Standards of Service 2010-11

Key Service Performance Indicators

OCTOBER 2011

REVISED DECEMBER 2011

Power and Water Corporation
GPO Box 1921, Darwin NT 0801

TABLE OF CONTENTS

1. INTRODUCTION

In accordance with clause 8.1 of the Northern Territory Electricity Standards of Service Code (the Code), Power and Water Corporation (Power and Water) submits the actual standards achieved in 2010-11 with respect to each of the key service performance indicators in Schedule 1 of the Code.

1.1 Scope of Data

Power and Water has reported reliability and quality of supply indicators by region. Customer complaints data has also been provided by region; however all other customer service indicators have been provided for the whole of the NT as current system functionality does not support separate reporting.

As stipulated in Schedule 1 (4.5) of the Code, key service performance indicators have been reported for each quarter where possible. Historical data for 1999-00 to 2010-11 has also been included in this report.

As Power and Water does not apply different standards for different customer categories, key service performance indicators have not been separately reported for customer categories as stipulated by Schedule 1 (4.4) of the Code.

1.2 Summary of Service Levels Achieved

Power and Water met the Network SAIDI and SAIFI reliability standards in the Katherine region and the Generation SAIDI and SAIFI targets in the Darwin, Katherine and Tennant Creek regions. In addition, Power and Water met the customer service minimum standard set for the number of telephone calls responded to within 20 seconds and the customer service minimum standard set for the number of customer complaints.

The Code allows Power and Water to remove the effect of severe interruptions to supply on its key network reliability indicators, based on the 2.5 beta method, in order to determine the underlying network-related reliability performance. In 2010-11, Major Event Days (MED) were recorded in the Darwin, Tennant Creek and Alice Springs regions. With the effects of these MED excluded, Power and Water met 24 of the 45 agreed minimum standards of service performance.

Of the 21 targets that were not met, the following are reoccurring from last year:

- Alice Springs Network SAIDI, SAIFI and CAIDI;
- Darwin and Tennant Creek Generation CAIDI;
- Alice Springs percentage of consumers supplied by feeders that experienced more than 15 interruptions per year;
- Darwin-Urban number of feeders that experienced more than 1500 minutes of interruptions per year; and
- New connections to new subdivisions where minor extensions or augmentation is required in urban areas.

2. RELIABILITY OF SUPPLY INDICATORS

2.1 Network Reliability

Power and Water's service performance in 2010-11 was severely affected by unusual weather patterns both in the Northern and the Southern regions.

The 2010-11 wet season was the third wettest on record in over 110 years of rainfall records due to a strong La Nina increasing rainfall and from the effects of Cyclone Carlos. Record rainfall during Cyclone Carlos brought the February 2011 rainfall total to 1,110.2mm, with February becoming the wettest of any month on record at Darwin Airport. The three day record set at Darwin Airport during Cyclone Carlos exceeded the previous record set during Cyclone Thelma in 1998.

SAIDI

(a) the average minutes of off-supply per customer ("interruption duration") - SAIDI

Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
		Adjusted	Adjusted	Adjusted	Adjusted	Adjusted
Darwin	219.9	256	314	608	250	355.5
Katherine	401	120	145	505	254	256.0
Tennant Creek	411	379	716	671	77	459.1
Alice Springs	108	118	322	440	87	245.3

*Note: quarterly figures are based on SAIDI as calculated for the quarterly period and multiplied by four in order to obtain an annualised quarterly figure.

The agreed minimum standard for SAIDI was met in Katherine. Darwin, Tennant Creek and Alice Springs exceeded the minimum standard in 2010-11.

In accordance with Schedule 1 (1.6) of the Code, the 2.5 beta method[1] of calculating a 'major event day' or 'network exclusion event' identified events in the Darwin, Tennant Creek and Alice Springs regions that could be removed from the network reliability indicators in 2010-11.

Darwin

Despite the record 2010-11 wet season, Graph 4 indicates that the yearly accumulation of SAIDI in Darwin was tracking only slightly above the 5 year average prior to the start of 2011. In January 2011, a significant jump in the accumulated SAIDI figure was due to major storms over the network between the 9 and 12 January 2011 that affected supply to over 23,000 customers.

Between the 15 and 18 of February 2011, Cyclone Carlos crossed Darwin, affecting over 23,000 customers. Prolonged heavy rains and strong winds caused significant damage to the overhead distribution and transmission networks and resulted in widespread power outages. The full impact of Cyclone Carlos on the power system was experienced on

[1] The 2.5 beta method is an internationally accepted standard for excluding outages from reliability data. The method for exclusion is outlined in IEEE Standard 1366-2003.

Wednesday 16 February 2011 and this day was classified as a MED using the 2.5 beta method. Cyclone Carlos accounted for 114.53 SAIDI minutes on 16 February 2011.

However, the days directly preceding and following the Darwin MED also contributed significantly to the overall annual SAIDI performance. The 15, 17 and 18 February 2011 contributed 69 SAIDI minutes, or 19.4% of the overall 2010-11 SAIDI figure. This contribution can clearly be seen on graph 4 as the second more significant jump in Darwin's accumulated SAIDI figures.

Another significant outage included a shut down of the Snell Street Zone Substation on 13 May 2011, as a safety precaution after a small animal entered the system, which affected over 7,000 customers.

Tennant Creek

The Tennant Creek Zone Substation and distribution network is outdoor air insulated, which makes the system vulnerable to external influences such as storms and animals.

Twenty six per cent of outage durations in Tennant Creek were attributed to weather related causes. The abnormally wet weather also saw a flying fox colony move into Tennant Creek, which has not previously been a concern for Tennant Creek network reliability.

As the Tennant Creek system is very small, generation is directly connected to an overhead distribution network. This design can result in extended outages due to the difficulty in detecting, sectionalising and coordinating the clearance of fault conditions at a very high speed on a relatively high impedance network.

On occasions, transient faults may cause wide spread outages. To combat this, network studies were conducted in 2010-11 and protection settings were adjusted to the fastest settings possible and generation dispatch coordination was improved. To date, this has improved overall reliability in the area.

A MED that accounted for 138.92 SAIDI minutes in Tennant Creek was recorded on 6 January 2011 with 'no cause found' recorded by System Control. However other outages and System Control comments associated with outage data around this time indicate flying foxes in the area and this is the suspected cause.

In addition to the above explanations, a significant amount of maintenance was conducted in Tennant Creek during 2010-11. Given the limited size and inter-connectability of this small network, these planned outages also impacted significantly on both SAIDI and SAIFI figures.

Alice Springs

Alice Springs overall performance in 2010-11 was also affected by the second wettest season on record. High humidity and high rain fall caused cable failures on 13 August 2010 and 28 October 2010 and subsequent delays in the restoration time contributed significantly to the SAIDI duration.

A fault at the Sadadeen Zone Substation on 26 August 2010 resulted in a MED for Alice Springs that accounted for 228.26 SAIDI minutes. Substantial building works and climate control measures similar to those used in the Northern region have since been

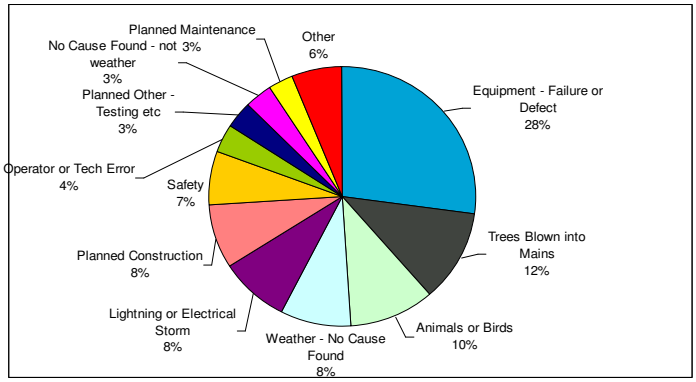
installed and the necessary repairs were made in order to return this equipment back to full service conditions.

A second MED in Alice Springs was recorded on 9 November 2010 from a feeder fault at Sadadeen Zone Substation and Lovegrove Zone Substation. The feeder protection operated at 6:21 am, disconnecting over 7,000 customers. However, all customers were restored after 202 minutes. It is suspected that the cause of this outage was animal related. This outage accounted for 96.44 SAIDI minutes.

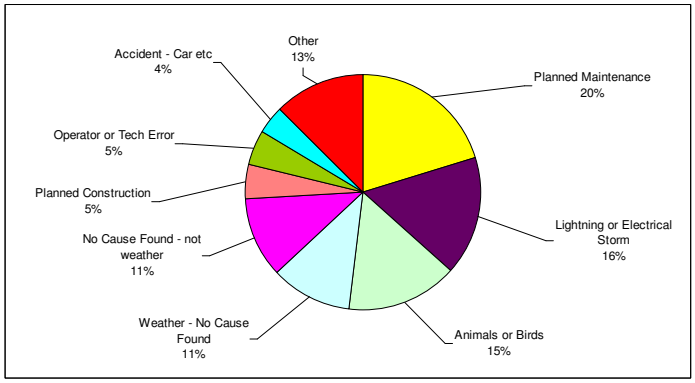
A focus on planned maintenance in Alice Springs in the 2010-11 financial year, along with the planned construction of the new Owen Springs to Lovegrove transmission line and Lovegrove Switchyard, has also impacted on reliability figures. However, in the long term this approach will be beneficial to the overall system reliability.

Graphs 1, 2 and 3 below illustrate the main causes of outages that contributed to SAIDI in Darwin, Tennant Creek and Alice Springs.

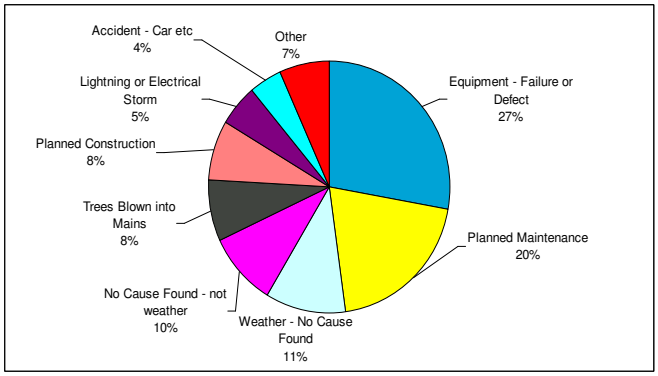
Graph 1: Darwin SAIDI – Cause Descriptions



Graph 2: Tennant Creek SAIDI – Cause Descriptions



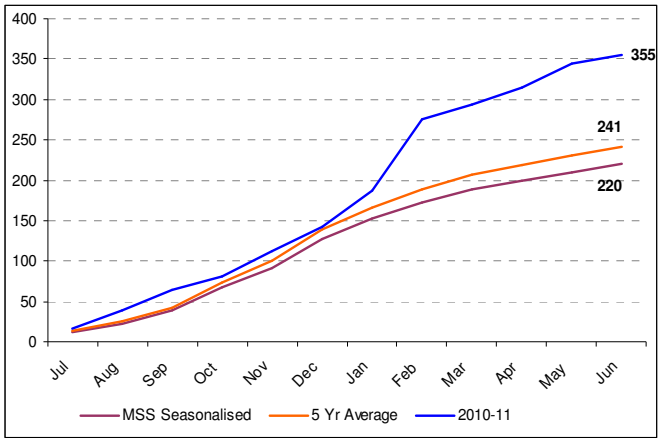
Graph 3: Alice Springs SAIDI – Cause Descriptions



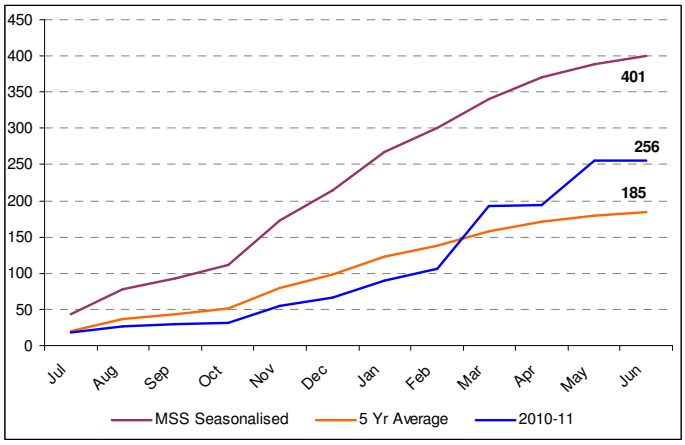
* 'Other' may include causes such as 'High Load Escort', 'Wind – including wind borne materials' and 'Lightning'.

Graphs 4 to 7 demonstrate the accumulated SAIDI minutes from 2010-11 for each region along with the previous 5 year average (2005-06 to 2009-10) and the 'seasonalised' target value. The 'seasonalised' values have been determined by converting the annual Minimum Standard of Service (MSS) into cumulative monthly values based on a 5 year average historical contribution of each month's reliability performance to the annual total.

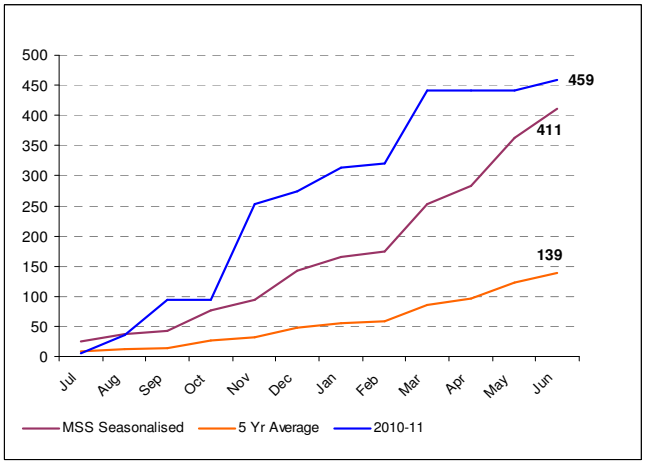
Graph 4: Darwin Region – SAIDI



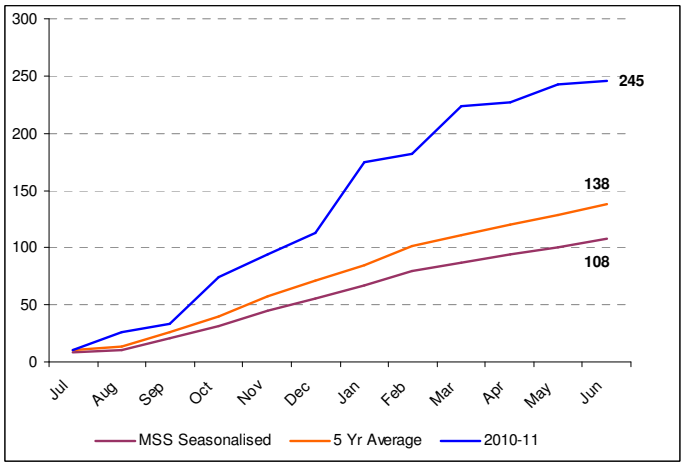
Graph 5: Katherine Region – SAIDI



Graph 6: Tennant Creek Region – SAIDI

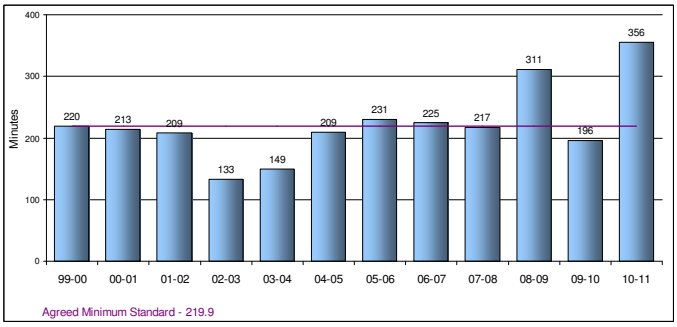


Graph 7: Alice Springs Region – SAIDI

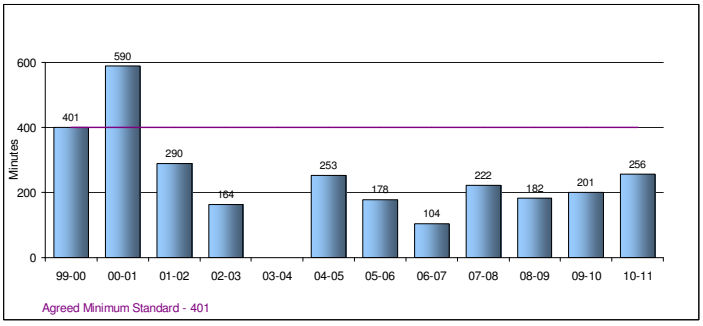


Graphs 8 to 11 show Power and Water's regional historical performance for the adjusted SAIDI service performance indicator for Power Networks.

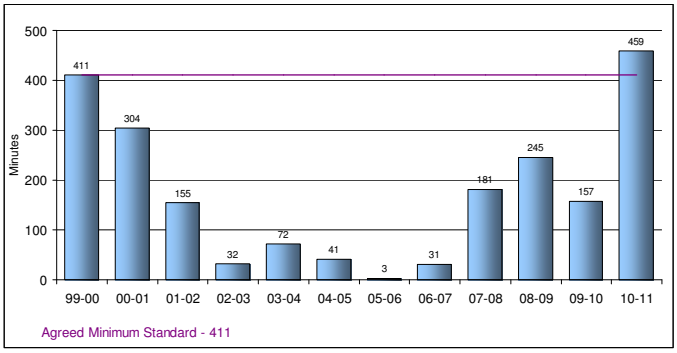
Graph 8: Darwin Region SAIDI – Historical Performance



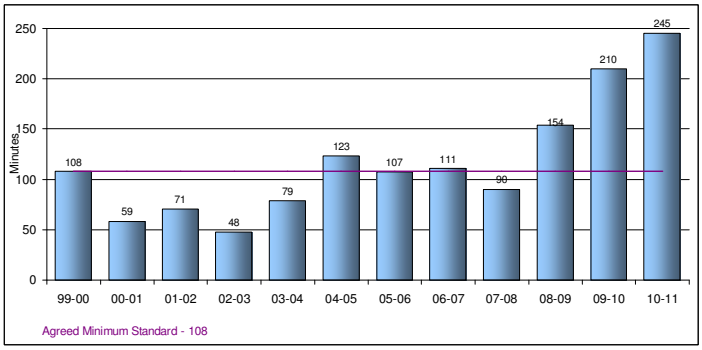
Graph 9: Katherine Region SAIDI - Historical Performance



Graph 10: Tennant Creek Region SAIDI – Historical Performance



Graph 11: Alice Springs Region SAIDI – Historical Performance



Unadjusted SAIDI

Region	Power and Water's Actual Performance				
	1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
	Unadjusted	Unadjusted	Unadjusted	Unadjusted	Unadjusted
Darwin	256	314	1066	250	470.0
Katherine	120	145	505	254	256.0
Tennant Creek	379	716	1227	77	598.0
Alice Springs	1031	707	440	87	570.0

SAIFI

b) the average number of interruptions per customer ("interruption frequency") – SAIFI

Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
		Adj	Adj	Adj	Adj	Adj
Darwin	4.2	4.2	5.7	8.0	3.4	5.3
Katherine	9.6	2.8	4.6	8.8	1.6	4.5
Tennant Creek	9.8	11.6	16.8	14.2	1.7	11.1
Alice Springs	2.9	0.7	7.2	6.8	1.3	4.0

*Note: quarterly figures are based on SAIFI as calculated for the quarterly period and multiplied by four in order to obtain an annualised quarterly figure.

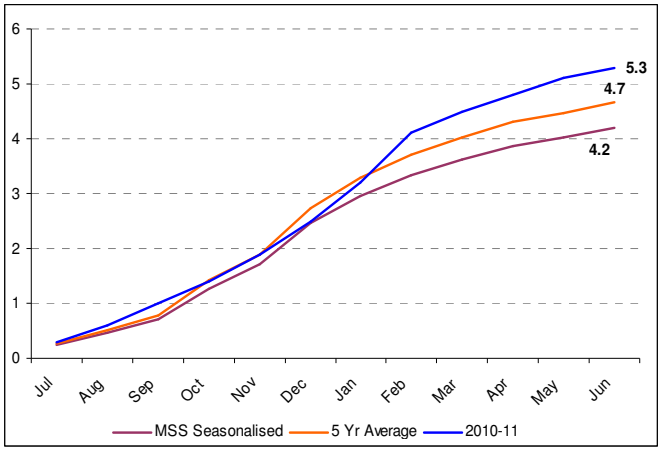
The agreed minimum standard for SAIFI was met in Katherine; but exceeded in Darwin, Tennant Creek and Alice Springs in 2010-11.
Many of the issues discussed previously contributed to the increased SAIFI in 2010-11. The most significant outages contributing to the Darwin system SAIFI in 2010-11 were caused by storms affecting the 66kV network connected to the Palmerston Zone Substation and also outages during the commissioning of new equipment at Casuarina Zone Substation.

The most significant outages contributing to the Alice Springs system SAIFI in 2010-11 were under frequency load shed and breakages of aerial conductors.

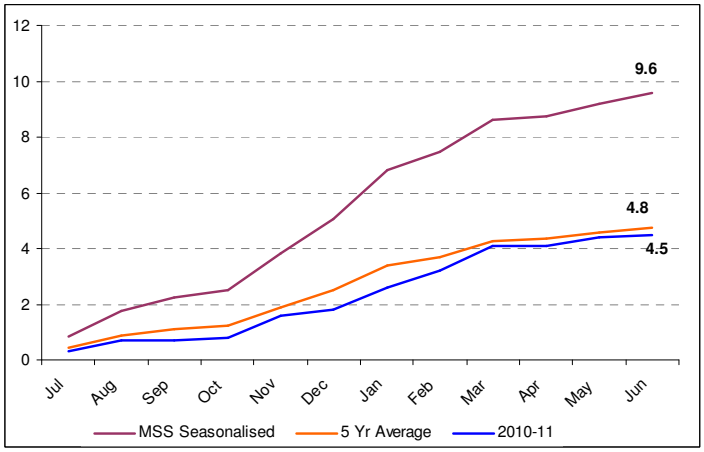
The most significant outages contributing to the Tennant Creek system SAIFI in 2010-11 were storm and bat activity.

As with the previous SAIDI graphs, Graphs 12 to 15 indicate the accumulated SAIFI minutes from 2010-11 along with the previous 5 year average (2005-06 to 2009-10) and the 'seasonalised' target value.

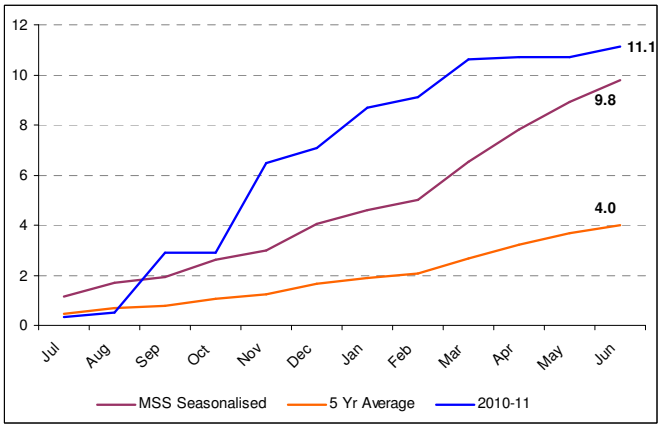
Graph 12: Darwin Region - SAIFI



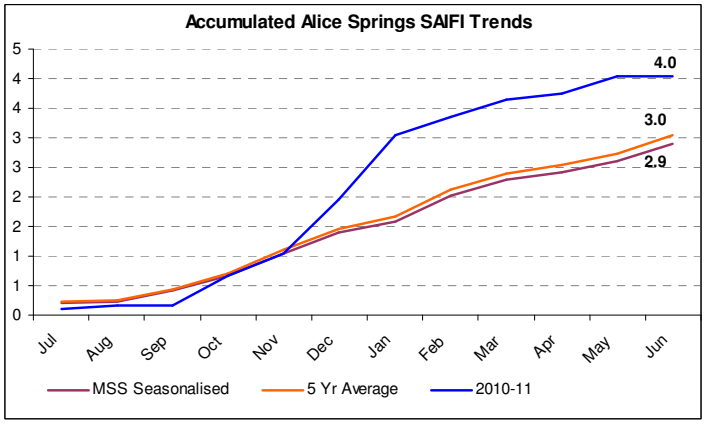
Graph 13: Katherine Region – SAIFI



Graph 14: Tennant Creek Region - SAIFI

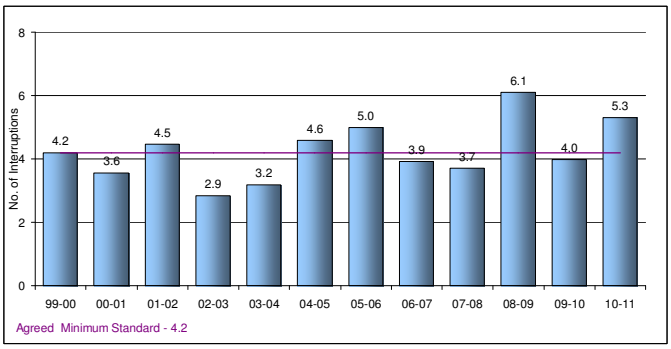


Graph 15: Alice Springs Region – SAIFI

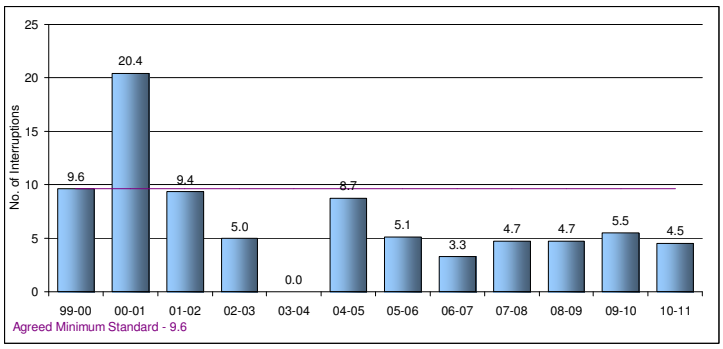


Graphs 16 to 19 show Power and Water's historical performance for the adjusted SAIFI service performance indicator for Power Networks on an annual basis for each region.

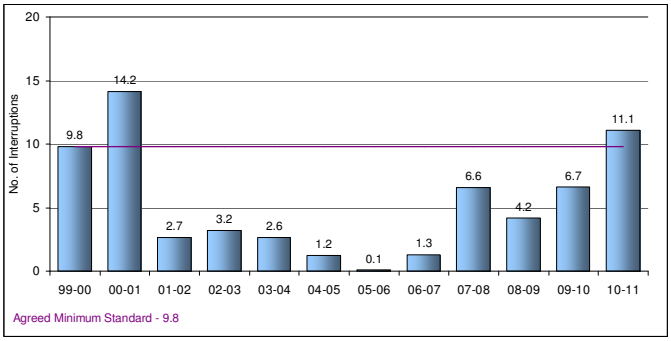
Graph 16: Darwin Region SAIFI – Historical Performance



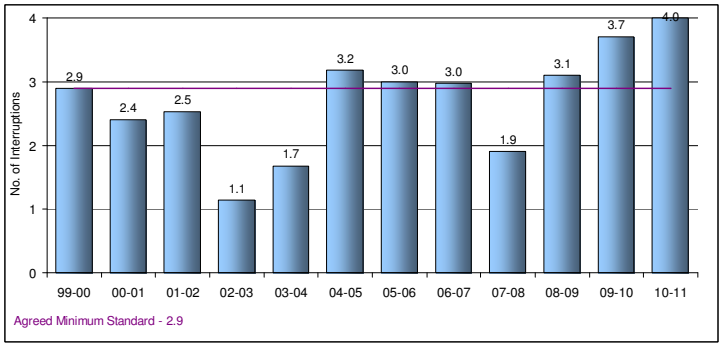
Graph 17: Katherine Region SAIFI – Historical Performance



Graph 18: Tennant Creek SAIFI – Historical Performance



Graph 19: Alice Springs SAIFI – Historical Performance



Unadjusted SAIFI

Region	Power and Water's Actual Performance				
	1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
	Unadjusted	Unadjusted	Unadjusted	Unadjusted	Unadjusted
Darwin	4.2	5.7	9.2	3.4	5.6
Katherine	2.8	4.6	8.8	1.6	4.5
Tennant Creek	11.6	16.8	17.8	1.7	12.0
Alice Springs	2.8	9.7	6.8	1.3	5.2

CAIDI

(c) the average interruption duration per customer – CAIDI

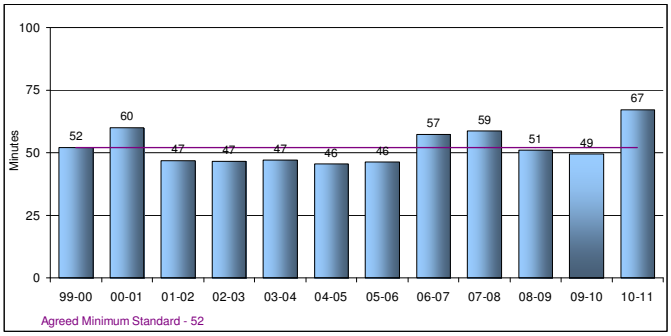
Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
		Adjusted	Adjusted	Adjusted	Adjusted	Adjusted
Darwin	52.0	60.9	55.0	76.0	73.5	67.1
Katherine	42.0	42.8	31.4	57.2	156.0	56.9
Tennant Creek	41.8	32.6	42.6	47.1	45.3	41.4
Alice Springs	37.2	173.8	44.4	64.8	66.9	61.3

The agreed minimum standard for CAIDI was met in Tennant Creek; but exceeded in Darwin, Katherine and Alice Springs in 2010-11.

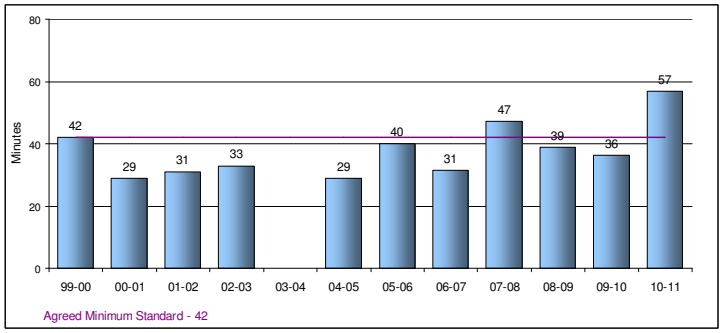
Power and Water considers that the CAIDI performance measurement is a flawed indicator for outages, as the calculation is based on duration of outages over outage frequency. This can result in a situation where having a higher frequency of outages benefits the outcome of the performance indicator, which may not reflect improvement in either duration or frequency of outages.

Graphs 20 to 23 show Power and Water's historical performance for the adjusted CAIDI service performance indicator for Power Networks on an annual basis for each region.

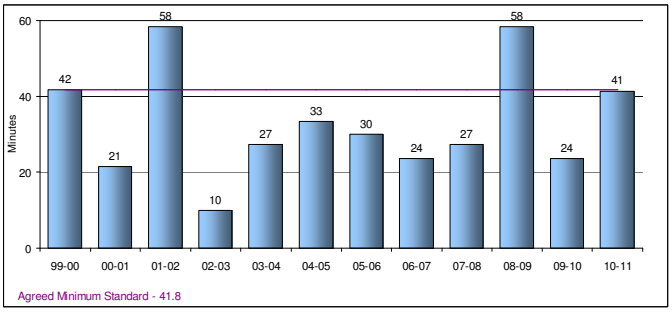
Graph 20: Darwin Region CAIDI – Historical Performance



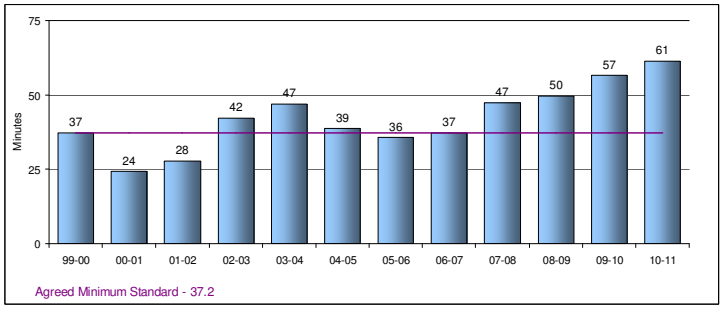
Graph 21: Katherine Region CAIDI – Historical Performance



Graph 22: Tennant Creek CAIDI – Historical Performance



Graph 23: Alice Springs CAIDI – Historical Performance



Unadjusted CAIDI

Region	Power and Water's Actual Performance				
	1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
	Unadjusted	Unadjusted	Unadjusted	Unadjusted	Unadjusted
Darwin	60.9	55.0	115.9	73.5	83.9
Katherine	42.8	31.4	57.2	156.0	56.9
Tennant Creek	32.6	42.6	68.9	45.3	49.8
Alice Springs	368.3	72.9	64.8	66.9	109.6

2.2 Generation Reliability

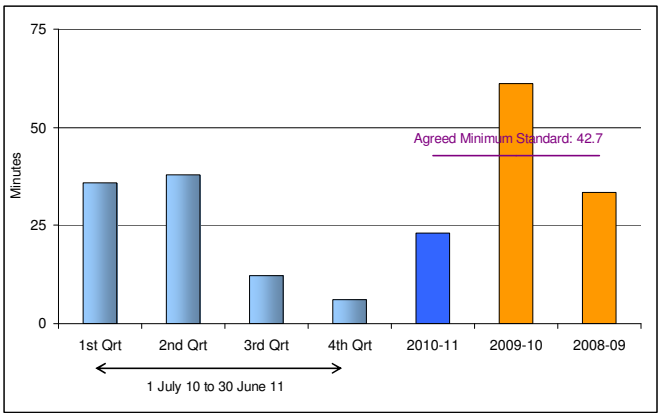
SAIDI

(a) the average minutes of off-supply per customer ("interruption duration") - SAIDI

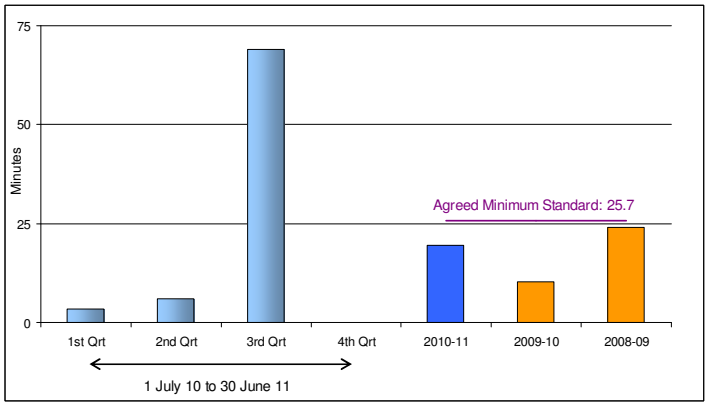
Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Darwin	42.7	35.9	38.0	12.2	6.1	23.1
Katherine	25.7	3.4	6.1	68.9	0.0	19.6
Tennant Creek	125.0	0.0	53.9	105.9	65.1	56.2
Alice Springs	122.5	19.8	435.5	145.2	216.4	204.2

Graphs 24 to 27 show Power and Water's actual performance for the SAIDI service performance indicator for Generation on a quarterly and annual basis for each region.

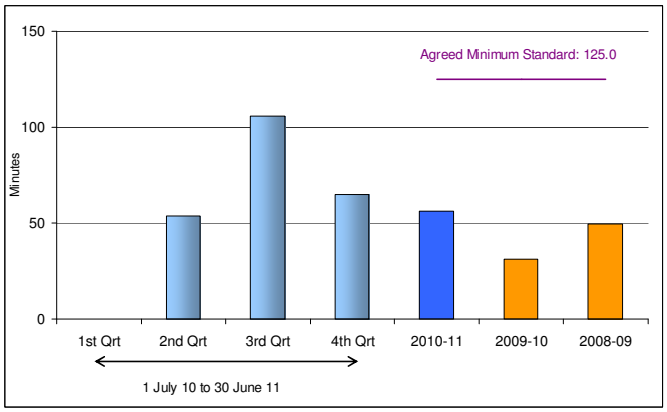
Graph 24: Darwin Region – SAIDI



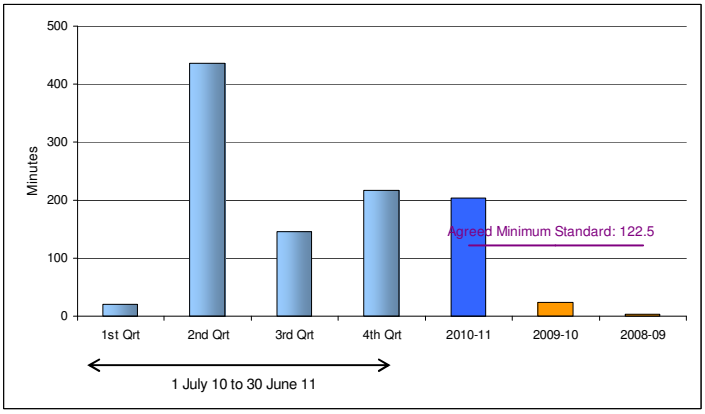
Graph 25: Katherine Region – SAIDI



Graph 26: Tennant Creek – SAIDI



Graph 27: Alice Springs – SAIDI

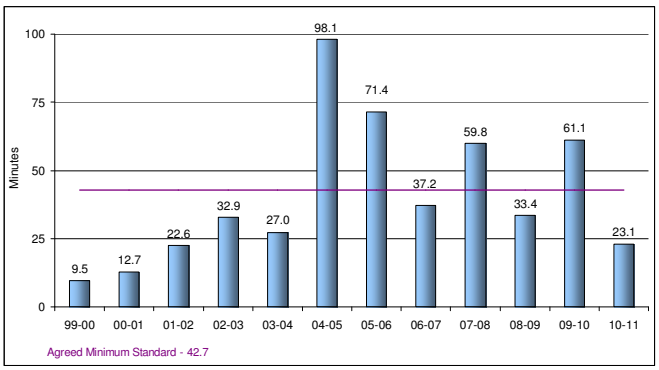


The annual performances for SAIDI in the Darwin, Katherine and Tennant Creek regions were within the agreed minimum standards. The annual performance for SAIDI in the Alice Springs region did not meet the agreed minimum standard.

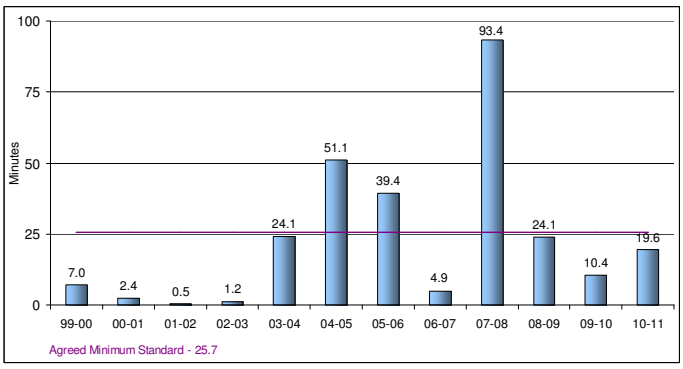
The commissioning of new generation at Owen Springs Power Station and Network constraints had a material effect on outages during the second quarter of 2010-11 in Alice Springs and was the major reason for Alice Springs exceeding the minimum standard in 2010-11.

Graphs 28 to 31 show Power and Water's historical performance for the SAIDI service performance indicator for Generation on an annual basis for each region.

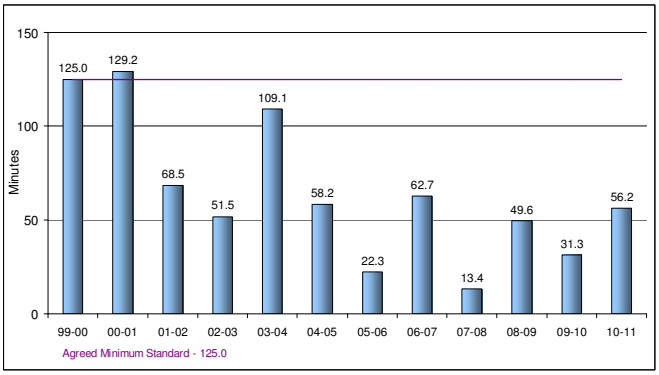
Graph 28: Darwin Region SAIDI – Historical Performance



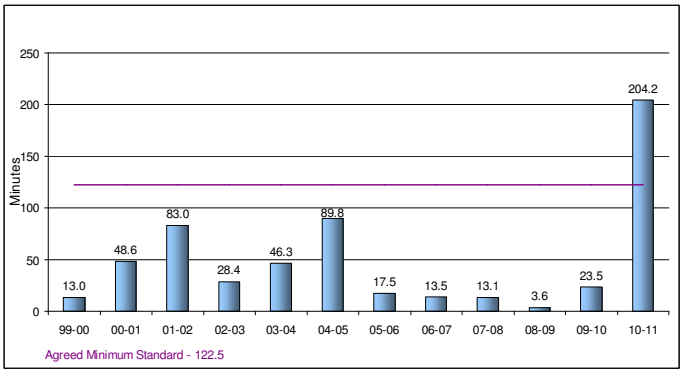
Graph 29: Katherine Region SAIDI – Historical Performance



Graph 30: Tennant Creek Region SAIDI – Historical Performance



Graph 31: Alice Springs Region SAIDI – Historical Performance



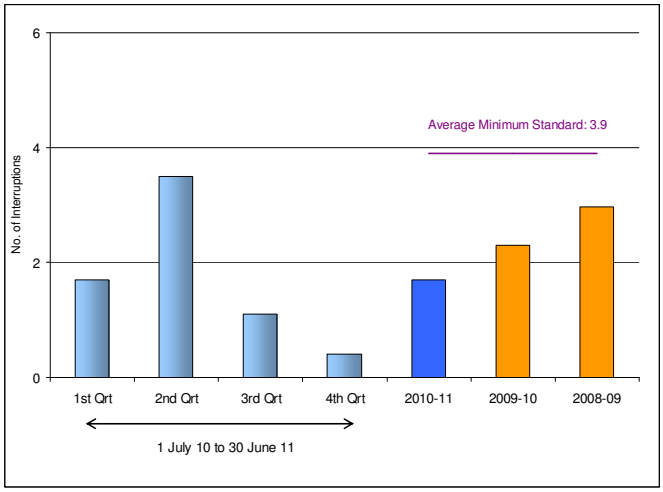
SAIFI

b) the average number of interruptions per customer ("interruption frequency") – SAIFI

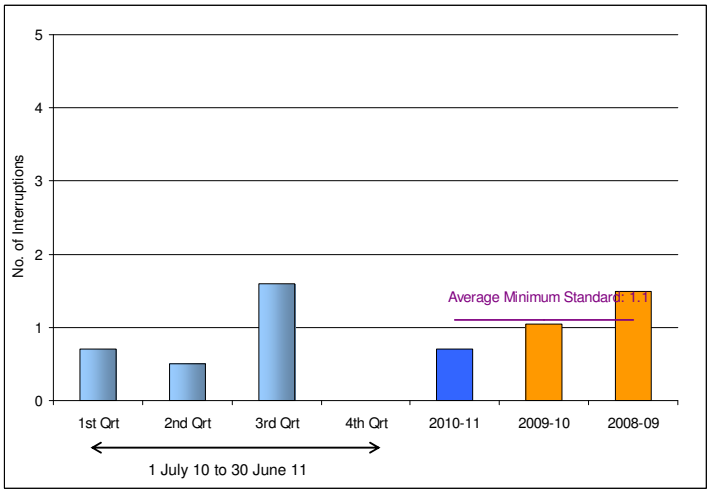
Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Darwin	3.9	1.7	3.5	1.1	0.4	1.7
Katherine	1.1	0.7	0.5	1.6	0.0	0.7
Tennant Creek	12.5	0.0	3.6	6.9	4.1	3.7
Alice Springs	3.6	1.6	9.5	4.7	5.3	5.3

Graphs 32 to 35 show Power and Water's Generation SAIFI performance on a quarterly and annual basis.

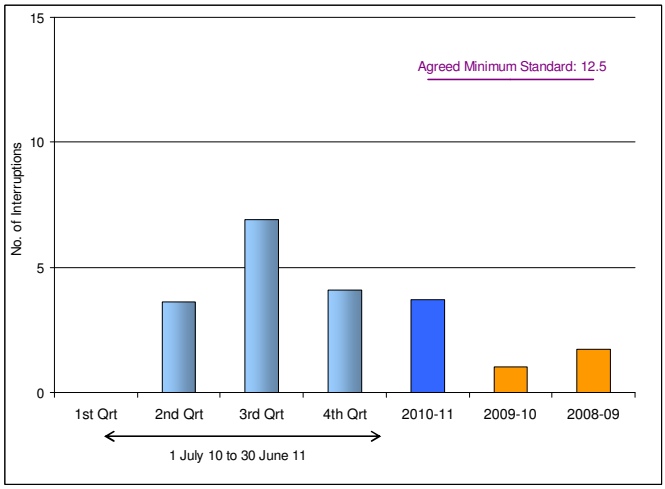
Graph 32: Darwin Region - SAIFI



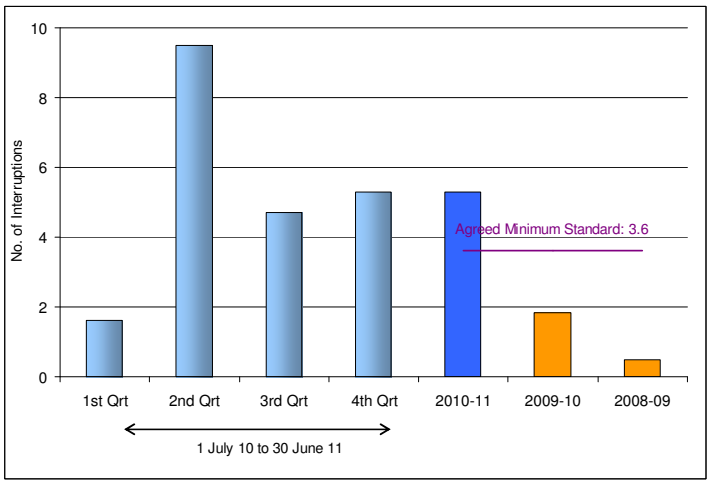
Graph 33: Katherine Region – SAIFI



Graph 34: Tennant Creek Region - SAIFI

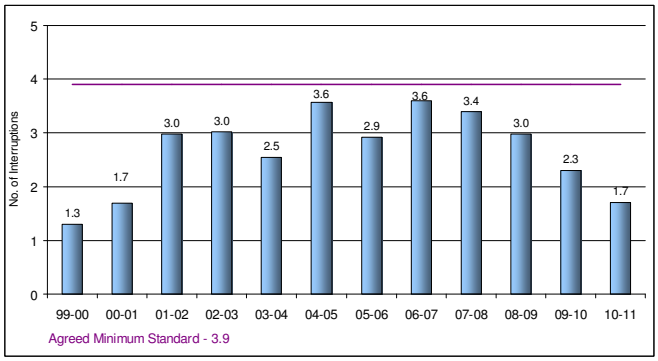


Graph 35: Alice Springs Region – SAIFI

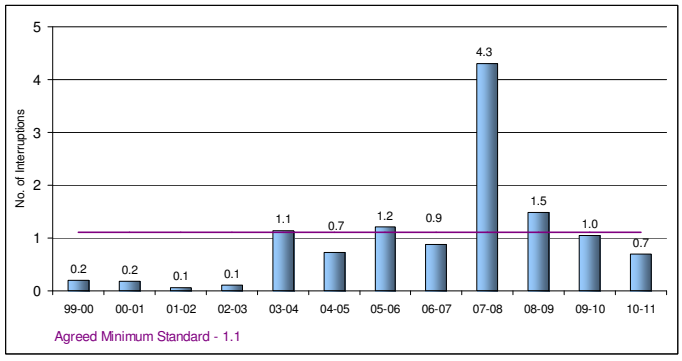


Graphs 36 to 39 show Power and Water's historical Generation SAIFI performance.

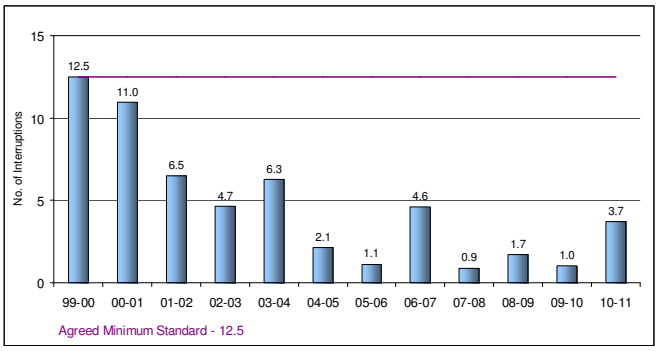
Graph 36: Darwin Region SAIFI – Historical Performance



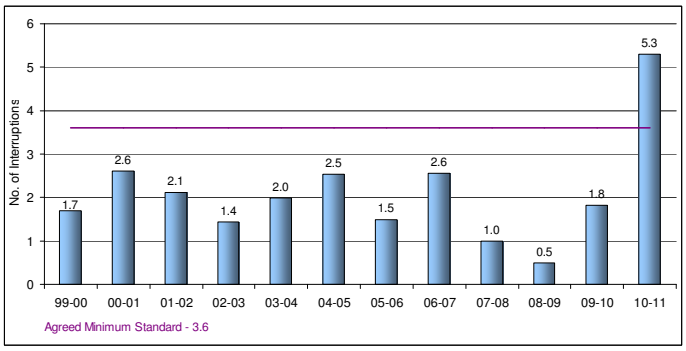
Graph 37: Katherine Region SAIFI – Historical Performance



Graph 38: Tennant Creek Region SAIFI – Historical Performance



Graph 39: Alice Springs Region SAIFI – Historical Performance



The annual performances for SAIFI in the Darwin, Katherine and Tennant Creek regions were within the agreed minimum standards. The annual performance for SAIFI in the Alice Springs region did not meet the agreed minimum standard.

The commissioning of new generation at Owen Springs Power Station and Network constraints had a material effect on outages during the second quarter of 2010-11 in Alice Springs and was the major reason for Alice Springs exceeding the minimum standard in 2010-11.

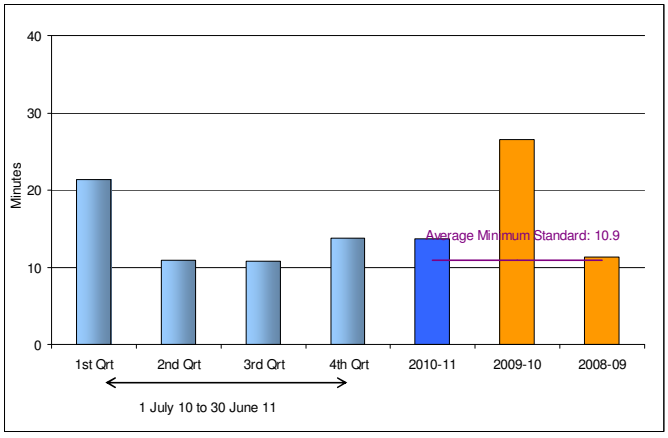
CAIDI

(c) the average interruption duration per customer – CAIDI

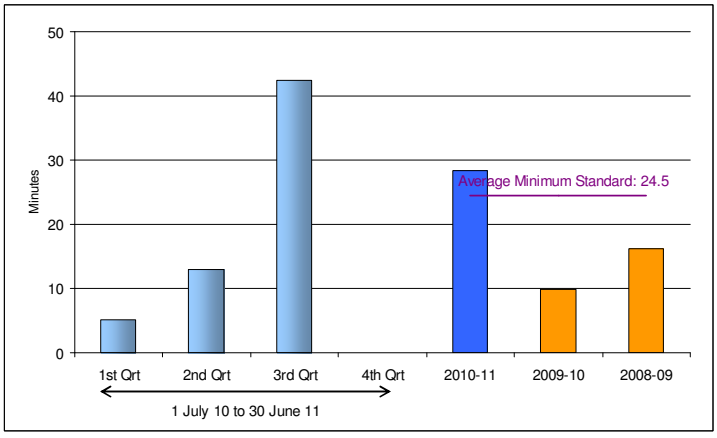
Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Darwin	10.9	21.3	10.9	10.8	13.8	13.7
Katherine	24.5	5.1	13.0	42.5	0.0	28.4
Tennant Creek	10.0	0.0	14.9	15.4	15.7	15.4
Alice Springs	34.2	12.6	46.0	31.0	40.9	38.9

Graphs 40 to 43 show Power and Water's actual performance for the CAIDI service performance indicator for Generation on a quarterly and annual basis for each region.

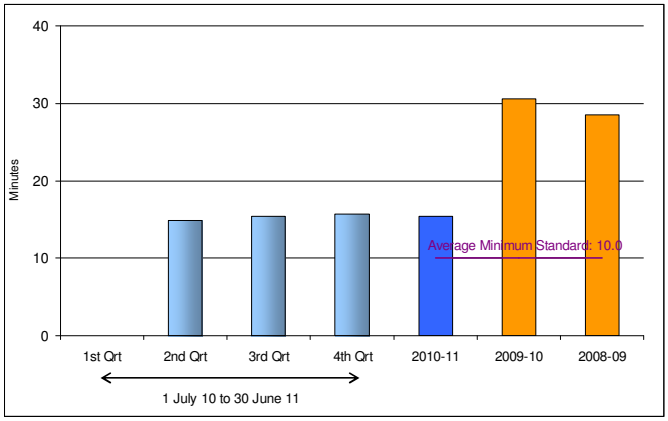
Graph 40: Darwin Region - CAIDI



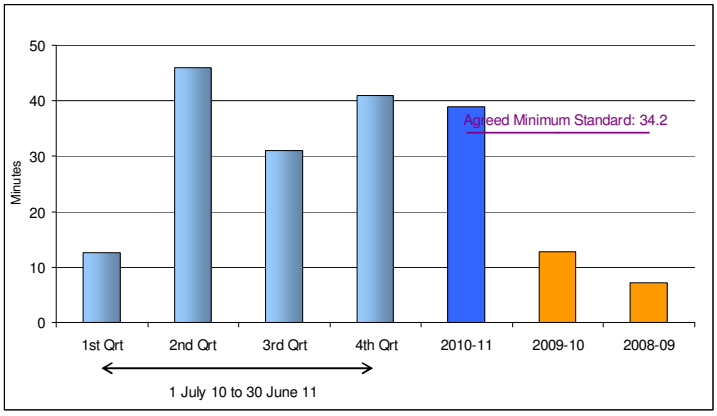
Graph 41: Katherine Region – CAIDI



Graph 42: Tennant Creek Region - CAIDI

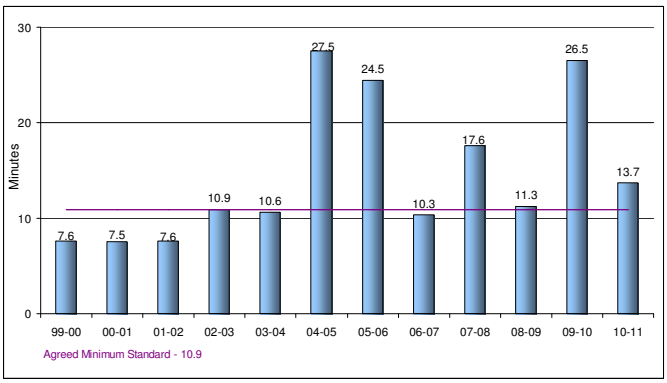


Graph 43: Alice Springs Region – CAIDI

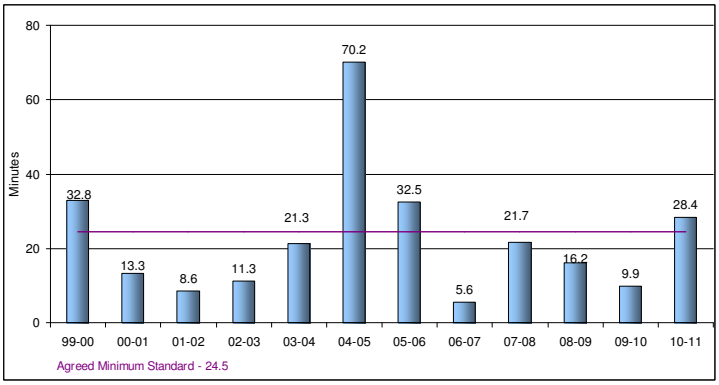


Graphs 44 to 47 show Power and Water's historical performance for the CAIDI service performance indicator for Generation.

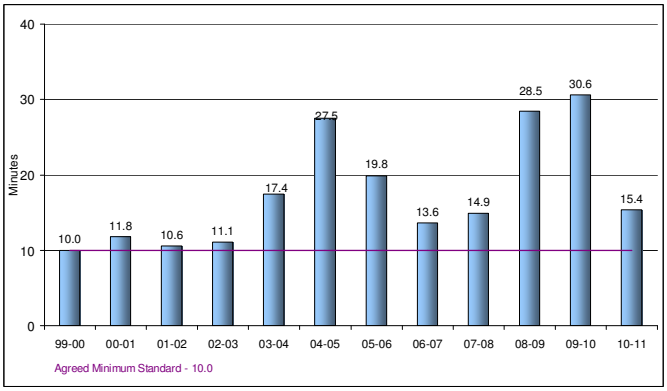
Graph 44: Darwin Region CAIDI – Historical Performance



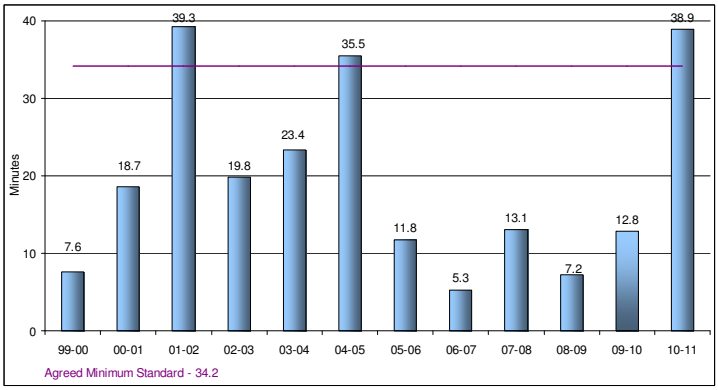
Graph 45: Katherine Region CAIDI – Historical Performance



Graph 46: Tennant Creek Region CAIDI – Historical Performance



Graph 47: Alice Springs Region CAIDI – Historical Performance



Generation's CAIDI performance in the Darwin, Katherine, Tennant Creek and Alice Springs regions exceeded the minimum standard in 2010-11.

As mentioned previously, Power and Water considers that the CAIDI performance measurement is a flawed indicator for outages, as the calculation is based on duration of outages over outage frequency. This can result in a situation where having a higher frequency of outages benefits the outcome of the performance indicator, which may not reflect improvement in either duration or frequency of outages.

2.3 Feeder Performance

Power and Water has segregated feeders into two categories: interconnected and radial distribution networks. Interconnected power networks are predominantly in the CBD and urban areas of Darwin and Alice Springs, while radial networks are primarily in the rural areas of these larger centres and the smaller regional networks of Katherine and Tennant Creek.

Radial networks are supplied from one source, with little or no opportunity for interconnection with other circuits for security in the event of an interruption. Thus the number and duration of interruptions are generally higher for radial than interconnected distribution networks.

Urban areas in Darwin and Alice Springs are predominantly fed from 11kV underground and overhead distribution feeders. Rural areas in the larger centres, as well as the smaller regional networks of Katherine and Tennant Creek, are predominantly fed from 22kV overhead distribution feeders.

Interconnected Distribution Networks

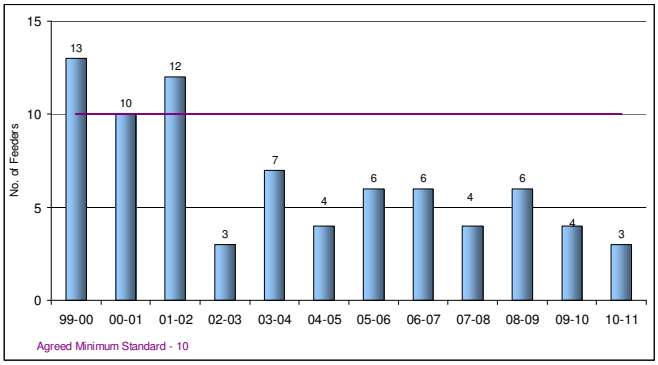
(a) the number of feeders that experience more than 15 interruptions per year

Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Darwin-Urban	10	0	0	2	1	3
Alice Springs	4	0	2	0	0	2

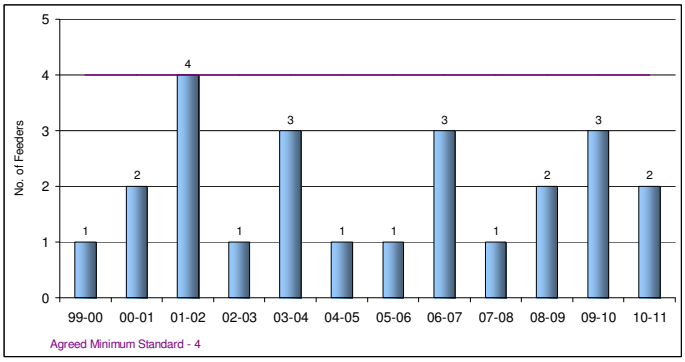
In 2010-11, Power and Water met the agreed minimum standard in both the Darwin-Urban and Alice Springs regions.

Graphs 48 to 49 show Power and Water's historical performance for the number of feeders that experience more than 15 interruptions per year on interconnected distribution networks in the Darwin-Urban and Alice Springs region.

Graph 48: Darwin-Urban – Historical Performance



Graph 49: Alice Springs – Historical Performance



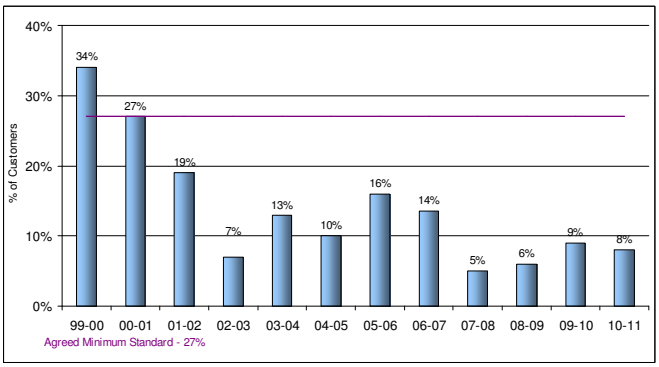
(b) the percentage of consumers supplied by feeders that experience more than 15 interruptions per year

Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Darwin-Urban	27%	0%	0%	6%	8%	8%
Alice Springs	10%	0%	54%	54%	54%	54%

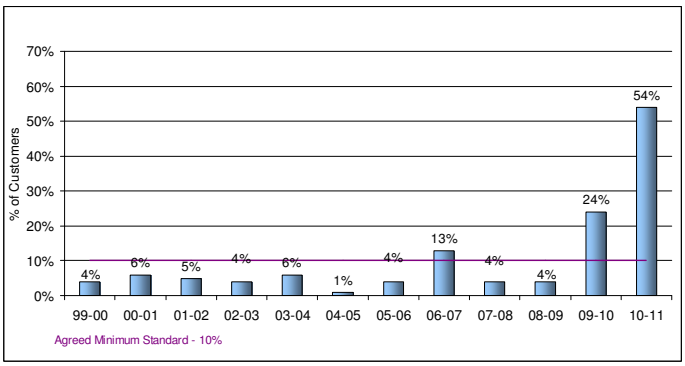
Power and Water met the agreed minimum standard in the Darwin-Urban region but not in the Alice Springs region. Alice Spring's MED were a significant contributor to the poor performing feeder result as the effects were felt across the entire network.

Graphs 50 to 51 show Power and Water's historical performance for the percentage of customers supplied by feeders that experience more than 15 interruptions per year on interconnected distribution networks for the Darwin-Urban and Alice Springs regions.

Graph 50: Darwin-Urban – Historical Performance



Graph 51: Alice Springs – Historical Performance



(c) the number of feeders that experience more than 1,500 minutes of interruptions per year

Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Darwin-Urban	9	0	2	4	5	11
Alice Springs	4	0	5	2	0	7

Power and Water did not achieve the standard for this indicator in the Darwin-Urban or Alice Springs regions.

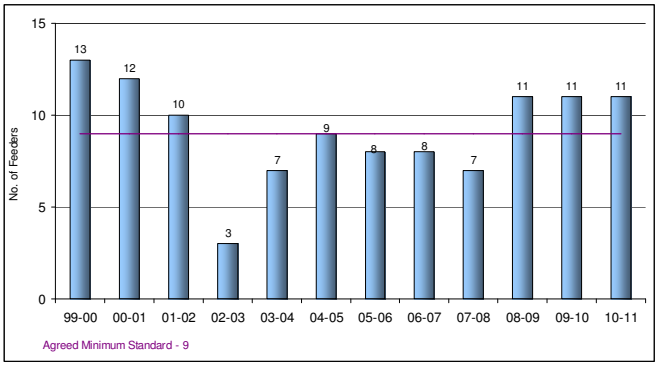
In Darwin, data integrity issues relating to the recording and analysis of outages resulted in some outages being recorded that did not affect customer supply, or at least not as significantly as reported. Please refer to the table directly below for further information.

Additional filters are now being applied to the data in an effort to capture and correct this error in a timely manner.

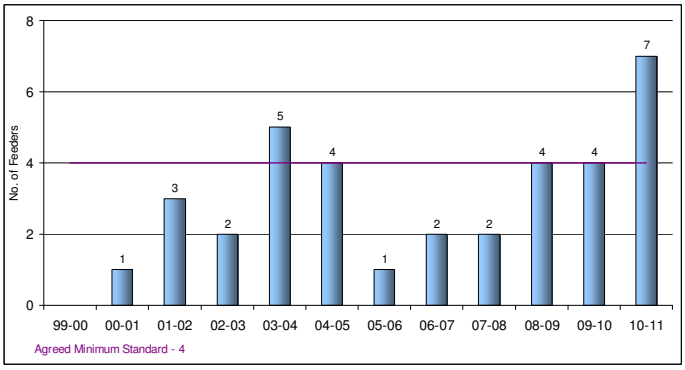
Feeder	Data Issue
11CA00 Nightcliff 1	1,490 minutes (of a total of 1,678 minutes) should have been excluded for reporting purposes. Power was restored to customers after a Genset was installed a few hours after time off.
11CA24 Parer	2,034 minutes (of a total of 2,179 minutes) should have been excluded for reporting purposes. Power was restored to customers after a Genset was installed a few hours after time off.
11SN17 RAAF	2,135 minutes (of a total of 2,245 minutes) should have been excluded for reporting purposes. RAAF were notified of the outage and began running their own generators.
11WS02 Litchfield	1,016 minutes (of a total of 1,677 minutes) should have been excluded for reporting purposes. Genuine outage for testing, however, customers were fed from interconnected feeders.

Graphs 52 and 53 show Power and Water's historical performance for the number of feeders that experience more than 1,500 minutes of interruptions per year on interconnected distribution networks for the Darwin-Urban and Alice Springs regions.

Graph 52: Darwin-Urban – Historical Performance



Graph 53: Alice Springs – Historical Performance



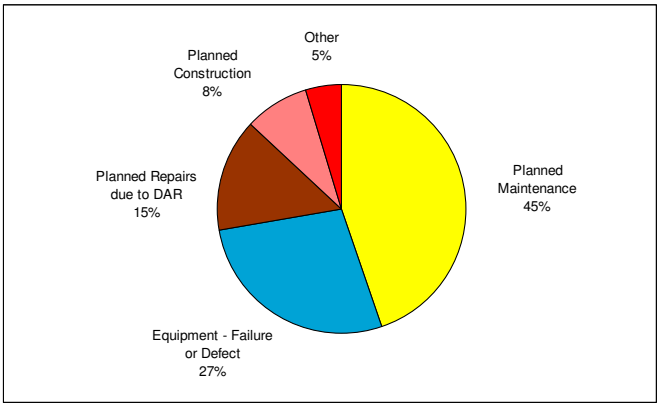
Darwin-Urban > 1,500 minutes or > 15 interruptions

Length (km)	Feeder	Duration	Interruptions
14.5	**11BE10 Karama 2**	**2,635**	23
17.1	**11SN01 Fannie Bay**	≤ 1,500	**19**
27.4	11BE09 Jail	1871	18
13.3	**11SN05 Maranga**	**2,792**	≤ 15
10.1	**11SN19 Ludmilla**	**1,550**	≤ 15
30.4	**11BE13 Kormilda**	**1,918**	≤ 15
24.9	11PA10 Driver	2,131	≤ 15
11.3	11PA18 Woodroffe	4,536	≤ 15
1.0	11WS02 Litchfield	1,677	≤ 15
1.7	11SN17 RAAF	2,204	≤ 15
4.0	**11CA24 Parer**	**2,171**	≤ 15
8.1	11CA00 Nightcliff 1	1,678	≤ 15

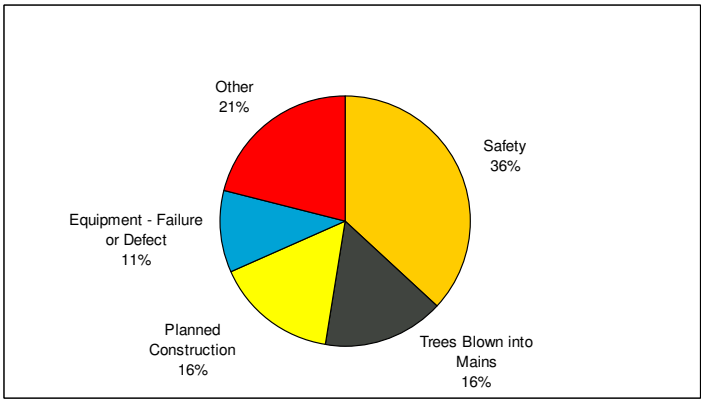
* Bold type indicates consecutively poor performing feeder. **Decommissioning, construction and data updates have resulted in feeder lengths varying from the 2009-10 Standards of Service Report.

While Power and Water met the agreed minimum standard for the number of feeders that experience more than 15 interruptions per year, of the outages reported in 2010-11 in the Darwin-Urban region, six feeders were also poor performing with respect to interruptions and outage time in 2009-10 (highlighted in bold type in the above table). Graphs 54 to 59 illustrate the main causes of outages that contributed to these poor performing feeders in the Darwin-Urban region.

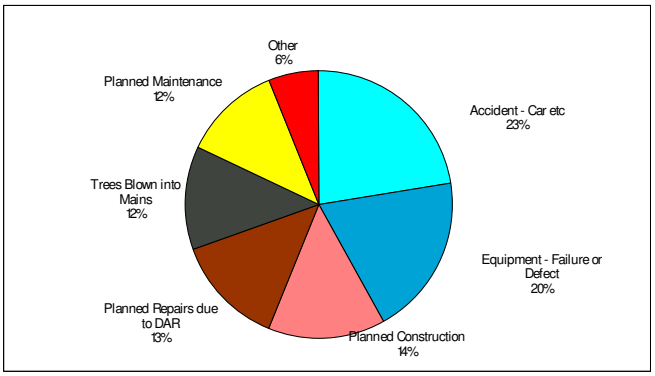
Graph 54: 11BE10 Karama 2: > 1500 Minutes



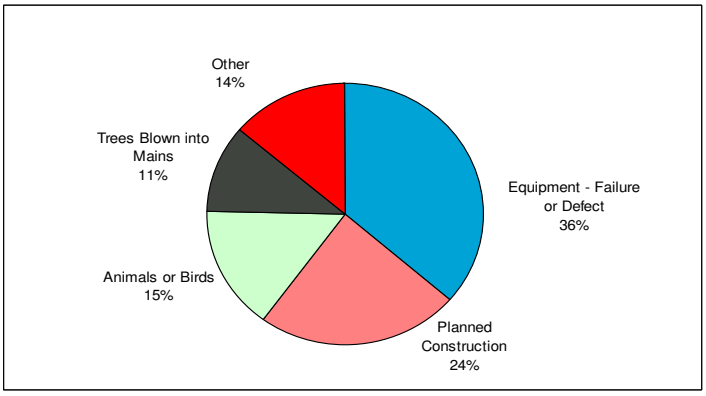
Graph 55: 11SN01 Fannie Bay: > 15 Interruptions



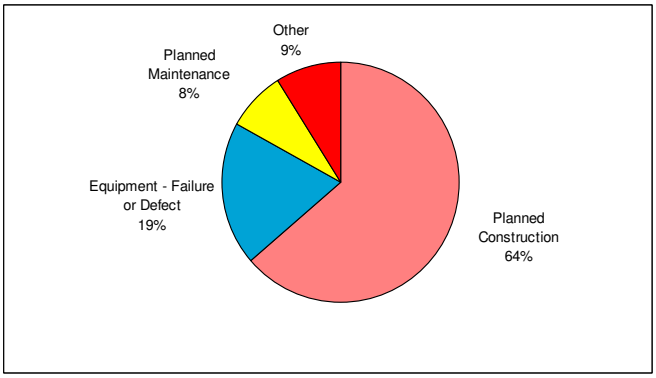
Graph 56: 11SN05 Maranga: > 1500 Minutes



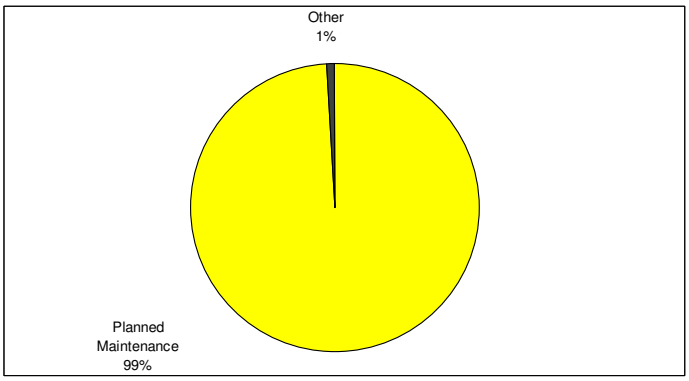
Graph 57: 11SN19 Ludmilla: > 1500 Minutes



Graph 58: 11BE13 Kormilda: > 1500 Minutes



Graph 59: 11CA24 Parer: > 1500 Minutes



The 11BE10 Karama 2 feeder was affected by a number of cable faults following outages for planned maintenance works during the 2010-11 financial year. The cable outages reduced the inter-connectability of the local system, causing the subsequent outages to be widespread. The worst cable sections are under going design for repair or replacement and other associated assets such as transformers are being replaced across the network, which is expected to improve feeder reliability.

A significant amount of ongoing planned maintenance and replacement works during 2010-11 were conducted on the overhead 11BE13 Kormilda feeder to improve long term reliability.

The most significant contributor (650 minutes) to the poor performance of the 11SN05 Maranga feeder during 2010-11 was a car accident. This feeder originates at Snell Street Zone Substation and was affected by a major outage at the substation on 13 May 2011 that was caused by an animal shorting the 11kV switchboard. Woolner Zone Substation is currently under construction and will replace the end of life Snell Street Zone Substation and alternate supply options are in place to limit the risk of future failures at Snell Street in the interim.

The 11SN19 Ludmilla feeder experienced a number of in-service failures that contributed to increased outage duration. In particular, faults with distribution transformers, insulators and conductors were major causes of outages. The next most significant contribution to

outage duration was due to planned construction works and testing that was needed to restore and upgrade asset condition to an acceptable level.

The 11SN01 Fannie Bay feeder experienced 20 interruptions in 2010-11. These interruptions were mainly due to safety concerns and the limitations of operating aged oil filled switchgear in order to isolate the network for planned and unplanned works. A five year plan is in place to replace oil filled switchgear across the network and this will improve reliability by allowing greater operational flexibility. Planned construction and Cyclone Carlos also contributed to 40% of these total interruptions.

Data integrity issues relating to the recording and analysis of outages on the 11CA24 Parer feeder resulted in outages being recorded that did not affect customer supply, or at least not as significantly as reported.

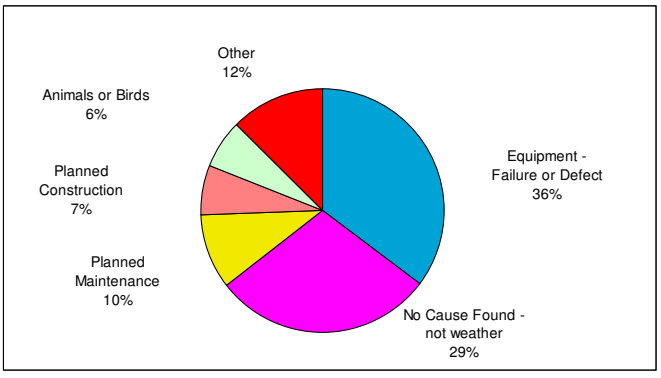
Alice Springs > 1,500 minutes or > 15 interruptions

Length (km)	Feeder	Duration	Interruptions
98.0	**22RG04 Brewer 2**	**2,258**	**48**
64.7	**22RG13 Brewer 1**	**3,169**	**33**
16.0	11RG19 NTHSTUHWY	1,786	≤ 15
10.9	11LG06 Bradshaw	6,379	≤ 15
45.5	22LG03 Jindalee	2,018	≤ 15
26.0	**11RG06 Sadadeen**	**2,500**	≤ 15
17.7	**22RG09 Farms**	**2,056**	≤ 15

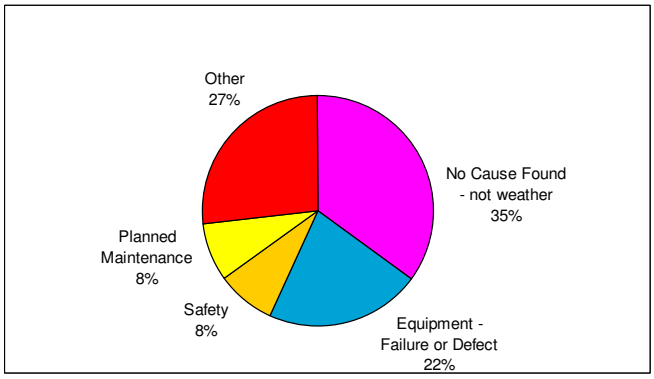
* Bold type indicates consecutively poor performing feeder. **Decommissioning, construction and data updates have resulted in feeder lengths varying from the 2009-10 Standards of Service Report.

Of the outages reported in 2010-11 in the Alice Springs region, four feeders were also poor performing in 2009-10 (highlighted in bold type in the above table). Graphs 60 to 65 illustrate the main causes of outages that contributed to these poor performing feeders in the Alice Springs region.

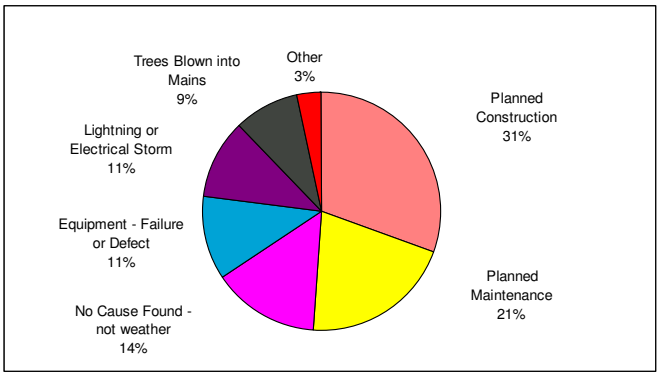
Graph 60: 22RG13 Brewer 1: > 1500 Minutes



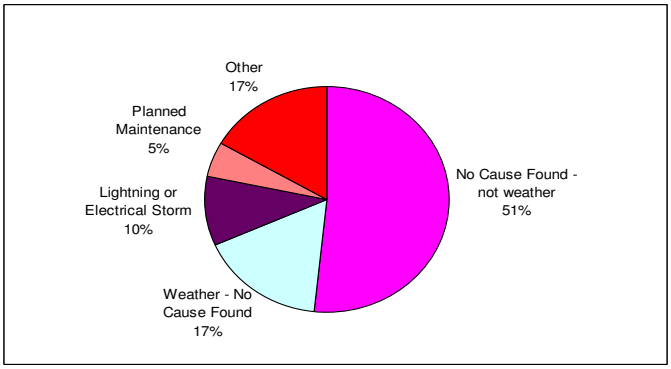
Graph 61: 22RG13 Brewer 1: > 15 Interruptions



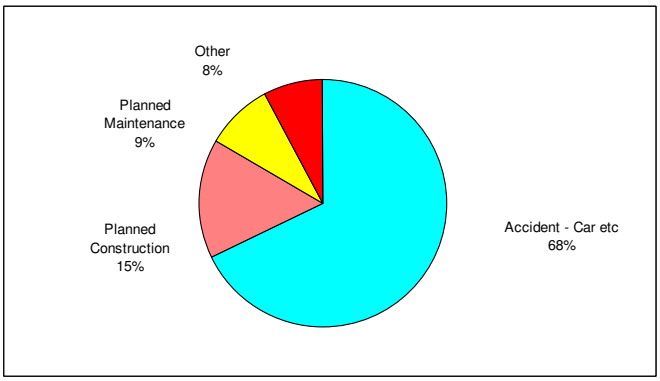
Graph 62: 22RG04 Brewer 2: > 1500 Minutes



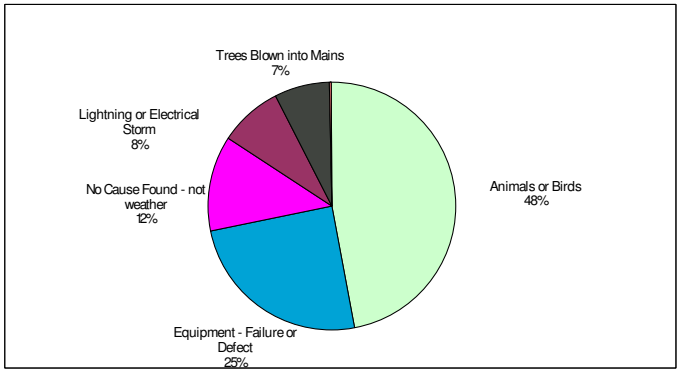
Graph 63: 22RG04 Brewer 2: > 15 Interruptions



Graph 64: 11RG06 Sadadeen: > 1500 Minutes



Graph 65: 22RG09 Farms: > 1500 Minutes



The 22RG13 Brewer 1 feeder had a number of major failures in 2010-11, including a gas break switch failure, fallen overhead lines and failed lightning arrestors. The unusually adverse weather is likely to have contributed to the increased fault rate with these assets. Planned work contributed to 52% of the work on the 22RG04 Brewer 2 feeder. The planned maintenance of assets and construction works in the area are all part of improving the reliability and reducing the number of customers affected by outages in the long term. The addition of a new 66kV transmission system from Owen Springs, adjacent to Brewer Estate, should provide a higher reliability for the system into the future. Both Brewer 1 and 2 have projects in place to upgrade line hardware to the latest standard including animal protection and Expulsion Drop Out (EDO) crossarm upgrades, which should be completed in the 2011-12 financial year.

The 11RG06 Sadadeen feeder had one single major outage consisting of 1,694 minutes caused by a car accident that damaged a pole.

The 22RG09 Farms feeder was affected mainly by birds and animals during 2010-11. Line inspections of all assets and hardware along this feeder have been scheduled as part of the ongoing maintenance program and upon initial assessment, the necessary upgrade works will be determined.

Radial Distribution Networks

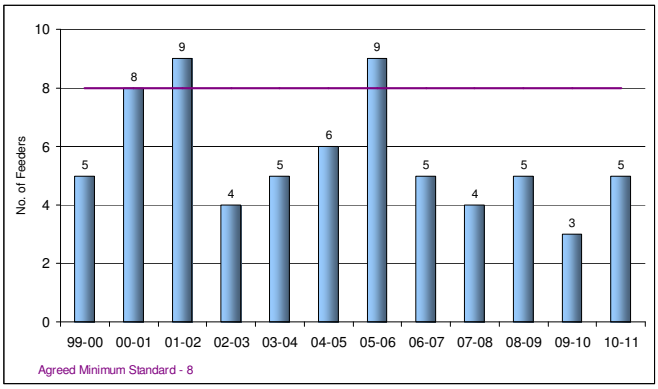
(a) the number of feeders that experience more than 27 interruptions per year

Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Darwin-Rural	8	0	2	1	2	5
Katherine	7	1	0	0	0	1
Tennant Creek	3	0	0	1	0	1

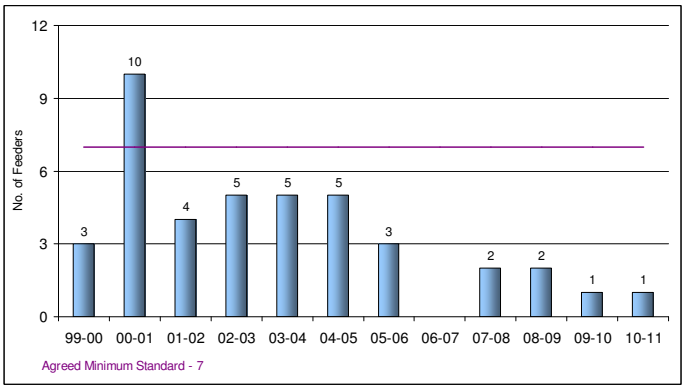
Power and Water met the agreed minimum standard in 2010-11 in each of the regions for this indicator.

Graphs 66 to 68 show Power and Water's historical performance for this indicator for the Darwin-Rural, Katherine and Tennant Creek regions.

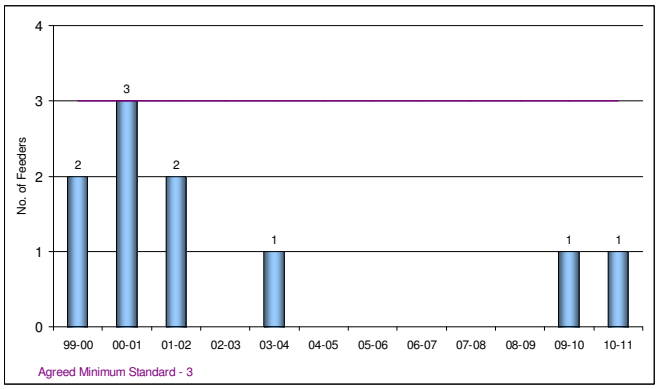
Graph 66: Darwin-Rural – Historical Performance



Graph 67: Katherine – Historical Performance



Graph 68: Tennant Creek – Historical Performance



(b) the percentage of consumers supplied by feeders that experience more than 27 interruptions per year

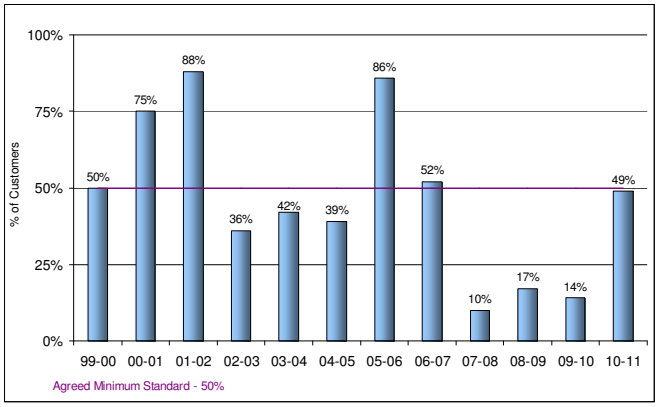
Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Darwin-Rural	50%	0%	10%	15%	49%	49%
Katherine	50%	3%	3%	3%	3%	3%
Tennant Creek	32%	0%	0%	85%	85%	85%

In 2010-11, Power and Water met the agreed minimum standard in the Darwin-Rural and Katherine regions and exceeded the minimum standard in the Tennant Creek region.

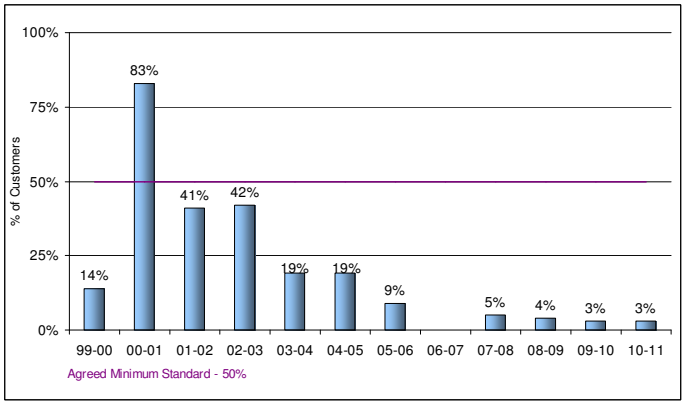
Storm activity and animals, along with the implementation of preventative and corrective planned maintenance work had a significant impact on the small system of Tennant Creek.

Graphs 69 to 71 show Power and Water's historical performance for this indicator for the Darwin-Rural, Katherine and Tennant Creek regions.

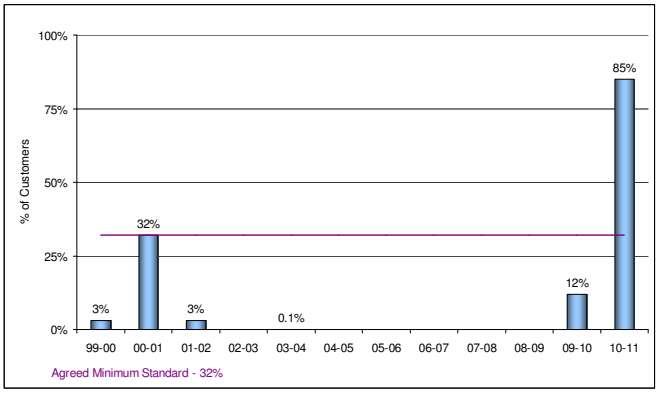
Graph 69: Darwin-Rural – Historical Performance



Graph 70: Katherine – Historical Performance



Graph 71: Tennant Creek – Historical Performance



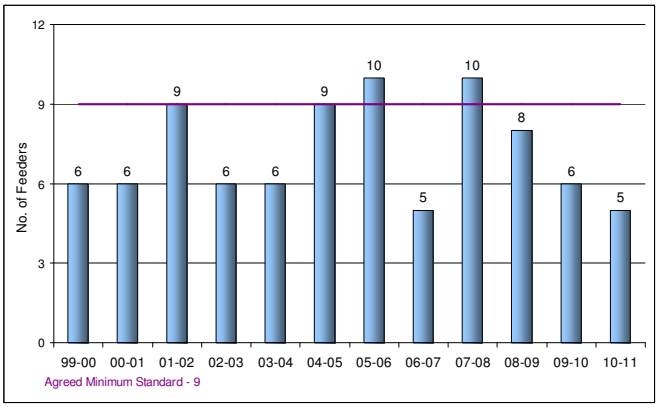
(c) the number of feeders that experience more than 2,500 minutes of interruptions per year

Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Darwin-Rural	9	0	2	2	1	5
Katherine	6	0	1	1	0	2
Tennant Creek	3	0	0	0	0	0

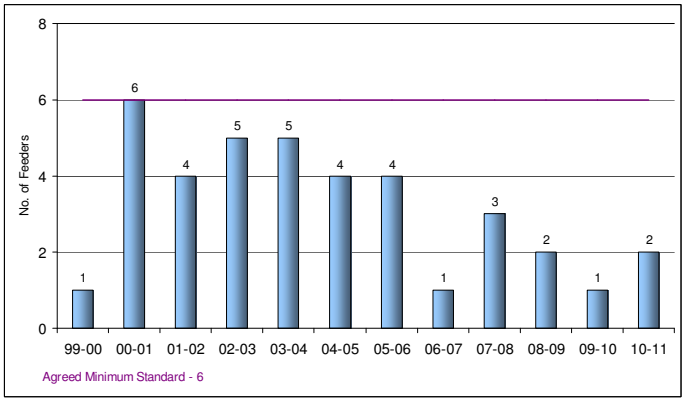
Power and Water was within the agreed minimum standard in each of the regions.

Graphs 72 to 74 show Power and Water's historical performance against this indicator.

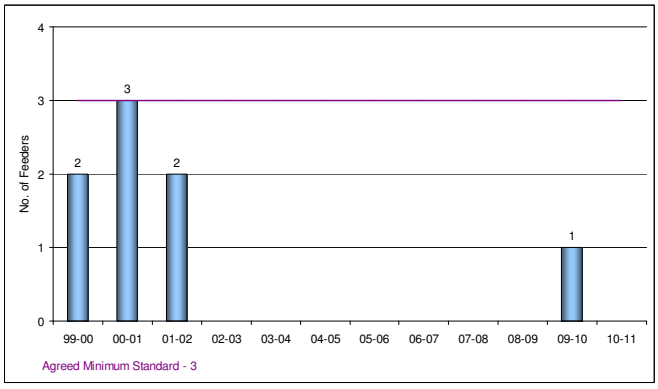
Graph 72: Darwin-Rural – Historical Performance



Graph 73: Katherine – Historical Performance



Graph 74: Tennant Creek – Historical Performance



The number of Darwin-Rural feeders and Katherine feeders that experienced more than 2,500 minutes of interruptions in 2010-11 were both within the agreed minimum standard by 4 feeders. No feeders in Tennant Creek experienced more than 2,500 minutes of interruptions in 2010-11

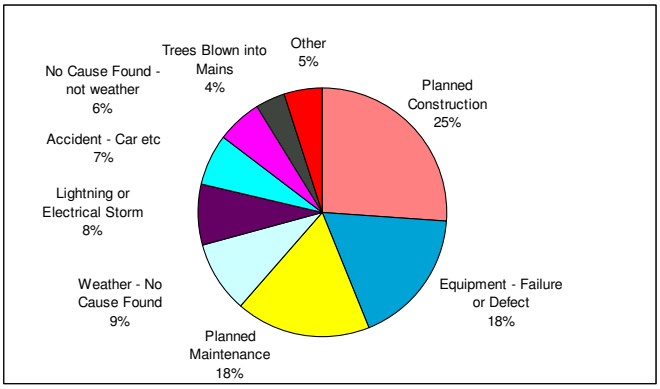
Darwin-Rural > 2,500 minutes or > 27 interruptions

Length (km)	Feeder	Duration	Interruptions
56.3	**22MA07 Acacia**	**6,801**	**51**
194.1	**22MM13 Dundee**	**10,054**	**48**
108.1	22MA02 Batchelor	4,363	32
100.8	**22PA101 Howard Springs**	**2,540**	30
52.5	22MM10 Virginia	4,501	28

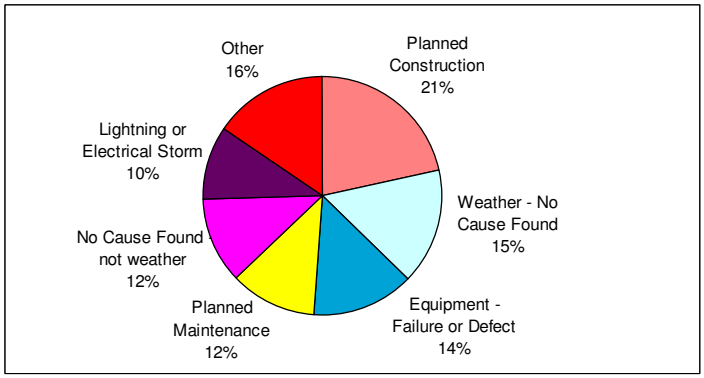
* Bold type indicates consecutively poor performing feeder. **Decommissioning, construction and data updates have resulted in feeder lengths varying from the 2009-10 Standards of Service Report.

While Power and Water did not exceed the minimum standards, of the outages reported in 2010-11 in the Darwin-Rural region, three feeders were also poor performing in 2009-10. Graphs 75 to 79 illustrate the main causes of outages that contributed to these poor performing feeders in the Darwin-Rural region.

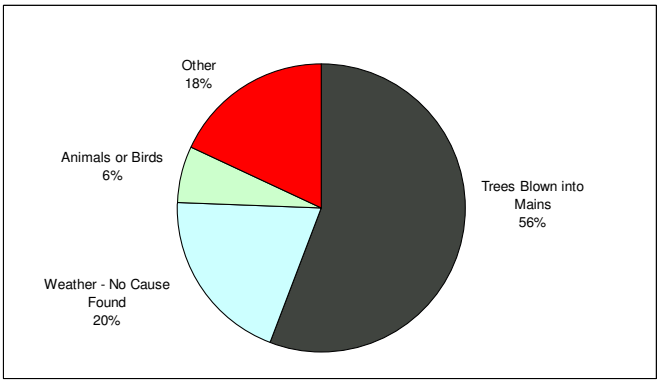
Graph 75: 22MA07 Acacia: > 2500 Minutes



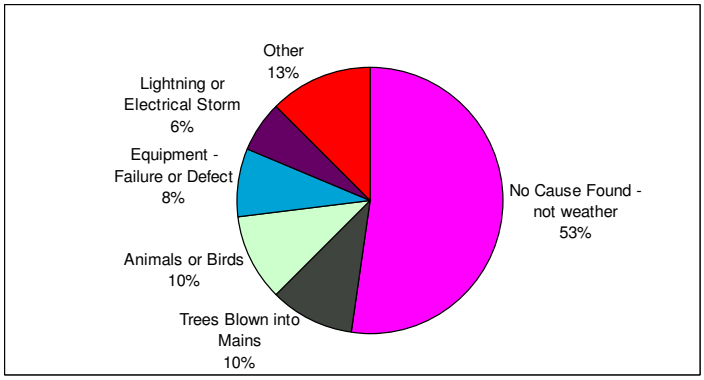
Graph 76: 22MA07 Acacia: > 27 Interruptions



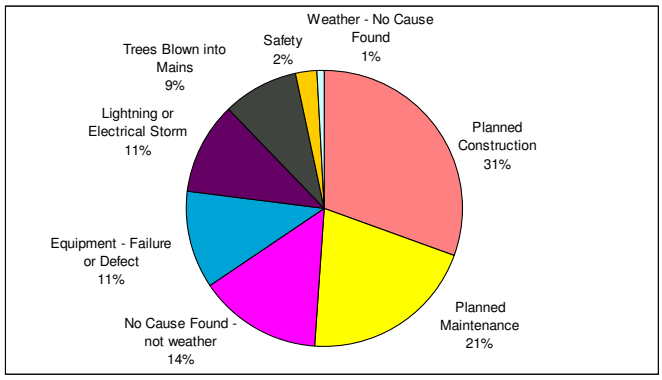
Graph 77: 22MM13 Dundee: > 2500 Minutes



Graph 78: 22MM13 Dundee: > 27 Interruptions



Graph 79: 22PA101 Howard Springs: > 2500 Minutes



A significant number of outages on the 22MA07 Acacia feeder during 2010-11 were due to planned maintenance and construction works aimed at improving long term reliability of the line. Weather was also a major contributor to the number of outages on this feeder, along with a car accident that contributed 443 minutes in one incident. The installation of Gas Circuit Reclosers (GCR) on the 22MA07 Acacia feeder during 2011-12 will improve restoration times. In addition, the Manton 22kV switchboard is scheduled for replacement in 2011-12, which will also improve the reliability of the feeder.

22MM13 Dundee is a long feeder in the rural area and most outages in 2010-11 were due to weather and storm related events, including 6,892 minutes contributed during two days of Cyclone Carlos. A feeder upgrade has been planned for this feeder in 2011-12, including the installation of new Gas Break Switches (GBS) and GCR as well as the relocation of existing GBS and GCR, which will improve sectionalising and reduce the impact of outages.

The 22PA01 Howard Springs feeder is also due for additional upgrades to insulators and/or installation of remote GCR or GBS and fibreglass crossarms. This was recommended based on faults causing the whole feeder to trip. Increasing sectionalising capability on the feeder, as well as GCR and GBS upgrades, will improve outage management for planned works and fault finding.

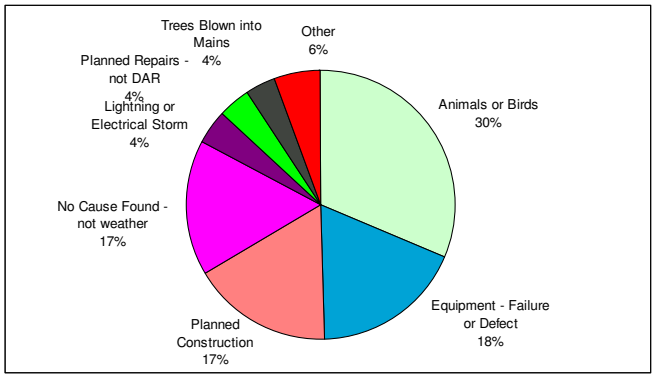
Katherine > 2,500 minutes or > 27 interruptions

Length (km)	Feeder	Duration	Interruptions
291.4	**22KP07 Mataranka**	**5,098**	**61**
26.1	22KP04 KATH EAST	5,606	≤ 27

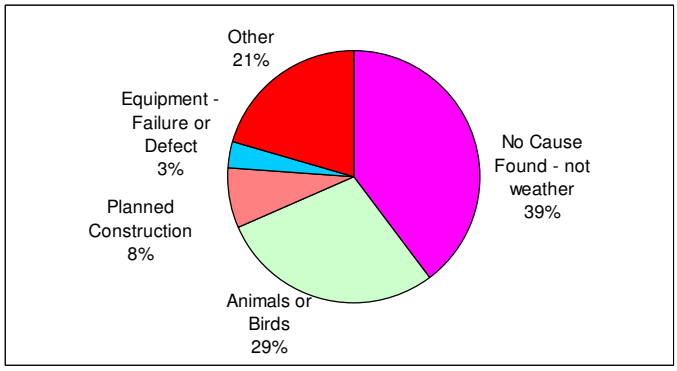
* Bold type indicates consecutively poor performing feeder.

While Power and Water did not exceed the minimum standard for Katherine in 2010-11, the 22KP07 Mataranka feeder was poor performing in both 2009-10 and 2010-11. Graphs 80 to 81 illustrate the main causes of outages that contributed to this poor performing feeder in the Katherine region.

Graph 80: 22KP07 Mataranka: > 2500 Minutes



Graph 81: 22KP07 Mataranka: > 27 Interruptions



In the past couple of years many of the outages in this area were due to recloses that last for less than half of one second. These are activated as a safety mechanism when tree branches or animals come into contact with the lines. If the cause of the outage clears when power is interrupted, the restoration will occur automatically when the line is re-energised (or reclosed). This indicates that bats or other animals are the primary cause.

A colony of bats in the Fox Road area south of Katherine caused a number of animal related outages. Extensive work has been undertaken to improve reliability in this area. These works include:

- The installation of a GCR; and
- The installation of animal guards on the remaining 'unprotected' sections main line.

The installation of wildlife protection on the Jilkminggan spur line on the Mataranka feeder is now complete and a GCR has been installed to better sectionalise the main line during fault conditions and reduce restoration times. Other sections of that line also have bat protection installed in an attempt to minimise outages that may affect the entire feeder.

Tennant Creek > 2,500 minutes or > 27 interruptions

Length (km)	Feeder	Duration	Interruptions
269.4	22TC602 Feeder 6	≤ 2,500	51

No feeders in Tennant Creek have been consecutively reported as poor performing feeders.

2.4 Network Reliability Initiatives And Action

The development of long term asset management and maintenance practices has continued to progress during 2010-11. While the implementation of the detailed maintenance plan has faced many challenges, task completion is increasing. The improved inspection regime is providing information not previously available, which allows for a more objective identification of assets in poor health. These inspections, along with other supporting information such as benchmarked asset condition data, have resulted in numerous projects that will improve network reliability in the longer term.

Some key projects include:

Replacement of Oil Filled Ring Main Units (RMU)

Oil filled RMU have been identified by Power and Water and other Australian power utilities as having a high risk of failure due to their age and design. Maintenance requirements and reduced asset capability affects networks reliability. Replacement of all (approximately 120) oil filled RMU with modern SF6 switchgear will be conducted in the next 5 years.

BBC Medium Voltage Distribution Switchgear Replacement

The BBC switchgear (RGC & RGF) in the Power and Water network has a long history of failures due to susceptibility to the harsh environmental conditions. Availability of spares, particularly fused units is limited. Power Network's maintenance strategy requires inspections of most units on a 3 monthly cycle to detect signs of insulation degradation. The plan is to replace all BBC switchgear in the network over the next 2 years to improve safety and reliability, as well as providing improved network switching capability and hence reduced outage duration for planned works and fault recovery. Units have been prioritised based on configuration, reduction of existing network limitations, ease of replacement and known defects.

Air Break Switch (ABS) Replacement

Upgrading the ABS to GBS on the 11kV and 22kV overhead networks is an ongoing project that will reduce maintenance requirements and improve the reliability of switching on the overhead network.

Strategic replacements in each region are being identified for the next 4 years and a plan will be generated each year based on inspection and defect information.

Substation Climate Control

Power Networks has established clear evidence that the humid environment of the Northern Territory plays a significant role in the acceleration of failure modes of electrical assets. Partial discharge, in particular surface discharge, has a detrimental effect on insulation. Power Networks have been able to show that properly engineered climate control systems are able to reduce surface discharge on electrical assets to acceptable levels. This requirement is now becoming standard for new installation sites to ensure a more predictable asset life span and the dehumidification of at risk zone substations is nearly complete.

In addition to these minor works and maintenance programs, the major capital plan is also targeting a number of 'end of life' substations for replacement in the coming years. The replacement of these zone substations will greatly improve network reliability, maintainability and operability. Sites that will be replaced include Snell Street Zone Substation, City Zone Substation and McMinns Zone Substation.

Improving Distribution Network Reliability

Verification of data within Darwin's overhead systems is now complete and implemented in existing GIS systems. The remaining networks (underground, low voltage and regional

locations) are scheduled into the future. This work has enabled Power and Water to better analyse outage performance data and correlate this to asset types, components or failure modes. From this analysis, plans have been developed to specifically target previously poor performing feeders.

The following is an outline of the maintenance programs currently underway.

Underground cable monitoring and replacement:

Power and Water is implementing modern cable testing and condition monitoring practices to achieve a higher level of understanding of cable condition and subsequently reduce the number of cable failures occurring in the system.

The 11BE10 Karama 2, 11BE06 Karama 2, 11CA13 Wanguri and 11BE16 Anula feeders will undergo high voltage cable replacement. In addition, 42 individual cable sections are currently scheduled for detailed diagnostic testing in order to better understand overall cable condition.

Overhead feeder upgrades:

Both the 22KP06 Pine Creek feeder and the 22KP11 OPS feeder have approximately 50 wooden crossarms that have been identified for replacement. It is anticipated that all remaining crossarms and insulators will be replaced in order to meet current standards and provide protection against animals. This should result in notable reliability improvements along the line.

There are approximately 100 wooden crossarms and/or insulators remaining on the 22KP14 Gorge feeder which will be replaced, and new conductors strung for the entire line to improve safety and reliability in the area.

The replacement of the Katherine Airport high voltage supply cable and the relocation of a section of the high voltage overhead line fed from the 22KP14 Gorge feeder will commence in 2011-12. This will address access limitations during the wet season, as the area is generally becomes flooded and Power and Water staff can not gain access to conduct repairs. Improved access should allow for faster fault response and restoration times.

Both the 22PA01 Howard Springs and the 22MM10 Virginia feeders are due for upgrades to insulators and/or installation of remote GCR or GBS and fibreglass crossarms. The 22MM11 Darwin River Feeder will undergo relocation of existing GBS, installation of new remote GBS, the replacement of old cross arms and insulators and the installation of bat protection on poles. The 22MM05 Herbert feeder will also have new GBS and GCR installed, undergo hardware upgrades, as well as the installation of animal protection on 350 poles. Increasing sectionalising capability on the feeders, as well as GCR and GBS upgrades, will improve outage management for planned works and fault finding.

The 22MM07 Noonamah feeder will have hardware upgrades on approximately 100 poles, particularly in areas where access is very poor during the wet season. Animal protection will also be installed. These upgrades will assist with improved lightning performance and improved animal resistance to limit outages from transient faults. Similar work will also be completed on the 22MM06 Strangways feeder due to the same issues.

Tennant Creek has experienced a number of power interruptions recently. Several times the power station has shed load or shut down completely. These events have usually occurred during or directly following, faults on the distribution network. 22TC602 Feeder 6, a mostly rural feeder, experienced a high amount of these faults. As a temporary measure, additional spinning reserve to 1.4 MW was implemented in 2010-11 and the instantaneous over current protection setting on 22TC602 Feeder 6 was lowered to 300 Amps in an attempt to reduce clearance time for lower current faults. To date this change has been successful and the spinning reserve has since been returned to previous levels.

Additional measures such as bat protection and lightning protection (including overhead earth wires) will be employed during 2011-12 to reduce or prevent outages. Sectionalisation of the feeder will limit the number of customers affected during a fault as well as assisting with fault finding and the restoration process.

3. QUALITY STANDARD INDICATORS

3.1 Quality

(a) the number of complaints received in relation to voltage events such as voltage dips, swells, spikes etc.

Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Northern	n/a	167	282	495	168	1,112
Katherine	n/a	37	52	34	26	149
Tennant Creek	n/a	2	4	6	7	19
Southern	n/a	32	44	45	24	145
All Customers	**n/a**	**238**	**382**	**580**	**225**	**1,425**

In 2010-11, voltage event complaints totalled 1,425 across the Northern Territory.

4. CUSTOMER SERVICE INDICATORS

4.1 Customer Service

(a) the percentage of new connections not provided within the required time limit

New connections not provided to existing supply properties within 24 hours

NT Wide	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
All Customers	2%	0.4%	0.4%	0.2%	0.3%	0.3%

Power and Water met the agreed minimum standard in 2010-11 and has done so for the past five years.

New connections not provided to new subdivisions in urban areas within 5 working days

NT Wide	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
All Customers	10%	9.6%	9.0%	2.9%	3.5%	6.7%

Power and Water met the agreed minimum standard in 2010-11.

New connections not provided to new subdivisions where minor extensions or augmentation is required in urban areas within 10 weeks

NT Wide	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
All Customers	35%	62.6%	86.8%	90.9%	88.6%	81.6%

The agreed minimum standard for new connections not provided to new subdivisions was not met in 2010-11. Where minor extensions or augmentation is necessary, a longer time frame is required to procure large items of distribution equipment, procure contract resources and arrange internal resources for final connection to the network.

(b) the number and percentage of telephone calls responded to within 20 seconds from when the customer selects to speak to a human operator.

NT Wide	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
All Customers	58,679	20,818	23,478	24,720	19,872	88,888
All Customers	63%	62.6%	65.6%	60.2%	59.6%	62.0%

The minimum standard set for the number of telephone calls responded to within 20 seconds was met in 2010-11. The minimum standard set for the percentage of telephone calls responded to within 20 seconds was exceeded in 2010-11. Although total call numbers received and answered actually fell during 2010-11 compared with the previous year, the complexity of customer enquiries resulted in longer calls and a higher number of calls being escalated. This was primarily a result of changes to billing associated with pension concessions, tariff increases and the introduction of a photovoltaic tariff.

(c) the number of customer complaints

Region	Agreed Minimum Standard	Power and Water's Actual Performance				
		1st Quarter Jul 10 to Sept 10	2nd Quarter Oct 10 to Dec 10	3rd Quarter Jan 11 to Mar 11	4th Quarter Apr 11 to Jun 11	Annual 2010-11
Darwin	n/a	364	443	374	372	1,553
Katherine	n/a	29	46	35	36	146
Tennant Creek	n/a	27	30	23	9	89
Alice Springs	n/a	96	112	111	113	432
All Customers	**5,146**	**516**	**631**	**543**	**530**	**2,220**

Power and Water met the agreed minimum standard in 2010-11. As required by the Code, Power and Water reports complaints in accordance with the Australian Standard (ISO10002-2006)[2] which defines a complaint as *"An expression of dissatisfaction made to an organisation, related to its products, or the complaint handling process itself, where a response or resolution is explicitly or implicitly expected."*

To further improve its service performance, Power and Water engages a specialist market research company to conduct monthly customer surveys.

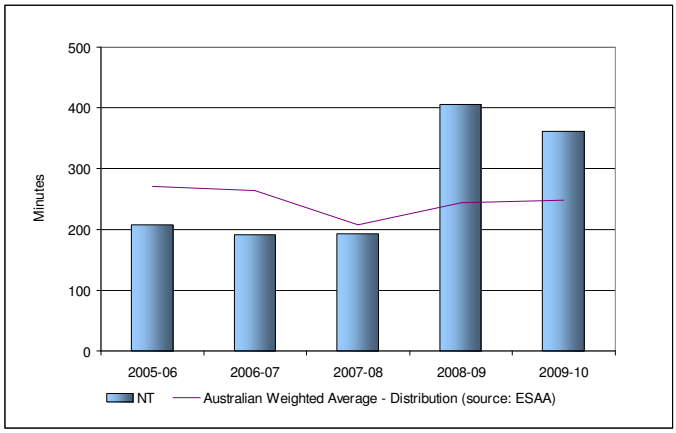
[2] The Code refers to Australian Standard 4269:1995, defined as *"any expression of dissatisfaction with a product or service offered or provided"*. This standard has been superseded by ISO10002-2006.

5. NATIONAL BENCHMARKING

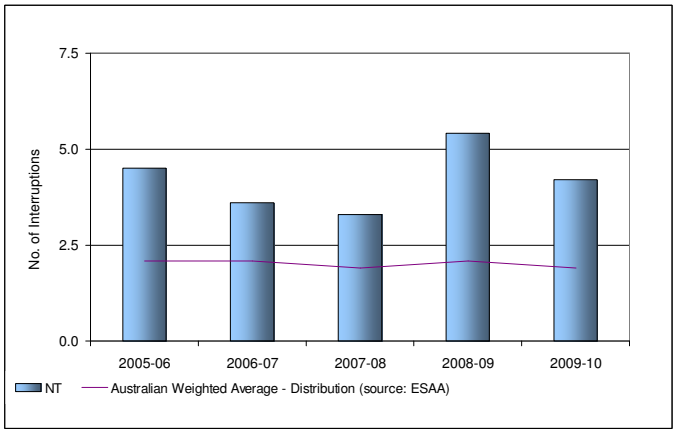
5.1 Historical Unadjusted Network Performance

Graphs 82 to 84 compare Power and Water's historical unadjusted network performance to the Australian weighted average for distribution networks (as published in Energy Supply Association of Australia's (ESAA) *Electricity Gas Australia* annual publications).

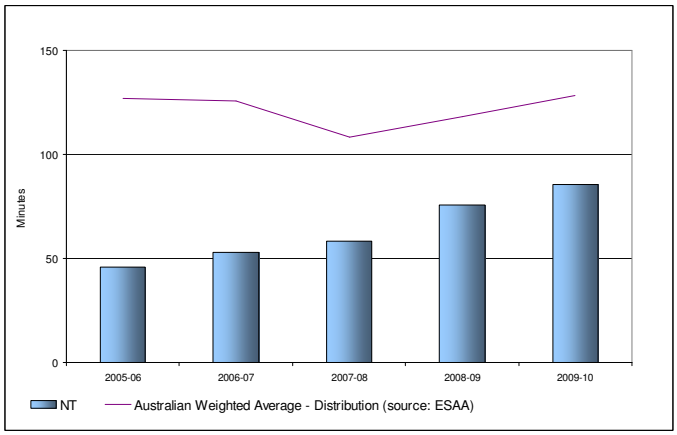
Graph 82: Unadjusted NT SAIDI – Historical Performance compared to Australian Average



Graph 83: Unadjusted NT SAIFI – Historical Performance compared to Australian Average



Graph 84: Unadjusted NT CAIDI – Historical Performance compared to Australian Average



Note: ESAA figures for 2010-11 have not yet been published.

The Northern Territory is a challenging environment in which to maintain reliable power supply. Lightning, storms, flying foxes and vegetation have resulted in the frequency of network outages (SAIFI) over the past five years to 2009-10 being greater than the national average.

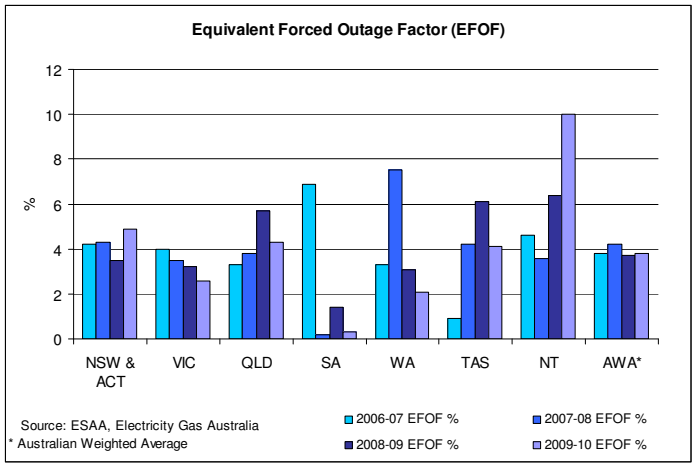
Despite this, the duration of outages (SAIDI) over the same period has been less than the national average, with the exception of 2008-09 and 2009-10 due to the impact of the major and subsequent failures at the Casuarina Zone Substation in September and October 2008, the major storm in Alice Springs in September 2008 and the system black incident on the Darwin-Katherine Transmission Line in January 2010. CAIDI is well below

the national average, as it is a function of Power and Water's lower outage duration compared to a higher frequency of outages.

5.2 Historical Generation Performance

Graph 85 compares Power and Water's historical generation performance to interstate generators and to the Australian weighted average (as published in ESAA's *Electricity Gas Australia* annual publications).

Graph 85: Equivalent Forced Outage Factor (EFOF) - Historical Performance compared to Australian Average



Note: ESAA figures for 2010-11 have not yet been published.

A continuous problem resulted in set 5 at Channel Island Power Station being taken offline which affected the generating capacity of set 6 of the combined cycle block. In addition, there was an interruption in gas supply at the Weddell Power Station. This resulted in a higher Equivalent Forced Outage Factor (EFOF) than the Australian weighted average in 2009-10.

6. CONTACT DETAILS

For clarification or further details pertaining to the information contained in this report, please contact Ms Djuna Pollard, Manager Regulation, Pricing and Economic Analysis, on (08) 8985 8431 or at djuna.pollard@powerwater.com.au.