

REVIEW OF POWER SYSTEM RECLASSIFICATION EVENTS 1 May 2012 TO 31 October 2012.

PREPARED BY: Systems Capability

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Final

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1 References

National Electricity Rules (NER).

2 Definitions

GPATS: Global Positioning and Tracking System. This is a lightning detection system that detects and monitors lightning activity and compares them with locations of transmission assets.

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

3 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 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.

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 ongoing 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>. The relevant updates to this procedure are listed below.

4.1 Changes to Power System Security Guidelines SO_OP3715

A number of updates were made to Table 2, Section 12.4.2 for the period.

5 Analysis of Reclassification Events over the Reporting Period

A total of 89 reclassification events occurred over the reporting period 1 May 2012 to 31 October 2012. Refer Table 3 for full details.

In the period there were 18 non-credible contingencies events. None of these were reclassified prior to the event. Three 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 three reclassifications due to bushfires in this reporting period an increase of three compared to zero events for the previous reporting period.

5.2 Lightning

A new lightning reclassification process commenced from the 1 August 2009. Reclassifications prior to this date were based on advice from the TNSP and AEMO GPATS.

Reclassifications for lightning during the period were performed on the basis of established criteria as specified in SO_OP3715. Information from the AEMO GPATS was utilised in the assessment process. For lightning, a total of 79 reclassification events occurred over this reporting period a decrease of 220 compared to 299 events for the previous reporting period.

5.3 Other

Under the "Other" category, seven reclassification events (three were classified as 'unknown', one classified as 'protection' and three as 'station configuration' occurred over this reporting period compared to seven ('unknown') reclassifications for the previous reporting period.

These events have been reclassified on the basis of participant information. Three of these were post multiple contingency events, these are highlighted in **red** in Table 4.

5.4 Reclassification Events where Constraints bound

For the reporting period there were 15 occurrences of reclassification where the corresponding constraint bound.

Table 1, below provides a summary.

Table 4, provides more detailed information. These events are highlighted in **yellow**.

Table 1 Reclassification events where constraints bound.

Region	Reclassified Equipment	No of times constraint bound
TAS	George Town – Sheffield No 1 and No 2 220kV Lines	8
TAS	George Town – Hadspen No 1 and No 2 220kV Lines	5
SA	Parra – Robertstown/Robertstown – Tungkillo 275kV Line	2

6 Analysis Summary

The analysis of reclassifications occurring over the reporting period is detailed in Table 4 and has been summarised in Table 2 below. 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 Summary for Reclassifications.

Category	Number of Reclassification Events	Actual Incidence of Event Occurring during reclassification	Comments
Bushfires	3	0	
Lightning	79	0	
Other	7	0	
Total for Period	89	0	

AEMO has analysed the re-classification trends during the relevant 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 as specified in SO_OP 3715.

Table 2 provides the historical statistics for reclassifications from 23 October 2008 till 31 October 2012. There are a number of periods namely (1) 24 October 2009 – 30 April 2010 (2) 1 November 2010 – 30 April 2011 and (3) 1 November 2011 – 30 April 2012 where the reclassification events

over these periods increase significantly compared to the previous periods. These periods coincide with the normal periods of greater electrical storm activity.

Figures 1 and 2 provide a summary of (1) Reclassifications per Region and (2) Reclassification per period.

Reporting Period	Bushfires		Lightning		Other										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	0	1	0	87	0
01/11/2011 to 30/4/2012	0	0	299	2	7	3	0	0	0	0	0	0	0	0	0	0	0	306	5
01/05/2012 to 31/10/2012	3	0	79	0	3	0	1	0	0	0	0	0	3	0	0	0	0	89	0
Totals	14	2	1218	13	12	3	17	1	2	0	4	0	4	0	2	0	1273	19	

Table 3 Historical Statistics for Reclassifications

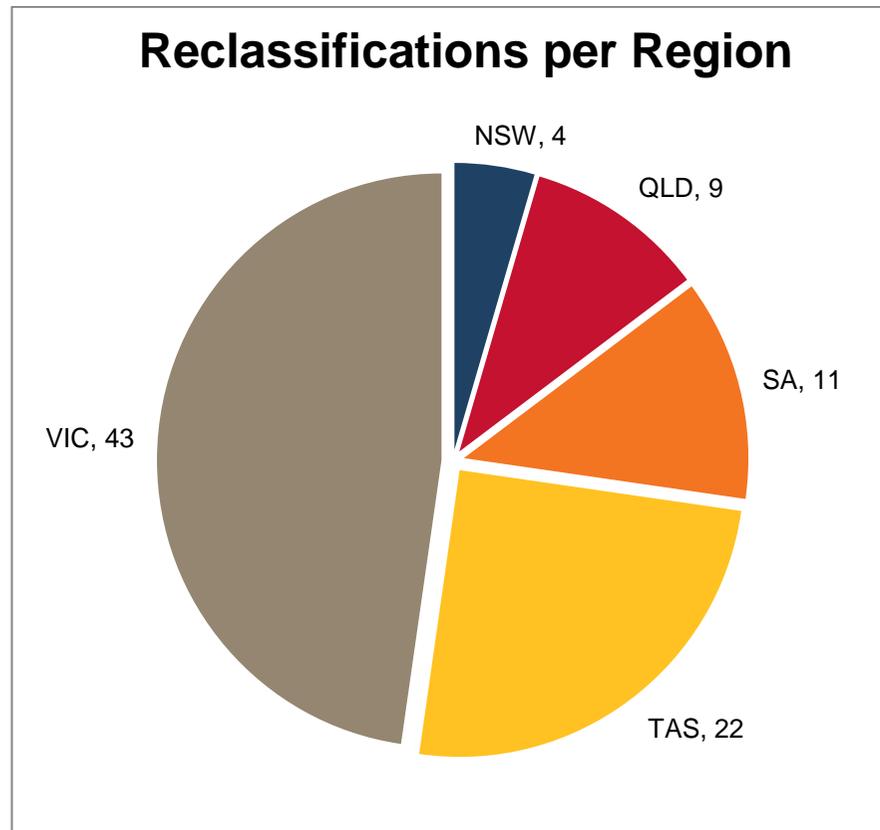


Figure 1 Reclassifications per Region

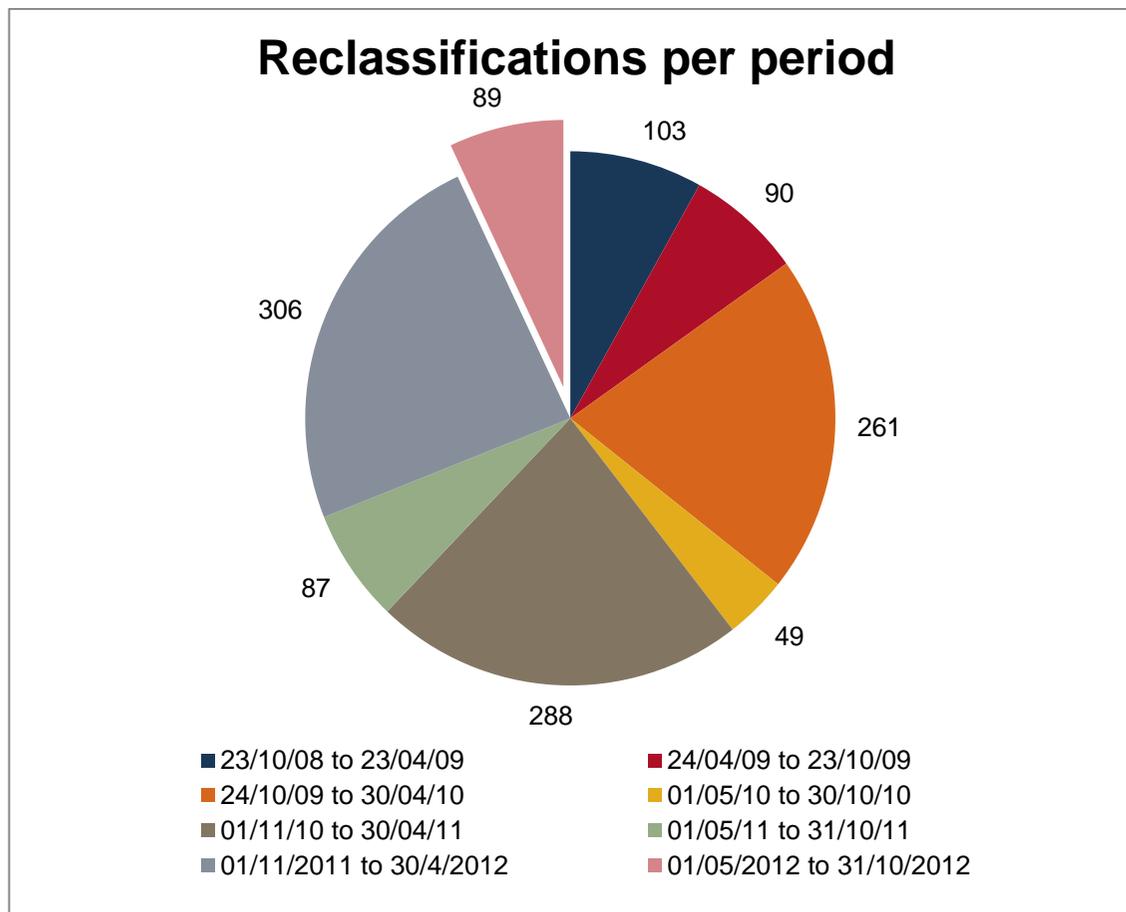


Figure 2 Reclassifications per Period

7 Record of Reclassification Events

Table 4 Reclassifications 1 May 2012 to 31 October 2012

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
38810	7/05/2012 19:30	7/05/2012 20:30	38812	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
38821	9/05/2012 19:20	9/05/2012 20:35	38823	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
38835	11/05/2012 06:00	11/05/2012 06:55	38836	Hadspen - Palmerston No.1 and No.2 220kV lines	TAS	Lightning	GPATS
38838	13/05/2012 01:55	29/05/2012 16:30	38919	Chapel Street Gordon No.2 220kV transmission line and Chapel Street Risdon No.1 110kV transmission line	TAS	Other	TNSP
39001	13/06/2012 22:45	14/06/2012 01:00	39002	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
39008	14/06/2012 19:10	14/06/2012 19:50	39009	George Town - Sheffield No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39014	15/06/2012 06:45	15/06/2012 07:20	39015	George Town - Sheffield No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39115	29/06/2012 16:30	29/06/2012 21:40	39126	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39117	29/06/2012 17:30	29/06/2012 21:40	39127	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS
39119	29/06/2012 18:55	29/06/2012 19:55	39124	George Town - Sheffield No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39195	9/07/2012 14:00	9/07/2012 14:00	39197	Collinsville-Mackay Tee Proserpine 7125 and 7126 132kV Lines	QLD	Lightning	GPATS
39212	12/07/2012 14:10	12/07/2012 19:45	39217	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
39218	12/07/2012 23:10	13/07/2012 02:00	39221	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS
39219	13/07/2012 00:00	13/07/2012 02:00	39222	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39223	13/07/2012 09:00	10/09/2012 19:00	39716	Woodlawn and Capital Wind Farms and Canberra - Capital 330kV 6 Line	NSW	Other	AEMO
39228	14/07/2012 18:10	14/07/2012 18:50	39229	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39302	25/07/2012 23:50	26/07/2012 01:20	39303	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39306	26/07/2012 09:05	26/07/2012 10:00	39309	George Town - Hadspen No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39307	26/07/2012 09:05	26/07/2012 10:00	39310	George Town - Sheffield No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39362	5/08/2012 12:15	5/08/2012 13:15	39365	George Town - Hadspen No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39363	5/08/2012 12:15	5/08/2012 13:15	39366	George Town - Sheffield No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39368	5/08/2012 18:25	5/08/2012 19:35	39370	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS
39369	5/08/2012 18:45	5/08/2012 19:35	39371	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39381	9/08/2012 07:25	9/08/2012 09:15	39382	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39383	9/08/2012 15:20	9/08/2012 16:45	39384	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39437	16/08/2012 19:05	16/08/2012 21:15	39438	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
39440	17/08/2012 00:55	17/08/2012 02:30	39442	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
39441	17/08/2012 01:35	17/08/2012 02:30	39443	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39446	17/08/2012 21:00	17/08/2012 21:45	39447	Pelican Point Power Station	SA	Other	Generator
39504	23/08/2012 16:10	23/08/2012 20:20	39513	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39505	23/08/2012 18:15	23/08/2012 19:25	39509	George Town - Sheffield No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39506	23/08/2012 18:15	23/08/2012 19:40	39510	George Town - Hadspen No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39507	23/08/2012 19:05	23/08/2012 20:00	39511	Hadspen - Palmerston No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39508	23/08/2012 19:05	23/08/2012 20:20	39512	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39544	26/08/2012 17:30	26/08/2012 18:10	39545	Moranbah Goonyella (7369 and 7370) 132 kV transmission lines	QLD	Lightning	GPATS
39547	26/08/2012 19:05	26/08/2012 22:00	39550	Moranbah - Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	GPATS
39548	26/08/2012 19:05	26/08/2012 22:00	39551	Kemmis-Moranbah Tee Burton Downs 7117 and Nebo-Moranbah Tee Coppabella 7118 132kV lines	QLD	Lightning	GPATS
39577	30/08/2012 15:00	30/08/2012 15:35	39578	Hazelwood PS - Rowville No. 1 and No.2 220kV lines	VIC	Lightning	GPATS
39579	30/08/2012 17:50	30/08/2012 19:05	39580	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39675	7/09/2012 01:15	7/09/2012 01:50	39676	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
39681	7/09/2012 11:55	7/09/2012 12:45	39683	Farrell - Reece No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39687	7/09/2012 16:10	7/09/2012 16:45	39688	Farrell - Reece No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39746	12/09/2012 15:05	12/09/2012 16:00	39747	Farrell- Reece No.1 and No.2 220 kV transmission lines	TAS	Lightning	GPATS
39752	13/09/2012 14:30	13/09/2012 17:00	39753	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39775	17/09/2012 20:05	17/09/2012 21:40	39776	Moranbah - Goonyella 7369 and 7370 132 kV lines	QLD	Lightning	GPATS
39784	18/09/2012 14:55	18/09/2012 15:30	39785	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39802	20/09/2012 20:15	20/09/2012 21:00	39803	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39843	26/09/2012 08:30	26/09/2012 09:45	39844	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
39845	26/09/2012 10:05	26/09/2012 11:00	39847	Para – Robertstown and Robertstown –Tungkillio 275kV lines	SA	Lightning	GPATS
39852	27/09/2012 11:35	27/09/2012 12:20	39854	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS
39855	27/09/2012 12:35	27/09/2012 18:10	39857	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS
39856	27/09/2012 14:25	27/09/2012 18:10	39858	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39860	27/09/2012 20:15	27/09/2012 22:40	39864	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39861	27/09/2012 20:15	27/09/2012 21:45	39862	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS
39863	27/09/2012 21:50	27/09/2012 23:15	39866	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39865	27/09/2012 23:00	28/09/2012 01:05	39868	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39870	28/09/2012 01:15	28/09/2012 03:15	39874	George Town - Sheffield No.1 and No.2 220kV lines	TAS	Lightning	GPATS

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
39872	28/09/2012 02:10	28/09/2012 10:45	39885	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39873	28/09/2012 02:25	28/09/2012 08:30	39891	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS
39877	28/09/2012 04:35	28/09/2012 05:35	39878	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
39879	28/09/2012 07:10	28/09/2012 10:45	39884	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39887	28/09/2012 16:55	28/09/2012 17:50	39889	Farrell - Reece No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39888	28/09/2012 17:40	28/09/2012 18:40	39890	Greenbank - Middle Ridge 8848 and 8849 275kV Lines	QLD	Bushfires	INDJI
39891	28/09/2012 19:45	28/09/2012 21:45	39896	George Town - Hadspen No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39892	28/09/2012 19:55	28/09/2012 21:25	39894	George Town - Sheffield No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39893	28/09/2012 20:40	28/09/2012 21:40	38985	George Town - Hadspen No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39897	28/09/2012 23:25	29/09/2012 00:00	39898	George Town - Sheffield No.1 and No.2 220kV lines	TAS	Lightning	GPATS
39899	29/09/2012 02:00	29/09/2012 02:45	39900	Hazelwood PS - Rowville No. 1 and No.2 220kV lines	VIC	Lightning	GPATS
39902	29/09/2012 16:10	29/09/2012 18:50	39903	Hazelwood PS - Rowville No. 1 and No.2 220kV lines	VIC	Lightning	GPATS
39919	3/10/2012 18:25	3/10/2012 21:00	39922	Bayswater Regentville (31) and Bayswater Sydney West (32) 330kV Lines	NSW	Bushfires	INDJI&TNSP
39929 & 39964	4/10/2012 12:15		xxxxxxx	Eraring Vales Pt 24 line and Tomago No. 3 Potline	NSW	Other	Non credible contingency 4th Oct actual event.
39938 & 39971	5/10/2012 13:35		xxxxxxx	Uranquinty Units 11,12,13 &14	NSW	Other	Actual Event
39945	6/10/2012 04:00	6/10/2012 05:05	39948	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
39956	6/10/2012 14:30	6/10/2012 16:00	39957	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS
39967	8/10/2012 15:25	8/10/2012 16:00	39968	Farrell-Reece No.1 & No.2 220kV lines	TAS	Lightning	GPATS
39984	10/10/2012 18:35	10/10/2012 20:00	39988	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
39994	11/10/2012 12:25	11/10/2012 13:25	39995	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS
40025	16/10/2012 12:25	16/10/2012 13:45	20028	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS
40032	16/10/2012 17:35	16/10/2012 19:30	40039	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
40035	16/10/2012 19:05	16/10/2012 22:10	40041	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
40036	16/10/2012 19:40	16/10/2012 22:10	40040	Glenrowan - Dederang No.1 and No.3 220kV lines	VIC	Lightning	GPATS
40050	19/10/2012 06:35	19/10/2012 07:30	40051	Eildon - Mt Beauty No.1 and No.2 220kV lines	VIC	Lightning	GPATS
40052	19/10/2012 08:30	19/10/2012 09:30	40054	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
40064	20/10/2012 21:55	20/10/2012 22:45	40065	Para – Robertstown and Robertstown –Tungkillo 275kV lines	SA	Lightning	GPATS

Start MN	Start	Actual End Date	End MN	Reclassified Equipment	Region	Reason	Source
40082	22/10/2012 18:40	23/10/2012 16:00	40094	Greenbank Swanbank E 805 Greenbank-Swanbank 806 275kV lines and Swanbank E generator	QLD	Other	TNSP
40088	23/10/2012 11:00	23/10/2012 15:45	40093	Greenbank Blackwall 8821 and Greenbank-Abermain 8844 275kV lines	QLD	Bushfires	INDJI&TNSP
40091	23/10/2012 13:00	23/10/2012 15:40	40092	Greenbank Abermain (8844) 275kV line and the Greenbank No2 275kV bus	QLD	Other	TNSP
40099	25/10/2012 01:45	25/10/2012 04:55	40102	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS
40116	26/10/2012 16:50	26/10/2012 17:40	40118	Hazelwood PS - Rowville No.1 and No.2 220kV lines	VIC	Lightning	GPATS

Table 5 Actual Simultaneous Trips (Non-credible contingencies) 1 May 2012 to 31 October 2012

Start	Start MN	End	End MN	Title	Region	Reason	Additional Information
31/10/2012 12:20	40158	31/10/2012 12:20	40158	Lismore Section 1 132kV bus tripped	NSW	Other	Inadvertent protection operation
30/10/2012 13:50	40153	30/10/2012 14:05	40154	Farrell - Sheffield No.1 and No.2 220 kV lines	TAS	Bushfires	Controlled burn out of control
24/10/2012 13:40	40098	24/10/2012 13:40	40098	Hadspen 110kV A Bus	TAS	Other	
23/10/2012 12:15	40090	23/10/2012 12:15	na	S3 Greenbank Abermain (8844) 275kV line tripped and successfully auto reclosed, S3 Greenbank No 2 275 kV bus, offloading Mudgeeraba 275kV lines 835 and 836	QLD	Bushfires	Reclass on 8844 and 8821
22/10/2012 18:40	40080	23/10/2012 10:00	na	Greenbank Swanbank E 805 Greenbank-Swanbank 806 275kV lines and Swanbank E generator	QLD	Bushfires	1836 hrs 806, 1837 hrs 805, 1840 Swanbank E gen trip
18/10/2012 22:05	40047	19/10/2012 14:30	40058	Braemar No. 1 330/275kV transformer and the Braemar to Bulli Creek 330kV line 9901 tripped.	QLD	Other	Braemar No. 1 330/275kV transformer and the Braemar to Bulli Creek 330kV line 9901 tripped.
17/10/2012 09:00	40042	17/10/2012 22:00	40042	George Town to Tamar Valley No.1 and No.2 110 kV lines tripped	TAS	Other	George Town to Tamar Valley No. 1 and No. 2 110 kV lines tripped, maloperation of CAS
5/10/2012 13:35	39938	5/10/2012 13:35	N/A	Simultaneous trip all Units at Uranquinty Power Station	NSW	Other	Units 12,13, and 14 tripped 1334 hrs Unit 11 tripped 1336 hrs
4/10/2012 12:15	39929	4/10/2012 12:15	N/A	Eraring to Vales Point and Tomago No. 3 Potline	NSW	Other	Trip due Bushfire under 24 transmission line. Tomago simultaneous trip.
4/09/2012 01:15	39651	4/09/2012 01:15	39651	Simultaneous trip of MOPS No 11 and No 12 generators	VIC	Other	Trip was attributed to gas pipeline pressure control issues. Preliminary information indicates that a future occurrence of this non-credible event is not likely under the prevailing conditions.- Awaiting further info to become available
20/08/2012 19:00	N/A	20/08/2012 19:40	N/A	Snuggery 33kV bus trip: ETSA Utilities	SA	Other	Inadvertent trip during protection testing
8/08/2012 22:00	39378	8/08/2012 22:15	N/A	Multiple generator trip - Reece No.1 & 2 units	TAS	Lightning	Units tripped at 2159hrs
11/07/2012	39211	11/07/2012	N/A	Non Credible Contingency 6 330 kV T/L Capital and	NSW	Other	Auto reclose testing on 6

Start	Start MN	End	End MN	Title	Region	Reason	Additional Information
13:20		13:25		Woodlawn windfarms			Transmission line
5/07/2012 17:50	39189	5/07/2012 21:40	N/A	Non Credible Contingency Basslink and Rio Tinto Potline	TAS	Other	No
2/07/2012 16:05	39154	2/07/2012 16:05	NA	WWang 7 and WWang Orange North 944 132kV line	NSW	Other	
16/06/2012 20:25	39020	16/06/2012 22:35	N/A	No. 7 110 kV bus tripped at H3 Belmont	QLD	Other	Cap bank fault also tripped bus. CB isolated and bus RTS
29/05/2012 16:20	38920	29/05/2012 17:40	38921	Keilor No1 220kV Bus	VIC	Other	Refer to PS Incident Report
13/05/2012 01:45	38838	13/05/2012 03:00	xxxxx	Chapel Street Gordon No.2 220kV transmission line and Chapel Street Risdon No.1 110kV transmission line	TAS	Other	

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 is applicable on 14 November 2012.

REGION	DOUBLE CIRCUIT TRANSMISSION LINES	LTTW END DATE Probable	LTTW END DATE Proven	REASON FOR CLASSIFICATION	CATEGORY (PROBABLE OR PROVEN)
South Australia	Para – Robertstown and Robertstown –Tungkillo 275 kV lines	11/02/16	N/A	Tripped once in past 5 years	Probable
Queensland	T37 Collinsville – T39 Mackay tee T38 Proserpine 7125 and 7126 132 kV Lines	22/03/16	29/12/15	Tripped twice in past 5 years	Proven
Tasmania	Chapel St – Liapootah No 1 & 2 220 kV lines	N/A	25/01/20	No Shielding	Proven
Tasmania	George Town – Hadspen No 1 & 2 220 kV lines	N/A	25/01/20	No Shielding	Proven
Tasmania	George Town – Sheffield No 1 & 2 220 kV lines	N/A	25/01/20	No Shielding	Proven
Tasmania	Hadspen – Palmerston No 1 & 2 220 kV lines	N/A	25/01/20	No Shielding	Proven
Tasmania	Liapootah – Palmerston No 1 & 2 220 kV lines	N/A	25/01/20	No Shielding	Proven
Tasmania	Farrell – Reece No.1 & 2 220kV lines	08/08/17	N/A	Tripped once in past 5 years	Probable
Victoria	Dederang – Glenrowan No.1 and No. 3 220kV lines	13/11/15	03/04/14	Tripped more than once in past 5 years	Proven
Victoria	Eildon PS – Mt Beauty No. 1 & No. 2 220kV lines	22/10/15	09/02/15	Tripped more than once in the past 5 years	Proven
Victoria	Hazelwood – Rowville No.1 & No.2 220 KV lines	26/02/15	N/A	Tripped once in past 5 years	Probable
Queensland	7369 and 7370 Moranbah Goonyella ¹ 132 kV lines	28/01/17	N/A	Tripped once in past 5 years	Probable
Queensland	7117 Kemmis-Moranbah tee Burton Downs and 7118 Nebo-Moranbah tee Coppabella 132 kV lines	22/02/17	N/A	Tripped once in past 5 years	Probable

Table 6 Vulnerable Transmission Lines

¹ Due to augmentation works relating to 7122 and 7155 132 kV lines the previous reclassification of these lines as vulnerable is now applicable to 7369 and 7370 132kV lines respectively between Moranbah and Goonyella. The original 7122 is now between T212 (Goonyella) and T178 (Stony Creek) with a tee to T137 (Nth Goonyella) and 7155 is now between T212 and T069 (Newlands). 7369 and 7370 contain the sections of 7122 and 7155 respectively that initiated the original reclassification