

EnergyAustralia™

Transmission Service Standards

Reliability in 2006

29 MARCH 2007



1. Introduction

The National Electricity Rules (NER) defines EnergyAustralia as both a transmission and distribution network and as such, is regulated. In the past IPART has been responsible for the regulation of the distribution network assets and the ACCC was responsible for regulation the transmission network assets. This report is specifically related to the ACCC determination for the transmission assets published in 2005¹.

The ACCC determined that part of EnergyAustralia's maximum allowed revenue (MAR) to be recovered from its transmission users would be dependant on its availability. Further it required EnergyAustralia to report additional availability statistics for information. This is a report to the AER to meet the requirements of the ACCC's determination.

This report outlines:

- reporting requirements and the incentive scheme;
- reliability data for 2006; and
- performance incentive calculated for 2006;

As a result of feeder availability of 97.74% for 2006, EnergyAustralia's s-factor is 0.39%, which in turn results in a financial incentive of \$400,564. This amount will be recovered from users during 2007-08.

2. Reporting requirements

The ACCC revenue cap decision sets out what EnergyAustralia should report. Specifically appendix B of the determination defines 8 measures of reliability:

1. Transmission circuit availability;
2. Transformer availability;
3. Reactor availability;
4. MVA days of feeder availability;
5. MVA days of 'transmission bulk supply' transformers non-availability;
6. MVA days of reactive plant non-availability;
7. Loss of supply due to forced transmission asset outages; and
8. Minutes that planned outage plans were in place.

Each of these measures has a list of events that, if they occur, are excluded from the calculation. These exclusions are aimed to better link performance to events where the network has some ability to influence or control the outcome. For example, if NEMMCO directed EnergyAustralia to take an outage the availability would be lower. However, defining this as a exclusion results in an availability measure more attributable to EnergyAustralia's operation of the network, rather than being influenced too much by external factors.

Depending on the measure, the exclusions include unregulated transmission assets, 3rd party outages, planned outages, and force majeure events.

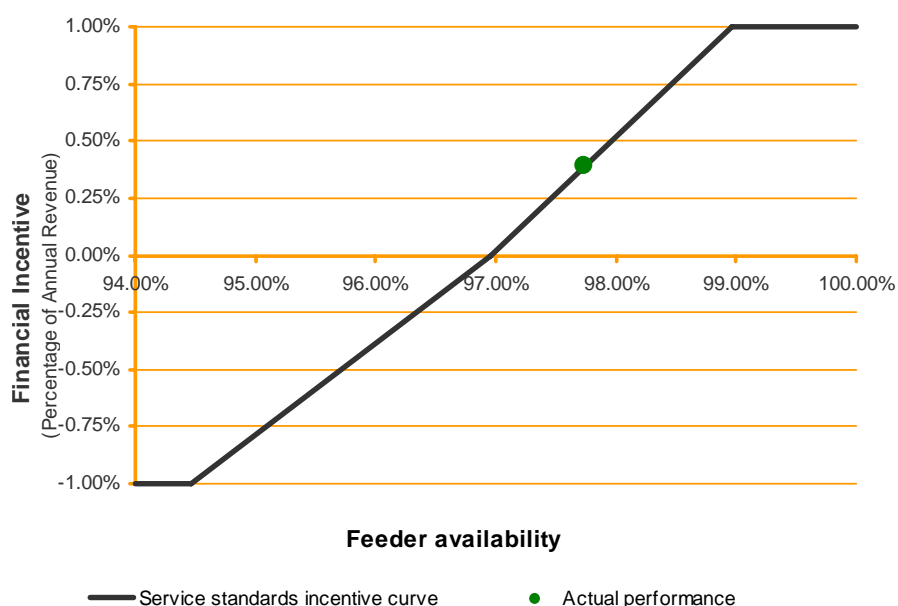
3. The incentive scheme

The ACCC determination defined a service standards incentive curve, whereby a financial incentive, capped at one per cent of annual revenue, is determined by the availability outcome. Specifically, increased network availability results in an increased MAR and vice versa. The aim is to provide an incentive to increase the availability, or at least to maintain the status quo. Figure 1

¹ ACCC, Decision – *NSW and ACT Transmission Network Revenue Cap, EnergyAustralia 2004–05 to 2008–09*, 27 April 2005.

illustrates the relationship between reliability and the financial incentive as set out in the ACCC determination.

Figure 1 – Service Incentive Curve



4. Results

Table 1 shows the results for each measure with and without exclusions for 2006. It should be noted that in EnergyAustralia considers that there were no events should be excluded. However there were events that were capped at 14 days, as per the AER’s standard practice – these are listed in Attachment A.

Table 1 – Performance measures and results

Measure	Unit	2006 Performance	
		Without exclusions	With exclusions
1 Transmission circuit availability	%	97.74	97.74
2 Transformer availability	%	98.71	98.71
3 Reactor availability	%	98.60	98.60
4 MVA days of feeder availability	%	98.55	98.55
5 MVA days of 'transmission bulk supply' transformers non-availability	%	99.57	99.57
6 MVAr days of reactive plant non-availability	%	99.05	99.05
7 Loss of supply due to forced transmission asset outages		Tabulated separately	Tabulated separately
8 Minutes that planned outage plans were in place	Minutes	3108.9	3108.9

The loss of supply event defined in the ACCC revenue cap decision was not properly defined. For this reason the final frequency can not be calculated. Appendix D of the revenue cap decision did not define the x and y minutes threshold nor was “system minutes” defined. Without this threshold, EnergyAustralia has reported (see Appendix B) for all loss of supply events, the duration and load

lost rather than frequency. In addition, with confirmation from the AER, the “system minutes” of each outage has been calculated.

EnergyAustralia proposed to calculate the system minutes, in accordance with the formula Sinclair Knight Merz (SKM) defined in a report to the ACCC (see Table 2)². This proposal has been accepted as reasonable by the AER.

It should be noted that the exclusions and inclusions have been adopted from the ACCC decision.

Table 2 - System minutes lost

	System Minutes Off Supply
Unit of Measure	Minutes (system equivalent)
Source of Data	TNSP Outage Reporting System TNSP Metering Data (maximum demand)
Definition/Formula	Formula: $\frac{\text{Undelivered energy (MWh) due to transmission outages} \times 60}{\text{Maximum system demand (MW)}}$ Definition: This is an estimate of the MWh unsupplied divided by the highest previously recorded maximum demand delivered by the transmission system.
Exclusions	Refer to ACCC decision, 27 April 2005
Inclusions	Refer to ACCC decision, 27 April 2005

² SKM, *Transmission network Service Provider (TNSP) – Service Standards, Stage 1 Discussions Paper*, March 2002, page 44. on AER website:
(<http://www.aer.gov.au/content/index.phtml/itemId/660268/fromItemId/660252>)

Appendix A – Events capped at 14 days

The following tables show the outage events, on feeders, transformers and reactive plant, that were capped at 14 days for the purpose of this report.

Feeder	From	To	Out	In
203	Mason Park	Drummoyne	20/07/2006 2:41	6/09/2006 15:42
204	Mason Park	Drummoyne	8/09/2006 15:23	4/10/2006 18:43
926	Sydney North	Mason Park	26/02/2006 14:41	25/03/2006 21:21
927	Sydney North	Homebush Bay	24/05/2006 13:45	15/06/2006 19:29
935	Homebush Bay	Mason Park	19/06/2006 16:15	2/08/2006 16:47
908/909	Canterbury	Bunnerong	6/01/2006 9:01	16/02/2006 15:27
90J	Mason Park	Chullora	20/07/2006 2:41	20/08/2006 17:39
91F	Sydney South	Peakhurst	13/08/2006 15:00	28/08/2006 8:00
91M/1	Peakhurst	Beaconsfield	15/09/2006 16:18	3/10/2006 19:49
92F	Lane Cove	Mason Park	1/01/2006 0:00	11/03/2006 16:43

Substation	Out	In
Green Square TX1	3/01/2006 11:35	4/03/2006 17:54
Green Square TX2	3/01/2006 14:42	4/03/2006 18:20
Ourimbah TX3	30/06/2006 9:19	18/08/2006 16:12
Peakhurst TX3	10/09/2006 12:16	3/10/2006 15:40
Tomago TX3	4/09/2006 7:15	7/10/2006 16:00

Reactive	Out	In
Bunnerong Cap 1	24/05/2006 14:01	13/11/2006 7:27
Bunnerong Cap 2	7/05/2006 2:20	31/12/2006 23:59
Chullora Reactor 1	29/06/2006 6:08	17/11/2006 14:08
Gosford Cap 3	1/01/2006 0:00	17/02/2006 11:49
Mason Park Reactor 1	21/08/2006 5:36	6/09/2006 0:42
Mason Park Reactor 1	15/12/2006 6:24	1/01/2007 0:00

Appendix B – Loss of supply events (measure 7)

Event	Description of the event and its impact on the network and performance	Circuits affected	Cause of the event	Start date (time)	End date (time)	Outage Duration (Hours)	Maximum load lost (MVA)	Undelivered energy (MWh)	System minutes (minutes)
Loss of Supply to Drummoyne Zone Substation	Feeder fault	Feeders 900, 204, 926, 923 and 924	Lantana bush grew into feeder 900 sealing end at Rozelle STS. Others feeders tripped due to the fault causing a loss of supply.	7/02/2006 (0:06:00)	07/02/2006 (3:16:00)	3:10:00	27.2	63.4	0.697
Loss of Supply to Burwood Zone Substation				7/02/2006 (0:06:00)	07/02/2006 (1:49:00)	1:43:00	42.6	54.9	0.603
Loss of Supply to Strathfield Substation				7/02/2006 (0:06:00)	07/02/2006 (1:49:00)	1:43:00	24.7	40.4	0.444
Loss of supply to bunnerong North busbar 3A	33kV busbar fault	33kV Distribution Feeders 323, 361, 349, 363, 334, 359 & 337	33kV Capacitor circuit breaker fault	16/02/2006 (16:16:00)	16/02/2006 (19:21:00)	3:05:00	43.8	12.2	0.134
Loss of supply to Marrickville Zone Substation	TX Fault	Feeders 91X/1 & 91X/2. Note: feeder 91Y/1 & 91Y/2 was OOS at the time of incident.	Crow caused flash over on 11kV at TX1	12/05/2006 (10:20:00)	12/05/2006 (11:31:00)	1:11:00	49.5	49.4	0.543
Loss of supply to Somersby Zone Substation - 11kV Busbar 2A	11kV busbar 2A trip	11kV busbar 2A trip	Staff working inadvertently caused trip	11/09/2006 (18:19:00)	11/09/2006 (18:20:00)	0:01:00	0.6	0.01	0.0001
Loss of supply to Macquarie Park Zone Substation	TX Fault	TX2 Note: TX1 OOS at the time of the incident.	Bird caused flash over on 11kV bushing at TX2	19/11/2006 (18:19:00)	19/11/2006 (18:45:00)	0:26:00	23.8	8.7	0.1