961	21/03/2013 15:55	21/03/2013 19:50	41973	Farrell Reece No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41962	21/03/2013 16:10	21/03/2013 21:45	41990	Farrell - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41964	21/03/2013 17:00	21/03/2013 21:45	41985	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
41965	21/03/2013 17:45	21/03/2013 21:15	41982	George Town - Sheffield No. 1 and No. 2 220kV lines	TAS	Lightning	GPATS;#INJI
41966	21/03/2013 18:25	21/03/2013 21:45	41986	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	INJI
41969	21/03/2013 19:10	21/03/2013 21:45	41989	George Town - Hadspen No. 1 and No. 2 220kV lines	TAS	Lightning	INJI
41970	21/03/2013 19:25	21/03/2013 21:45	41988	Liapootah - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	INJI
41972	21/03/2013 19:45	21/03/2013 21:00	41980	Chapel St - Liapootah No. 1 and No. 2 220kV lines	TAS	Lightning	INJI
41993	21/03/2013 20:00	22/03/2013 15:30	41996	Burnie - Sheffield no.2 110 kV line and the Paloona - Sheffield 110kV line	TAS	Lightning	aemo
41974	21/03/2013 20:00	21/03/2013 21:45	41987	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	INJI
41977	21/03/2013 20:50	21/03/2013 21:45	41990	Farrell - Sheffield no.1 and no.2 220 kV lines and 130MW of Rio Tinto load	TAS	Other	.
41994	22/03/2013 12:25	22/03/2013 16:30	41997	Chalumbin Woree 876 and 877 275kV lines	QLD	Lightning	GPATS;#INJI
41998	22/03/2013 17:45	22/03/2013 18:45	41999	Collinsville - Mackay tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS;#INJI
42000	22/03/2013 19:35	22/03/2013 00:00	42002	Chalumbin Woree 876 and 877 275kV lines	QLD	Lightning	INJI
42011	24/03/2013 08:30	24/03/2013 10:20	42016	Farrell Reece No. 1 and No. 2 220kV lines	TAS	Lightning	INJI
42012	24/03/2013 08:35	24/03/2013 10:20	42016	Farrell Sheffield no.1 and no.2 220kV lines and 130MW of Rio Tinto load	TAS	Lightning	INJI
42013	24/03/2013 08:50	24/03/2013 10:20	42018	George Town Sheffield no.1 and no.2 220kV lines and 225 MW of Rio Tinto load	TAS	Lightning	INJI
42014	24/03/2013 08:55	24/03/2013 10:20	42019	George Town - Hadspen No. 1 and No. 2 220kV lines	NSW	Lightning	INJI
42015	24/03/2013 09:00	24/03/2013 10:20	42020	Hadspen - Palmerston No. 1 and No. 2 220kV lines	TAS	Lightning	INJI
42041	28/03/2013 04:20	27/03/2013 08:35	42043	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
42040	28/03/2013 04:20	27/03/2013 08:35	42042	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
42056	01/04/2013 19:30	01/04/2013 21:45	42057	Kemmis Moranbah tee Burton Downs 7117 132kV line and Nebo Moranbah tee Coppabella 7118 132kV line	QLD	Lightning	INJI
42055	01/04/2013 19:30	01/04/2013 21:45	42058	Moranbah Goonyella 7369 and 7370 132kV lines	QLD	Lightning	INJI
42089	06/04/2013 12:35	06/04/2013 14:20	42090	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
42091	06/04/2013 13:55	06/04/2013 18:50	42093	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
42092	06/04/2013 13:55	06/04/2013 18:50	42094	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
42096	07/04/2013 13:20	07/04/2013 19:00	42100	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	GPATS;#INJI
42098	07/04/2013 16:45	07/04/2013 19:00	42101	Glenrowan - Dederang No. 1 and No. 3 220kV lines	VIC	Lightning	GPATS;#INJI
42105	08/04/2013 14:30	08/04/2013 21:40	42109	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	INJI
42115	09/04/2013 12:25	09/04/2013 20:15	42124	Eildon - Mt Beauty No. 1 and No. 2 220kV lines	VIC	Lightning	INJI
42153	12/04/2013 20:10	12/04/2013 21:30	42155	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
42152	12/04/2013 20:20	12/04/2013 21:20	42154	Chalumbin Woree 876 and 877 275kV lines	QLD	Lightning	GPATS;#INJI
42157	14/04/2013 16:15	14/04/2013 19:30	42161	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
42158	14/04/2013 16:15	14/04/2013 19:30	42160	Rowville Yallourn No. 5 and No. 6 220kV lines	VIC	Lightning	GPATS;#INJI
42163	14/04/2013 20:55	14/04/2013 21:45	42166	Hazelwood PS - Rowville No. 1 and 2 220kV lines	VIC	Lightning	GPATS;#INJI
42164	14/04/2013 20:55	14/04/2013 21:45	42165	Rowville Yallourn No. 5 and No. 6 220kV lines	VIC	Lightning	GPATS;#INJI
42216	24/04/2013 14:00	24/04/2013 16:50	42218	Chalumbin - Turkinje (7165) 132kV Line and Chalumbin - Turkinje (7166) 132kV Line	QLD	Other	TNSP
42224	25/04/2013 13:50	25/04/2013 18:05	42226	Kemmis Moranbah tee Burton Downs 7117 132kV line and Nebo Moranbah tee Coppabella 7118 132kV line	QLD	Lightning	INJI
42225	25/04/2013 13:50	25/04/2013 18:05	42227	Moranbah Goonyella 7369 and 7370 132kV lines	QLD	Lightning	INJI
42255	29/04/2013 18:45	17/05/2013 19:00	42403	Millmerran power station generator 1 and Millmerran power station generator 2	QLD	Other	SPC

Table 5 Actual simultaneous trips (Non-credible contingencies) from 1 November 2012 to 30 April 2013

Incident Data and Time	Market Notice	Title	Region	Reason	Additional Information
12/11/2012 11:05	40252	Farrell - Sheffield no.1 and no.2 220 kV lines	TAS	Lightning	
14/11/2012 07:20	40269	Loss of Multiple generators at YWPS	VIC	Other	At 0717 hrs YallournW1 and W3 Generators tripped for a total loss of approx 753 MW.
14/11/2012 12:00	40275	loss of H_10 Bouldercombe No 2 275 kV Bus	QLD	Lightning	The H10 Bouldercombe No.2 275kV Bus tripped resulting in the offloading of H10_Bouldercombe to H29_Stanwell (849) 275kV Line.
27/11/2012 03:15	40407	Berri No. 1 66kV bus and trip of MurrayLink	NSW	Other	At 0312 hrs the following transmission elements tripped.Berri No. 1 66kV bus and Murraylink tripped and
27/11/2012 04:45	40410	Trip of ROTS - YPS Nos. 5 and 6 220kV Lines	VIC	Lightning	Trip of ROTS - YPS 5 and 6 220kV Lines. ROTS_RTS No 4 220kv Line offloaded at ROTS
27/11/2012 07:30	40416	George Town 220kV B Bus trip	TAS	Other	
30/11/2012 20:40	40462	Liapootah Waddamana (tee) Palmerston No.1 and No.2 220 kV transmission lines	TAS	Bushfires	
08/12/2012 19:45	40592	FA-SH 1&2 and Rio Tinto load trip	TAS	Lightning	At 1942 hrs 8 December 2012 the Farrell - Sheffield No.1 & No.2 220 kV transmission lines in tasmania tripped simultaneously.
10/12/2012 10:00	40625	Sydney West B1 330 kV bus tripped.	NSW	Other	This offloaded the following transmission lines. Constraint set N-LPSW30+RGSW38 invoked
12/12/2012 05:25	40646	Torrens Island B PS West 275kV Bus and TIPS B3 Generator trip	SA	Other	At TIPS slow opening of CB BW3 after generator trip backed up into bus protection. Not reclassified.
08/01/2013 09:10	40964	H18 Tarong No 2 275kV Bus	QLD	Other	Personnel working on CB 88122. Powerlink investigated the bus zone protection
08/01/2013 13:50	40967	Canberra to Capital 6 330kV line and Capital to Kangaroo Valley 3W 330kV lines	NSW	Other	Bushfire under 3W possible protection or CB mal-operation
18/01/2013 00:40	41133	22 kV feeder D252 Ex Scottsdale 110 kV Substation and the TEMCO load	TAS	Other	Events determined to be unrelated. Possum tripped Temco potlines.
25/01/2013 13:25	41236	Sydney South - Wallerawang (76) 330kV line, Ingleburn - Wallerawang (77) 330kV line, Wallerawang generator no.8	NSW	Bushfires	
26/01/2013 08:15	41247	876 Gladstone - Calliope River 275kV line and Gladstone Generator No.1	QLD	Other	
27/01/2013 19:55	41266	Multiple generator units at Gladstone power station tripped	QLD	Other	Units tripped due to low fuel oil
02/02/2013 12:00	41348	Farrell B 220kV bus trip	TAS	Other	CB fail operation on Bastyan 220kV CB
13/02/2013 05:05	41449	Darling Downs power station	QLD	Other	Controls problem being investigated
14/02/2013 13:10	41507	Simulataneous trip of 97G & Murray Tie transformer	NSW	Lightning	97G was offloaded at the time of the incident - TG investigating.
15/02/2013 19:40	41527	Parafield Gardens West 66kV bus	SA	Lightning	20MW load loss
15/02/2013 20:40	41528	Hummocks Waterloo and Hummocks Kadina East 132kV lines	SA	Lightning	loss of 14MW
26/02/2013 04:25	41647	The Northern power station no.2 generator (230MW), the Davenport-Northern power station no.2 275kV line and the Northern power station no.1 generator (240MW)	SA	Climatic	waiting
02/03/2013 18:30	41706	876 and 877 Chalumbin Woree 275kV lines tripped simultaneously due to lightning	QLD	Lightning	MN 41707 issued advising of changed category possible to probable for 876 and 877 Chalumbin Woree 275kV lines

Incident Data and Time	Market Notice	Title	Region	Reason	Additional Information
09/03/2013 22:10	41808	Millmerran power station No.1 and No.2 generators tripped simultaneously.	QLD	Other	Refer SMIRK report
21/03/2013 09:20	41956	At 0918 hrs the Tarong- Blackwall 875 275 kV line and the Tarong -Blackwall 827 275kV lines tripped and auto reclosed.	QLD	Other	Powerlink isolated faulty current differential line protection.
21/03/2013 18:35	41975	Farrell - Sheffield no.1 and no.2 220 kV lines and 130 MW of Rio Tinto load	TAS	Other	Lines were reclassified for lightning
21/03/2013 19:00	41978	George Town - Sheffield no.2 220 kV line and 100 MW of Rio Tinto load	TAS	Other	.
21/03/2013 19:05	41992	Burnie - Sheffield no.2 110 kV line and the Paloona - Sheffield 110kV line	TAS	Lightning	,
21/03/2013 20:55	41981	George Town - Sheffield no.2 220 kV line and 225 MW of Rio Tinto load	TAS	Other	.
21/04/2013 11:50	42198	Chalumbin No1 Transformer 7192 Kareeya and 7166/1 Turkinje 132kV lines	QLD	Climatic	Loss 40MW load Turkinje and Craiglie and 18MW generation Kareeya unit 2
24/04/2013 00:55	42210	Simultaneous trip of Chalumbin-Turkinje 7165/7166 132kV Lines	QLD	Other	Event time 0056 hrs Wed 24/04/13. Cause not specified. Load loss 35MW.
29/04/2013 21:25	42257	H18 Tarong No. 2 275kV Bus tripped	QLD	Other	Non-Credible Contingency Event Queensland. protection issues

8 Appendix A: Vulnerable Transmission Lines

A double circuit transmission line in this category is eligible to be reclassified as a credible contingency event during a lightning storm if a cloud to ground lightning strike is detected within a specified distance of the vulnerable lines.

Note: Table 6 below is obtained from Power System Security Guidelines SO_OP3715 Version 53 dated 3 May 2013.

Table 6 Vulnerable transmission Lines

Region	Double Circuit Transmission Lines	LTTW End Date Probable	LTTW End Date Proven	Reason for Classification	Category (Probable or Proven)
Queensland	T37 Collinsville – T39 Mackay tee T38 Proserpine No.7125 and No.7126 132 kV Lines	22/03/2016	29/12/2015	Tripped twice in past 5 years	Proven
Tasmania	Chapel St – Liapootah No.1 & No.2 220 kV lines	N/A	25/01/2020	No Shielding	Proven
Tasmania	George Town – Hadspen No 1 & No.2 220 kV lines	N/A	25/01/2020	No Shielding	Proven
Tasmania	George Town – Sheffield No.1 & No.2 220 kV lines	N/A	25/01/2020	No Shielding	Proven
Tasmania	Hadspen – Palmerston No.1 & No.2 220 kV lines	N/A	25/01/2020	No Shielding	Proven
Tasmania	Liapootah – Palmerston No.1 & No.2 220 kV lines	N/A	25/01/2020	No Shielding	Proven
Tasmania	Farrell – Reece No.1 & No.2 220 kV lines	08/08/2017	N/A	Tripped once in past 5 years	Probable
Tasmania	Farrell-Sheffield No.1 & No.2 220 kV lines	08/12/2017	12/11/2017	Tripped twice in past 5 years	Proven
Tasmania	Burnie - Sheffield No.2 110 kV line and Palooona - Sheffield 110kV line	21/03/2018	N/A	Tripped once in past 5 years	Probable
Victoria	Dederang – Glenrowan No.1 and No.3 220 kV lines	13/11/2015	03/04/2014	Tripped more than once in past 5 years	Proven
Victoria	Eildon PS – Mt Beauty No. 1 & No. 2 220 kV lines	09/02/2015	22/01/2014	Tripped more than once in the past 5 years	Proven
Victoria	Hazelwood – Rowville No.1 & No.2 220 kV lines	27/02/2015	N/A	Tripped once in past 5 years	Probable
Victoria	Rowville – Yallourn No.5 & No.6 220 kV lines	27/11/2017	N/A	Tripped once in past 5 years	Probable
Queensland	Chalumbin – Woree No.876 and No.877 275 kV lines	02/03/2018	N/A	Tripped once in past 5 years	Probable
Queensland	Moranbah Goonyella2 No.7369 and No.7370 132 kV lines	28/01/2017	N/A	Tripped once in past 5 years	Probable
Queensland	No.7117 Kemmis-Moranbah tee Burton Downs and No.7118 Nebo-Moranbah tee Coppabella 132 kV lines	22/02/2017	N/A	Tripped once in past 5 years	Probable

² Due to augmentation works relating to No.7122 and No.7155 132 kV lines the previous reclassification of these lines as vulnerable is now applicable to No.7369 and No.7370 132 kV lines respectively between Moranbah and Goonyella. The original No.7122 is now between T212 (Goonyella) and T178 (Stony Creek) with a tee to T137 (Nth Goonyella) and No.7155 is now between T212 and T069 (Newlands). No.7369 and No.7370 contains the sections of No.7122 and No.7155 that initiated the original reclassification