
Annual Reliability & Power Quality Report



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1 Introduction

This report presents information required as part of Schedule 1 of the Electricity Industry (Network Quality and Reliability of Supply) Code 2005 – for the financial year ending 30 June 2006.

It is Western Power's intention to work with the Office of Energy and the Economic Regulation Authority to ensure that the data presented in this and future reports is clear, understandable and interprets the code requirements correctly.

2 Overview

Although not required by the code to be reported on, Western Power's South West Interconnected System (SWIS) performance has experienced an improvement in SAIDI performance of approximately 11% in the last 12 months to 250 minutes (Table 1) and this general trend is also observed in the reportable areas presented in this report. Western Power believes that this trend is indicative of the impact that recent reliability driven initiatives are having on the network as well as favourable weather conditions over the past 12 months.

KPI	Unit of Measure	
SAIDI	Minutes	250
SAIFI		2.85
CAIDI	Minutes	88
ASAI	%	99.95

Table 1 – SWIS reliability performance June 2006

3 Definitions

All terminology used in this report is in accordance with definitions presented in Part 1 to Part 4 of the Code.

Previous publications produced by Western Power (and its predecessor company) on reliability have used different customer/network area definitions for CBD, urban and rural discrete areas to those presented in the Code. Consequently, reliability figures in those publications are not comparable to those presented in this report.

4 Response to Clause 4

4.1 Terminology applicable to this clause

Source data is based on records from the Trouble Call Management System (TCMS) which have been defined as power quality complaints and been subsequently directed for corrective action in the Distribution Quotation Management 2 Operational Data Storage (DQM2ODS) database.

4.2 Response

High Voltage	Low Voltage	Overloads	Voltage Fluctuations	Television Interference	Total
368	454	267	757	369	2,215

Table 2- Power quality complaints 12 months to June 2006

As the complaint type is based on anecdotal data from the customers (and therefore entered at time of initial entry), the captured complaints are not completely representative of the breaches as described in Part 2 of the Code.

Currently there is inadequate data and system functionality to interpret, in a reportable form, the requirement of Clause 4(b) associated with remedial action taken for each individual breach. Works will take place over the coming months to specify functionality, quantify costs and implement data/system modifications that will deliver the information required by the code.

5 Response to Clause 5

5.1 Terminology applicable to this clause

Source data is the Trouble Call Management System (TCMS);

Distinct outages are separated by 3+ hours.

5.2 Response

Customers that have been interrupted for more than 12 hours (customer premises are only counted once): 9,985

Total customer interruption count for outages exceeding 12 hours (customers premises are counted each time an outage exceeds 12 hours): 12,120

Urban area (including Perth CBD) customers that have been interrupted more than 9 times: 10,305

Rural area customers that have been interrupted more than 16 times: 34

6 Response to Clause 11, 12 and 13

6.1 Terminology applicable to these clauses

Source data is TCMS.

'All Faults' is inclusive of all protection device trips on the network greater than or equal to one minute that resulted in loss of power to customers.

'Major Event Day Exclusion' is 'All Faults' but exclude major event Days as per SCNRRR Guidelines and IEEE Std 1366 (Guide for Electric Power Distribution Reliability Indices). There were no Major Event Days recorded during the 2005/06 financial year.

In reference to Clause 11:

'SAIDI' (System Average Interruption Duration Index) refers to 11(d);

'SAIFI' (System Average Frequency Interruption Duration Index) refers to 11(b);

'CAIDI' (Customer Average Interruption Duration Index) refers to 11(a);

'ASAI' (Average Service Availability Index) refers to 11(c).

6.2 Response - Perth CBD

The Perth CBD has experienced a significant improvement in SAIFI over the past three years (approximately 85%). However, at the same time, it can be observed that CAIDI increased significantly over the same period primarily due to outages occurring on underground areas where access issues prevented faster restoration times.

KPI	Unit of Measure	Financial Year Ending 30 June			3 Year Average
		2003/2004	2004/2005	2005/2006	
SAIDI	Minutes	22	10	11	14
SAIFI		0.33	0.14	0.05	0.17
CAIDI	Minutes	67	68	218	82
ASAI	%	99.996	99.998	99.998	99.997

Table 3 – Perth CBD area reliability (major event day exclusion)

KPI	Unit of Measure	Financial Year Ending 30 June			3 Year Average
		2003/2004	2004/2005	2005/2006	
SAIDI	Minutes	44	10	11	22
SAIFI		0.38	0.14	0.05	0.19
CAIDI	Minutes	117	68	218	115
ASAI	%	99.992	99.998	99.998	99.996

Table 4 – Perth CBD area reliability (all faults)

6.3 Response - urban areas other than Perth CBD

There has been a general downward trend in urban area SAIDI and SAIFI over the past three years – and more so over the past 12 months. This is in part due to favorable environmental conditions such as a mild summer and lack of strong wind conditions. Strong focus on reliability improvement strategies and increased capital and operating expenditure on the SWIS asset has also contributed to the observed trend.

KPI	Unit of Measure	Financial Year Ending 30 June			3 Year Average
		2003/2004	2004/2005	2005/2006	
SAIDI	Minutes	260	248	218	242
SAIFI		3.58	3	2.7	3.09
CAIDI	Minutes	73	83	81	78
ASAI	%	99.95	99.95	99.96	99.95

Table 5 – Urban areas other than the Perth CBD reliability (major event day exclusion)

KPI	Unit of Measure	Financial Year Ending 30 June			3 Year Average
		2003/2004	2004/2005	2005/2006	
SAIDI	Minutes	283	408	218	303
SAIFI		3.72	3.48	2.7	3.30
CAIDI	Minutes	76	117	81	92
ASAI	%	99.95	99.92	99.96	99.94

Table 6 - Urban areas other than the Perth CBD reliability (all faults)

6.4 Response – rural areas

As can be observed, in Tables 7 and 8, there has been an improvement in SAIDI and SAIFI respectively. Similarly to the urban areas, there has been a general downward trend in these figures over the past three years – and more so over the past 12 months. Favorable weather conditions and strong focus on reliability improvement strategies and increased capital and operating expenditure on the SWIS asset has also contributed to the observed trend.

KPI	Unit of Measure	Financial Year Ending 30 June			3 Year Average
		2003/2004	2004/2005	2005/2006	
SAIDI	Minutes	590	503	462	518
SAIFI		4.88	3.73	3.89	4.16
CAIDI	Minutes	121	135	119	124
ASAI	%	99.89	99.90	99.91	99.90

Table 7 – Rural areas reliability (major event day exclusion)

KPI	Unit of Measure	Financial Year Ending 30 June			3 Year Average
		2003/2004	2004/2005	2005/2006	
SAIDI	Minutes	615	552	462	543
SAIFI		4.96	4.04	3.89	4.29
CAIDI	Minutes	124	137	119	126
ASAI	%	99.88	99.89	99.91	99.90

Table 8 - Rural areas reliability (all faults)

7 Response to Clause 6, 7 and 8

7.1 Terminology applicable to these clauses

Source data for Tables 9 and 10 is based on records from TCMS which have been defined as a power quality complaints and been subsequently directed for corrective action in the Distribution Quotation Management 2 Operational Data Storage DQM2ODS database where monetary amounts spent to each Clause of corrective work is recorded.

Source data for Table 11 is from the Cusrems and Extended Outage Payment Scheme (EOPS) databases.

7.2 Response

Please note: figures presented in Table 9 differ slightly from those in Table 2 due to slight disparity in the systems being used to produce the figures. Work will take place in coming months in order to identify the source of these disparities and implement a suitable solution.

Discrete Area	
Perth CBD	3
Urban areas other than the Perth CBD	1,712
Rural	516
Total	2,231

Table 9 - Complaints received - total and by discrete area

Discrete Area	
Perth CBD	\$1,255
Urban areas other than the Perth CBD	\$3,422,980
Rural	\$680,920
Total	\$4,103,900

Table 10 - Total amounts spent in addressing complaints

Payments for failure to give required notice of planned Interruption	\$620
Payments for supply interruptions exceeding 12 Hours	\$168,000

Table 11 - Payments as per Clauses 18 and 19

8 Response to Clause 14 and 15

8.1 Terminology applicable to these clauses

Source data is TCMS and is inclusive of all protection device trips on the network greater than or equal to one minute that resulted in loss of power to customers.

Percentiles are selected over the customer premise count for each discrete area.

For example, Table 13 and Figure 2 show that for the 2005/06 financial year, 50 per cent of customers in Perth CBD, urban and rural areas had no more than 0, 2 or 3 interruptions respectively.

Tables and graphs showing the percentiles for each discrete area are presented in the following pages.

8.2 Average length of interruption

For the 2005/06 financial year, although the majority of Perth CBD customers did not experience any outages (refer to 8.3), those that did had an average interruption length of 218 minutes (refer to 6.2).

	25 th	50 th	75 th	90 th	95 th	98 th	100 th
Perth CBD	0	0	0	0	0	222	663
Urban (ex Perth CBD)	24	55	85	126	169	247	1,585
Rural	32	80	124	206	251	322	953

Table 12 – Average length of interruption (minutes) percentile figures as per Clause 14(a)

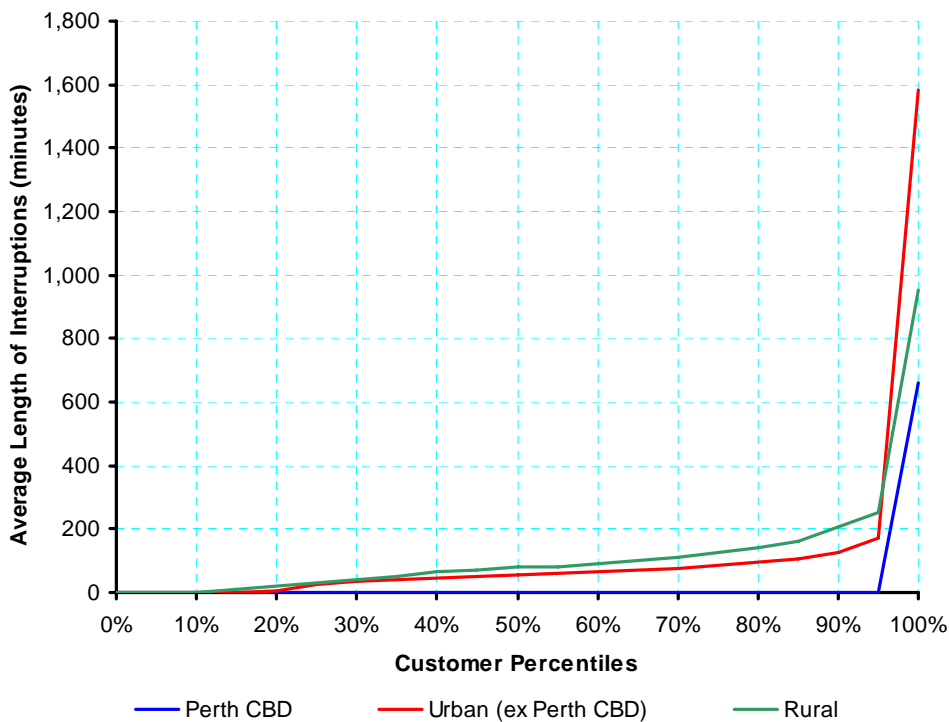


Figure 1 – Average length of interruption percentile distribution as per Clause 15

8.3 Number of interruptions

For the 2005/06 financial year:

- Approximately 96.5% of CBD customers experienced no outages;
- Approximately 98.6% of urban area customers experienced 9 or less outages;
- Approximately 99.97% of rural area customers experience 16 or less outages.

	25 th	50 th	75 th	90 th	95 th	98 th	100 th
Perth CBD	0	0	0	0	0	1	2
Urban (ex Perth CBD)	1	2	4	6	7	8	24
Rural	1	3	5	7	8	10	21

Table 13 – Number of interruptions percentile figures as per Clause 14(b)

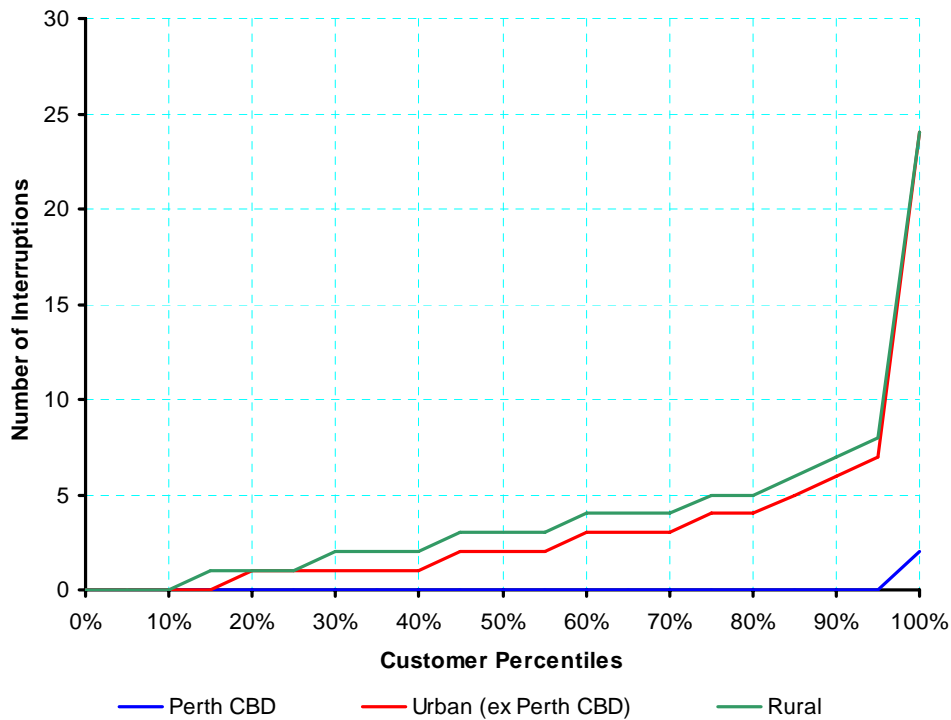


Figure 2 – Number of interruptions percentile distribution as per Clause 15

8.4 Total length of all interruptions

For the 2005/06 financial year:

- Approximately 97% of Perth CBD customers experienced total outages minutes of less than 30 minutes;
- Approximately 52% of urban area customers experienced total outages minutes of less than 160 minutes;
- Approximately 52% of rural area customers experienced total outages minutes of less than 290 minutes.

	25 th	50 th	75 th	90 th	95 th	98 th	100 th
Perth CBD	0	0	0	0	0	317	663
Urban (ex Perth CBD)	40	138	294	516	683	1,017	6,236
Rural	72	269	543	1,053	1,434	1,918	8,012

Table 14 – Total length of interruptions (minutes) percentile figures as per Clause 14(c)

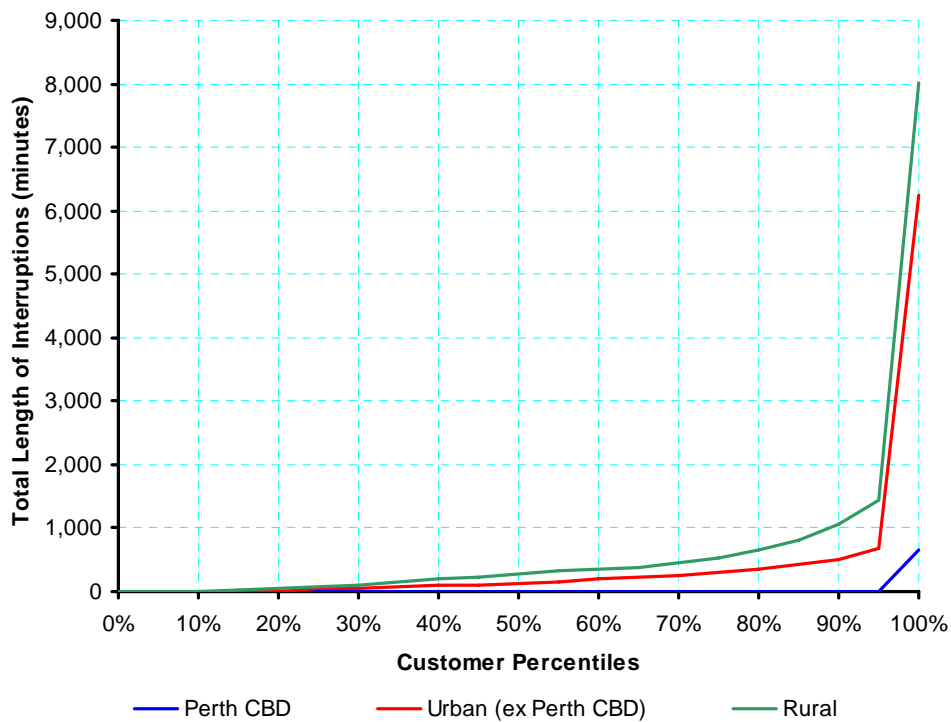


Figure 3 – Total length of interruptions percentile distribution as per Clause 15