



# Standards of Service 2007-08

## KEY SERVICE PERFORMANCE INDICATORS

OCTOBER 2008

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## 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) is pleased to submit the actual standards achieved in 2007-08 with respect to each of the key service performance indicators in Schedule 1 of the Code.

### 1.1 Scope of Data

Generation and Network indicators of reliability standards have been provided for each region. Power and Water has also provided, for the first time, a regional breakdown of customer complaints data (including complaints related to voltage events). As stipulated in Schedule 1 (4.5), key service performance indicators have been reported on a quarterly and 12 month rolling average basis where possible. Historical data for 1999-00 to 2006-07 has also been included in this report.

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

### 1.2 Summary of Service Standards Achieved

Power and Water's service performance during 2007-08 was affected by Cyclone Helen, which struck Darwin on 4-5<sup>th</sup> January 2008. After excluding the effect of this major event, Power and Water's service performance in 2007-08 was such that of the 46 agreed minimum standards, 35 were met. Of the 11 that were not met, only three (Darwin Network CAIDI, Tennant Creek Generation CAIDI and new connections not provided to new subdivisions in urban areas within five working days) were consecutive breaches, which are discussed at the end of this report.

## 2 RELIABILITY OF SUPPLY INDICATORS

### 2.1 Network Reliability

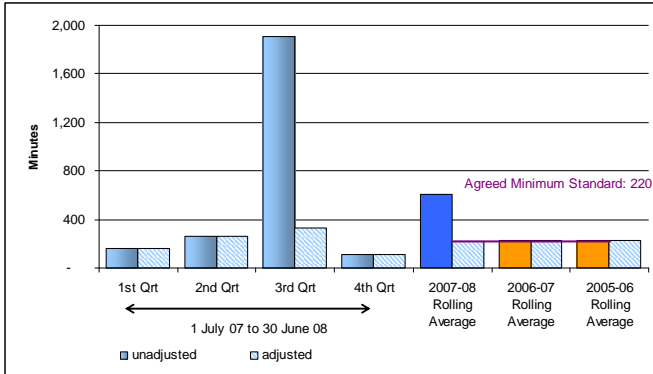
#### SAIDI

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

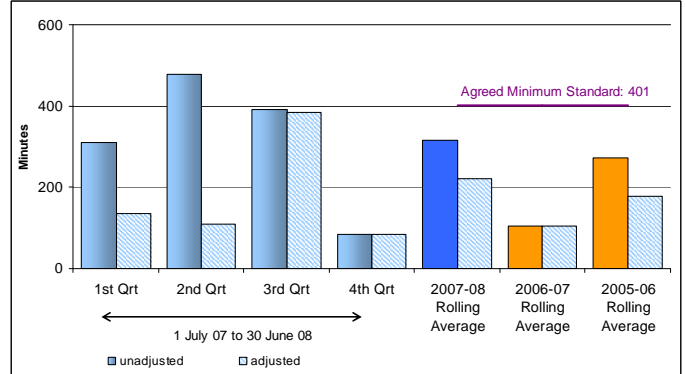
| Region        | Agreed Minimum Standard | Power and Water's Actual Performance            |     |  |     |  |     |  |     |                   |     |
|---------------|-------------------------|---|-----|--|-----|--|-----|--|-----|-------------------|-----|
|               |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 |     | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 |     | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 |     | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 |     | Annual<br>2007-08 |     |
|               |                         | Unadj   | Adj | Unadj  | Adj | Unadj  | Adj | Unadj  | Adj | Unadj             | Adj |
| Darwin        | 220                     | 159   | 159 | 265  | 265 | 1,907  | 329 | 113  | 113 | 611               | 217 |
| Katherine     | 401                     | 309   | 134 | 477  | 110 | 391  | 385 | 84   | 84  | 315               | 222 |
| Tennant Creek | 411                     | 53  | 53  | 257  | 257 | 105  | 105 | 308  | 308 | 181               | 181 |
| Alice Springs | 108                     | 59  | 59  | 152  | 152 | 84   | 84  | 65   | 65  | 90                | 90  |

Graphs 1 to 4 show Power and Water’s actual performance for the unadjusted and adjusted SAIDI key service performance indicator for Networks on a quarterly and annual basis for each region.

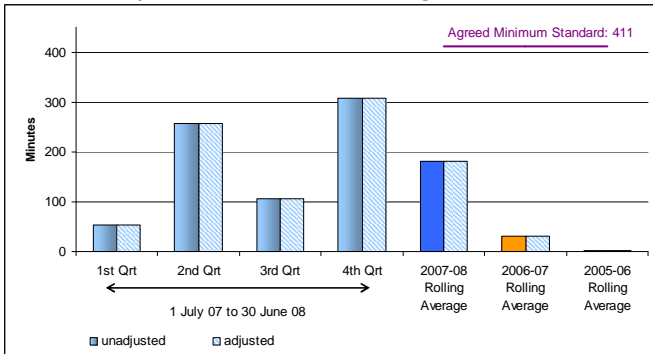
Graph 1: Darwin Region – SAIDI



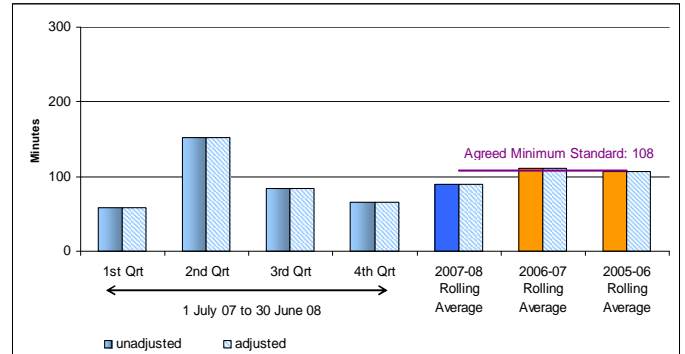
Graph 2: Katherine Region – SAIDI



Graph 3: Tennant Creek Region – SAIDI

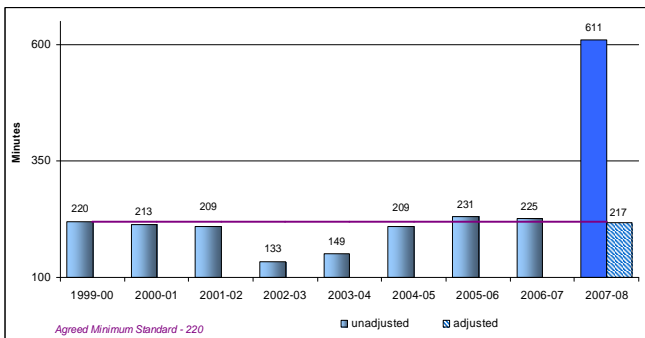


Graph 4: Alice Springs Region – SAIDI

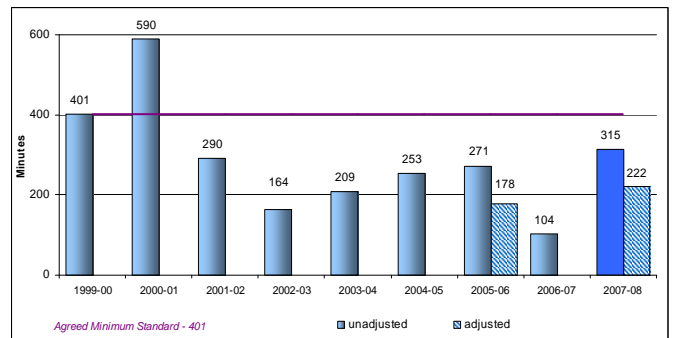


Graphs 5 to 8 show Power and Water’s historical performance for the unadjusted and adjusted SAIDI key service performance indicator for Networks on an annual basis for each region.

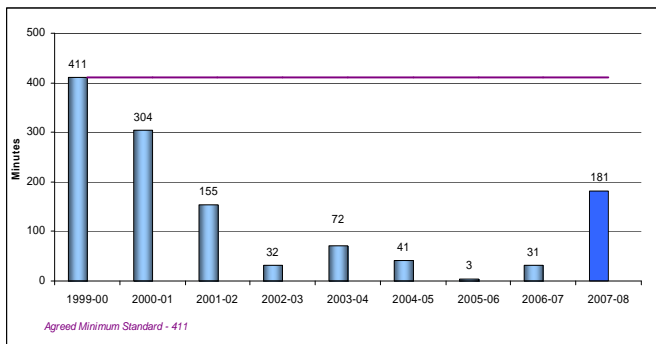
Graph 5: Darwin Region SAIDI – Historical Performance



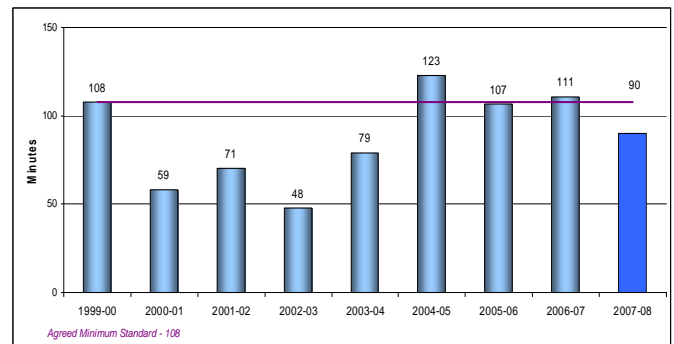
Graph 6: Katherine Region SAIDI - Historical Performance



Graph 7: Tennant Creek Region SAIDI – Historical Performance



Graph 8: Alice Springs Region SAIDI – Historical Performance



\* No adjustments have been applied.

### Unadjusted

Power and Water’s performance against the SAIDI indicator was better than the agreed minimum standard for the Katherine, Tennant Creek and Alice Springs regions. An automated reporting system to collect SAIDI for Tennant Creek has been implemented, providing performance data that is of greater reliability than previously obtained via manual processes.

Customers in the Darwin region experienced interruption durations greater than the agreed minimum standard. Significant outages were experienced in Darwin in the third quarter, primarily due to Cyclone Helen on 4-5<sup>th</sup> January 2008. Approximately 15,000 customers were affected with damage extending from Adelaide River and Batchelor through to Darwin and Dundee. The majority of customers were reconnected by the evening of 5 January 2008, and remaining customers’ power was restored progressively thereafter. Damage that occurred to the distribution network was largely due to tree damage.

Cyclone Helen accounted for 1,568 minutes in the third quarter and added 392 SAIDI minutes to the annual performance outcome. Without Cyclone Helen, Network’s SAIDI performance in Darwin would have been better than the agreed minimum standard.

SAIDI performance in the Katherine region was 86 minutes under the agreed minimum standard. Bat proofing feeders in the Mataranka area continues as part of Power and Water’s feeder upgrade program.

SAIDI performance in Tennant Creek was 230 minutes under the agreed minimum standard. Now that a more reliable method of collating data has been implemented, Power and Water is open to discussions with the Commission to recast the agreed minimum standard for Tennant Creek to provide a more meaningful measure of service performance that better reflects the current operating environment.

SAIDI performance in Alice Springs was 18 minutes under the agreed minimum standard, the best performance in the last four years. During 2007-08 Power and Water finalised improvements throughout the network in Alice Springs, in particular rectifying the intermittent fault with the Larapinta feeder and reducing unexpected failures such as that experienced at the Bradshaw transformer in 2006-07.

Improvement initiatives across the entire network include installing bat guards on poles, installing fibre glass cross arms, installing additional reclosers (in conjunction with vegetation trimming programs), undergrounding power lines, installing overhead earth wires on all transmission lines, and investment in additional power stations to improve the adequacy and quality of power supply, in response to the surge in demand in the wet season.

### Adjusted

In accordance with Schedule 1 (1.6), the 2.5 beta method<sup>1</sup> of calculating a 'major event day' or 'network exclusion event' allowed Power Networks to identify two isolated events that could be removed from the network key reliability indicators.

The main major event day for Darwin was Cyclone Helen on 5 January 2008, which contributed 392 SAIDI minutes to the annual total.

Katherine's major event day occurred on 17 August 2007, which contributed 43.7 SAIDI minutes to the annual total. This was when the 6 x 22kV feeders, and the 132kV transformer tripped. In addition, on 3 December 2007, 91.8 SAIDI minutes were due to one large outage of 6.5 hours when the 22KP19 town feeder suffered equipment failure.

### **SAIFI**

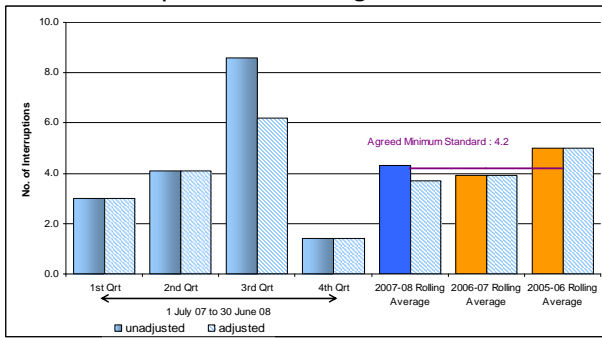
*b) the average number of interruptions per customer ("interruption frequency") – SAIFI*

| Region        | Agreed Minimum Standard | Power and Water's Actual Performance            |     |  |     |  |     |  |      |                   |     |
|---------------|-------------------------|---|-----|--|-----|--|-----|--|------|-------------------|-----|
|               |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 |     | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 |     | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 |     | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 |      | Annual<br>2007-08 |     |
|               |                         | Unadj   | Adj | Unadj  | Adj | Unadj  | Adj | Unadj  | Adj  | Unadj             | Adj |
| Darwin        | 4.2                     | 3.0   | 3.0 | 4.1  | 4.1 | 8.6  | 6.2 | 1.4  | 1.4  | 4.3               | 3.7 |
| Katherine     | 9.6                     | 5.7   | 4.0 | 3.5  | 2.3 | 10.2   | 8.8 | 3.7  | 3.7  | 5.8               | 4.7 |
| Tennant Creek | 9.8                     | 3.9   | 3.9 | 5.0  | 5.0 | 5.7  | 5.7 | 11.7   | 11.7 | 6.6               | 6.6 |
| Alice Springs | 2.9                     | 0.9   | 0.9 | 2.8  | 2.8 | 2.7  | 2.7 | 1.3  | 1.3  | 1.9               | 1.9 |

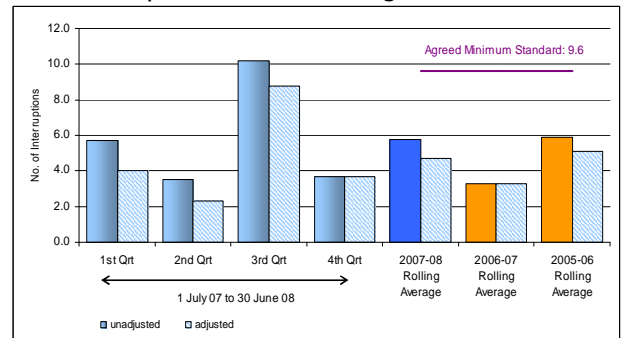
Graphs 9 to 12 show Power and Water's actual performance for the unadjusted and adjusted SAIFI reliability standards indicator for Networks on a quarterly and annual basis for each region.

<sup>1</sup> Schedule 1 (1.6) - The 2.5 beta method removes the reliability data on days when the minutes off supply exceed a certain threshold, which is based on the network service provider's historical reliability data.

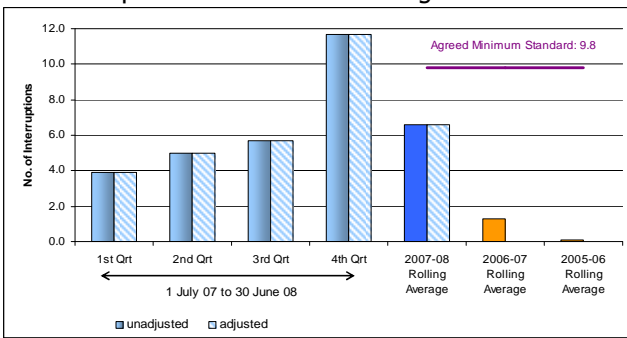
Graph 9: Darwin Region - SAIFI



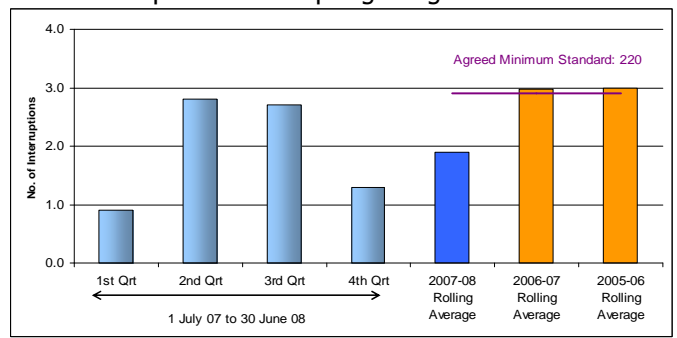
Graph 10: Katherine Region - SAIFI



Graph 11: Tennant Creek Region - SAIFI



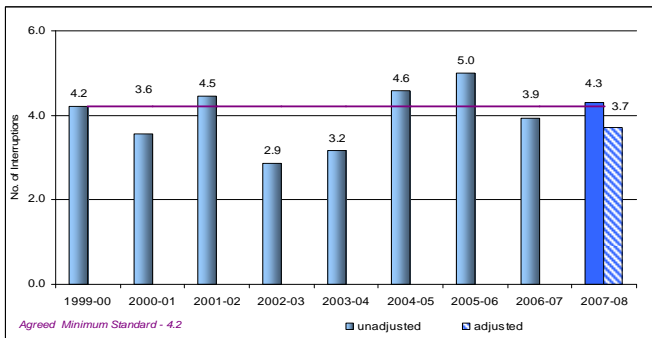
Graph 12: Alice Springs Region - SAIFI



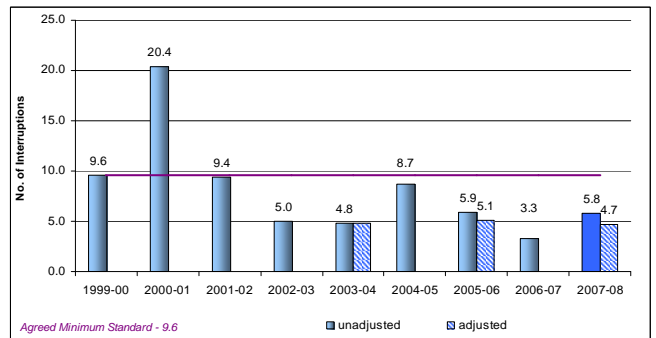
\* No adjustments have been applied.

Graphs 13 to 16 show Power and Water’s historical performance for the unadjusted and adjusted SAIFI key service performance indicator for Networks on an annual basis for each region.

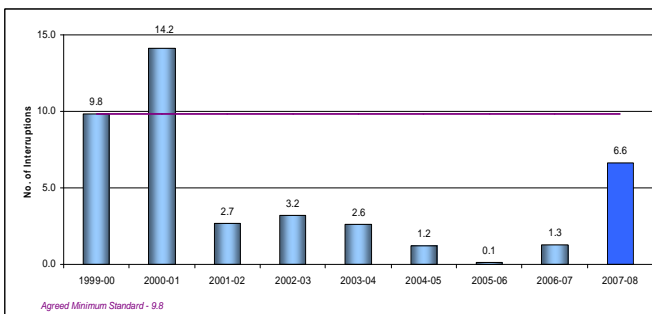
Graph 13: Darwin Region SAIFI – Historical Performance



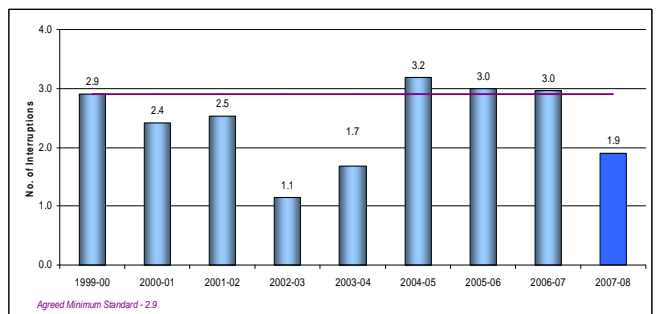
Graph 14: Katherine Region SAIFI – Historical Performance



Graph 15: Tennant Creek SAIFI – Historical Performance



Graph 16: Alice Springs SAIFI – Historical Performance



Unadjusted

Power and Water’s SAIFI performance in 2007-08 was better than the agreed minimum standard in all regions. Due to the ongoing upgrades and implementation of programs described above, there are fewer smaller interruptions than in previous years.

Power and Water is pleased to report that interruption frequency in the Darwin region in 2007-08 was below the agreed minimum standard, and holds the gains made in 2006-07 compared with the two years prior to that.

The Katherine region continues to perform within the agreed minimum standard as it has since 2001, albeit that the result in 2007-08 is a decline in performance on the 2006-07 result of 2.5 interruptions.

For the Tennant Creek region, the 2007-08 result was 3.2 interruptions under the agreed minimum standard.

The number of interruptions experienced by Alice Springs customers during the period was under the agreed minimum standard by 1 interruption, a significant improvement on the 2006-07 result, and in fact is the best result for Power and Water since 2003.

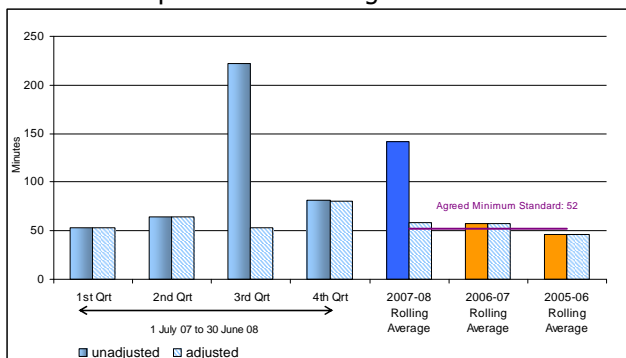
**CAIDI**

*(c) the average interruption duration per customer – CAIDI*

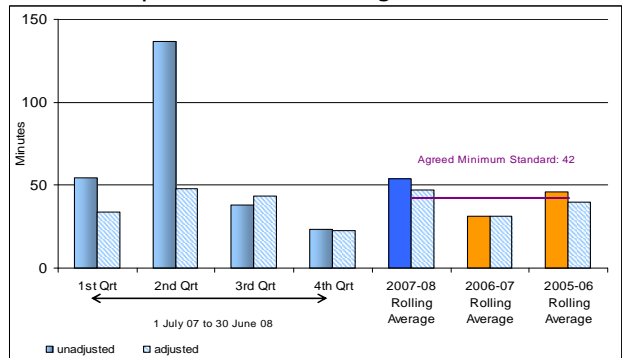
| Region        | Agreed Minimum Standard | Power and Water’s Actual Performance      |     |  |     |  |     |  |     |                |     |
|---------------|-------------------------|---|-----|--|-----|--|-----|--|-----|----------------|-----|
|               |                         | 1 <sup>st</sup> Quarter Jul 07 to Sept 07 |     | 2 <sup>nd</sup> Quarter Oct 07 to Dec 07 |     | 3 <sup>rd</sup> Quarter Jan 08 to Mar 08 |     | 4 <sup>th</sup> Quarter Apr 08 to Jun 08 |     | Annual 2007-08 |     |
|               |                         | Unadj                                     | Adj | Unadj                                    | Adj | Unadj                                    | Adj | Unadj                                    | Adj | Unadj          | Adj |
| Darwin        | 52.0                    | 53  | 53  | 65                                       | 65  | 222                                      | 53  | 81                                       | 81  | 142            | 59  |
| Katherine     | 42.0                    | 54  | 34  | 136                                      | 48  | 38                                       | 44  | 23                                       | 23  | 54             | 47  |
| Tennant Creek | 41.8                    | 14  | 14  | 51                                       | 51  | 18                                       | 18  | 26                                       | 26  | 27             | 27  |
| Alice Springs | 37.2                    | 66  | 66  | 54                                       | 54  | 31                                       | 31  | 50                                       | 50  | 47             | 47  |

Graphs 17 to 20 show actual performance for the unadjusted and adjusted CAIDI key service performance indicators for Networks on a quarterly and annual basis for each region.

Graph 17: Darwin Region – CAIDI

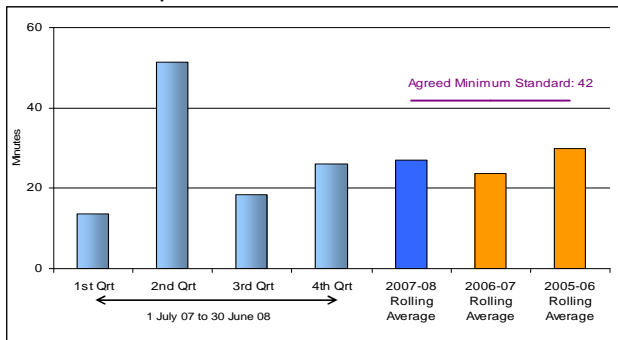


Graph 18: Katherine Region – CAIDI



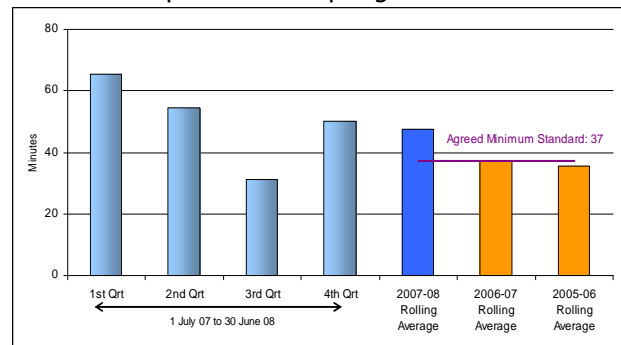


Graph 19: Tennant Creek - CAIDI



\* No adjustments have been applied.

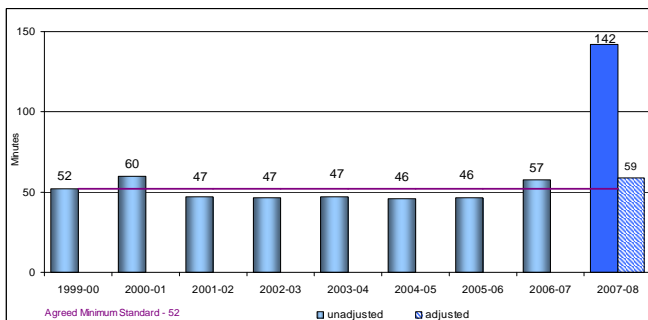
Graph 20: Alice Springs – CAIDI



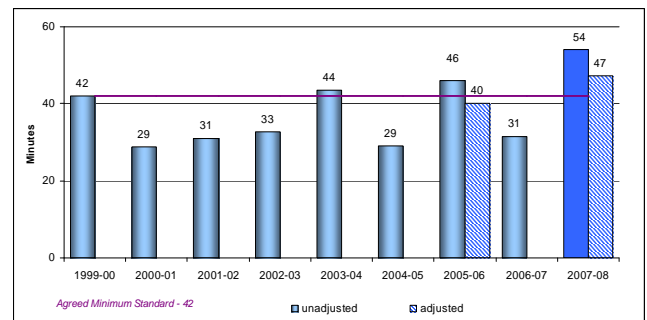
\* No adjustments have been applied.

Graphs 21 to 24 show Power and Water’s historical performance for the unadjusted and adjusted CAIDI key service performance indicator for Networks on an annual basis for each region.

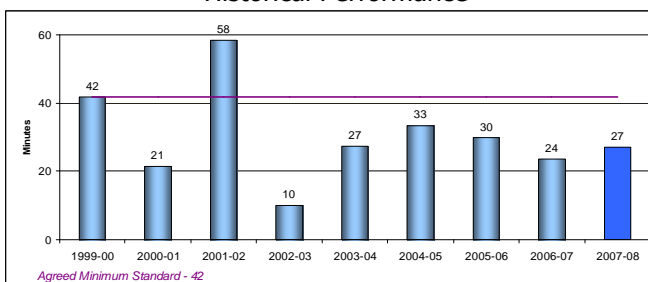
Graph 21: Darwin Region CAIDI – Historical Performance



Graph 22: Katherine Region CAIDI – Historical Performance

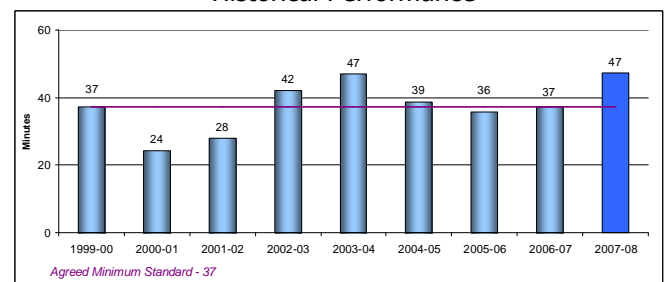


Graph 23: Tennant Creek Region CAIDI – Historical Performance



\* No adjustments have been applied.

Graph 24: Alice Springs Region CAIDI – Historical Performance



\* No adjustments have been applied.

Unadjusted

The average interruption duration per customer in the Darwin region in 2007-08 exceeded the agreed minimum standard by 90 minutes, a significant deterioration on 2006-07 due primarily to the effects of Cyclone Helen.

The Katherine region also operated outside the minimum standard, with customers experiencing average interruption duration far in excess of the agreed benchmark. Katherine was also affected by a loss of power from Pine Creek resulting from a split in the 132 kV line.

Tennant Creek CAIDI performance in 2007-08 was better than the agreed minimum standard, while in Alice Springs performance in 2007-08 was outside the minimum standard by 10 minutes.

## 2.2 Generation Reliability

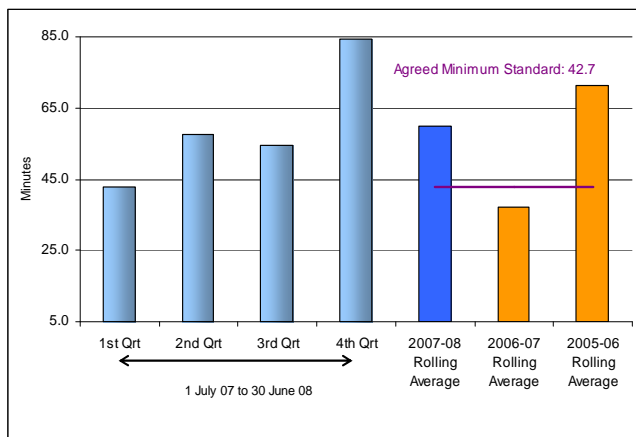
### SAIDI

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

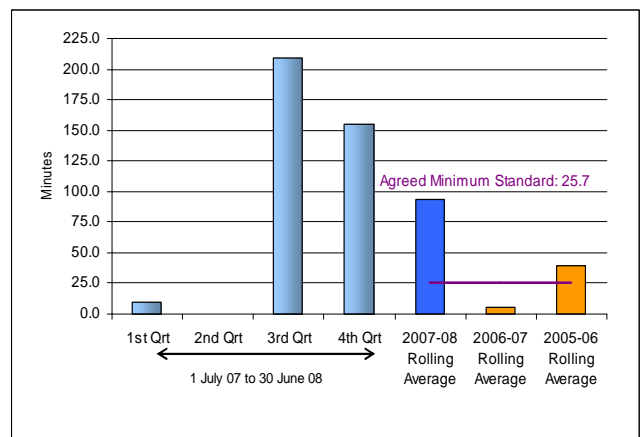
| Region        | Agreed Minimum Standard | Power and Water's Actual Performance         |   |   |   |                   |
|---------------|-------------------------|--|---|---|---|-------------------|
|               |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to Jun 08 | Annual<br>2007-08 |
| Darwin        | 42.7                    | 42.9   | 57.4  | 54.6  | 84.3  | 59.8              |
| Katherine     | 25.7                    | 9.3  | 0.0   | 209.2                                       | 155.0                                       | 93.4              |
| Tennant Creek | 125.0                   | 0.0  | 0.5   | 18.8  | 34.3  | 13.4              |
| Alice Springs | 122.5                   | 25.7   | 0.0   | 14.6  | 12.2  | 13.1              |

Graphs 25 to 28 show Power and Water's actual performance for the SAIDI key service performance indicator for Generation on a quarterly and annual basis.

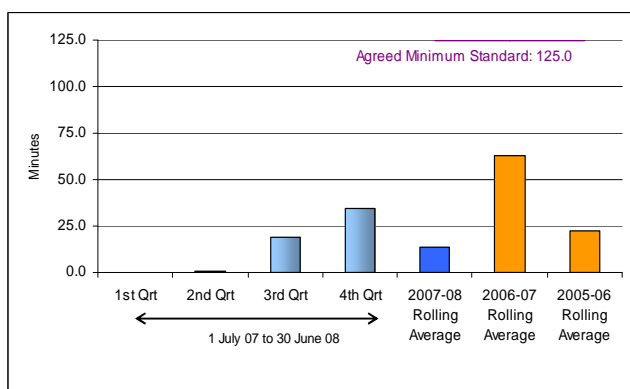
Graph 25: Darwin Region – SAIDI



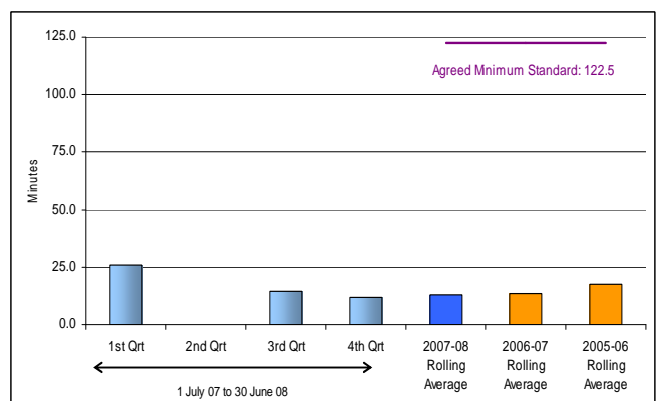
Graph 26: Katherine Region – SAIDI



Graph 27: Tennant Creek – SAIDI

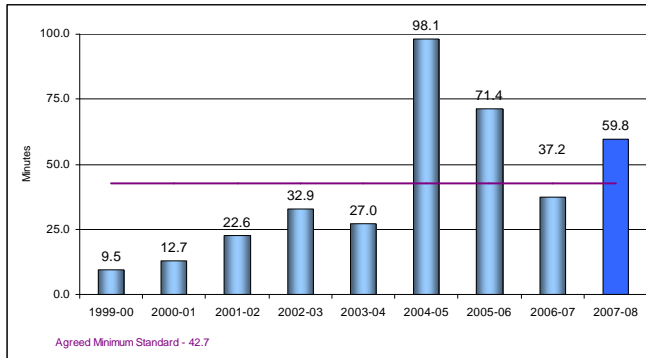


Graph 28: Alice Springs – SAIDI

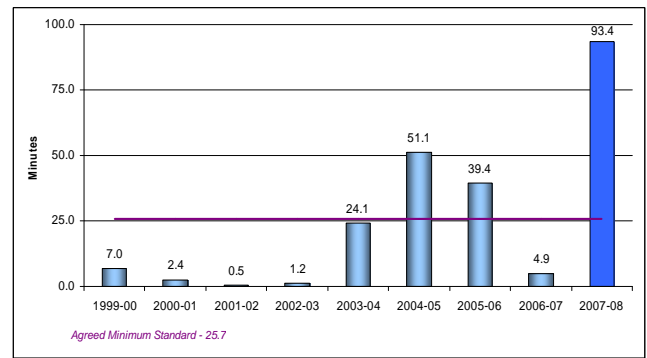


Graphs 29 to 32 show Power and Water’s historical performance for the SAIDI key service performance indicator for Generation on an annual basis for each region.

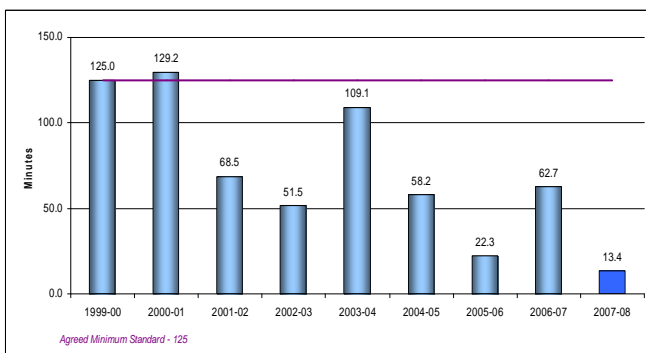
Graph 29: Darwin Region SAIDI – Historical Performance



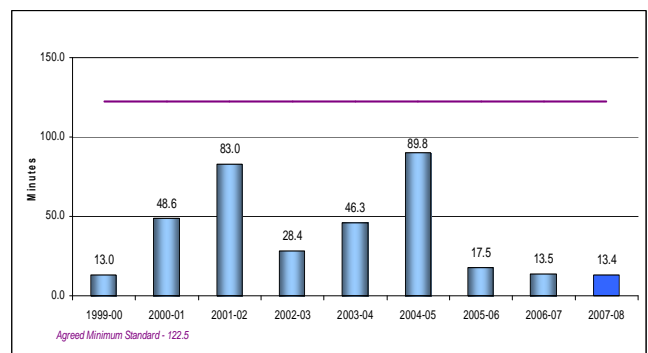
Graph 30: Katherine Region SAIDI – Historical Performance



Graph 31: Tennant Creek Region SAIDI – Historical Performance



Graph 32: Alice Springs Region SAIDI – Historical Performance



The Darwin and Katherine regions were above the agreed standard for 2007-08, attributable to a combination of several incidents throughout the year. As Katherine is connected through the Darwin to Katherine Transmission Line (DKTL), events occurring in Darwin or on the DKTL impact on the Katherine system. Hence the outages caused by Weddell and Channel Island set 7 also affected the Katherine region.

- 2nd quarter outage was due to fire protection testing which resulted in set 5 tripping, with the outage affecting mainly the Stuart Park and Frances Bay areas.
- 3rd quarter outages were caused by a re-occurring problem with Channel Island set 7 tripping throughout the third quarter. The set 7 exchange engine has been installed, commissioned and is fully operational.
- 4th quarter outages were the result of commissioning activities associated with Weddell Power Station, set 1. These commissioning issues have since been identified and corrected.
- Tennant Creek and Alice Springs performed well within the agreed minimum standard of 125 and 122.5 minutes respectively.

In 2007-08 Darwin and Katherine region SAIDI performance was above the standard and did not achieve a comparable level of performance to the previous year, due to initial problems with the commissioning of Weddell Power Station.

Tennant Creek generation reliability for 2007-08 was well within the agreed minimum standard and showed improved performance when compared to previous years. This ongoing reliability for Tennant Creek may indicate that a re-assessment of the minimum standard may be needed for the region.

Alice Springs' performance has been consistently within the minimum standard and may also be indicative of the need to re-evaluate minimum standards for the region.

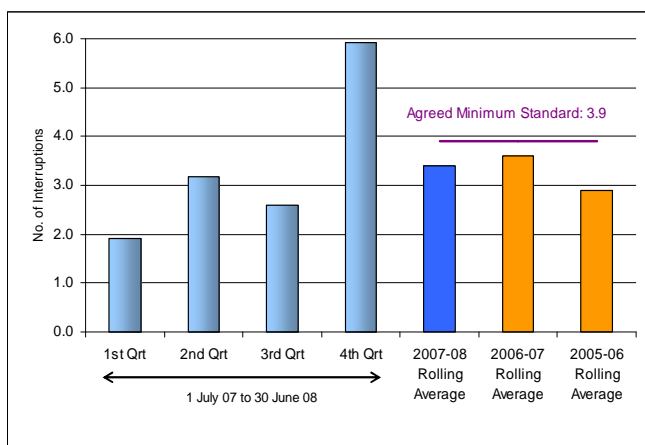
**SAIFI**

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

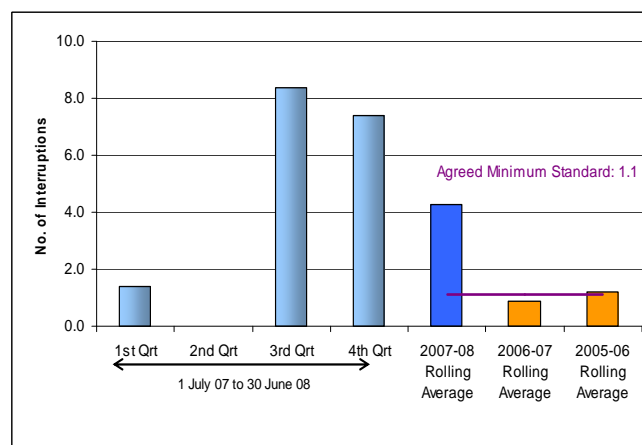
| Region        | Agreed Minimum Standard | Power and Water's Actual Performance         |   |   |   |                   |
|---------------|-------------------------|--|---|---|---|-------------------|
|               |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to Jun 08 | Annual<br>2007-08 |
| Darwin        | 3.9                     | 1.9  | 3.2   | 2.6   | 5.9   | 3.4               |
| Katherine     | 1.1                     | 1.4  | 0.0   | 8.4   | 7.4   | 4.3               |
| Tennant Creek | 12.5                    | 0.0  | 0.1   | 1.9   | 1.5   | 0.9               |
| Alice Springs | 3.6                     | 2.1  | 0.0   | 0.5   | 1.2   | 1.0               |

Graphs 33 to 36 show Power and Water's Generation SAIFI performance on a quarterly and annual basis.

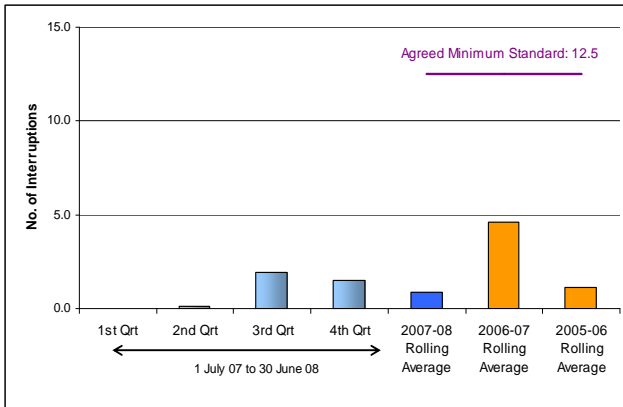
Graph 33: Darwin Region - SAIFI



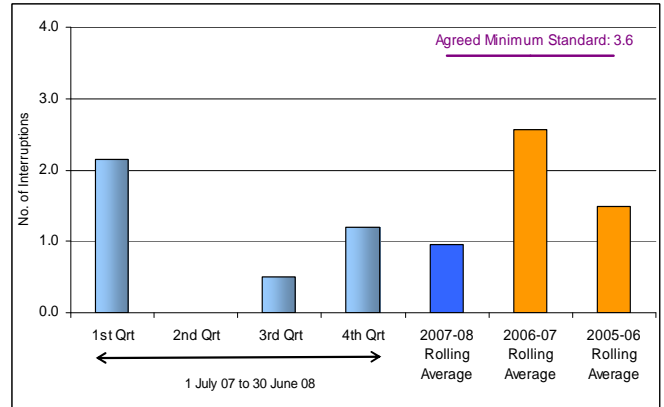
Graph 34: Katherine Region – SAIFI



Graph 35: Tennant Creek Region - SAIFI

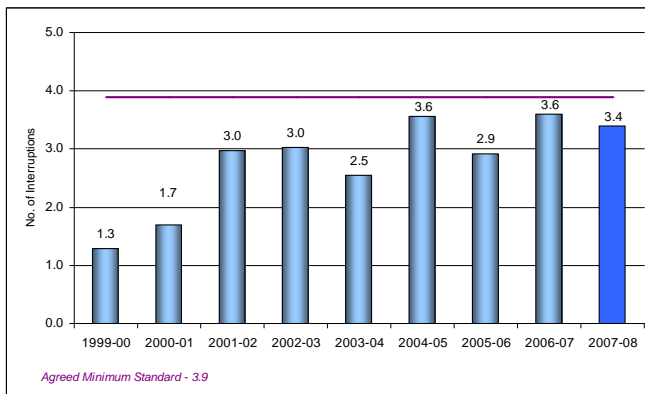


Graph 36: Alice Springs Region – SAIFI

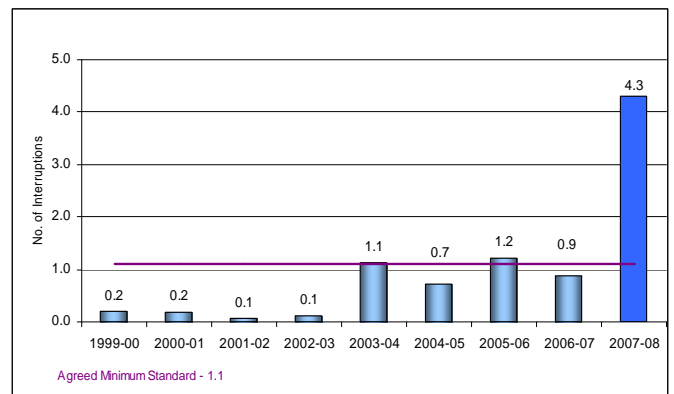


Graphs 37 to 40 show Power and Water’s historical Generation SAIFI performance.

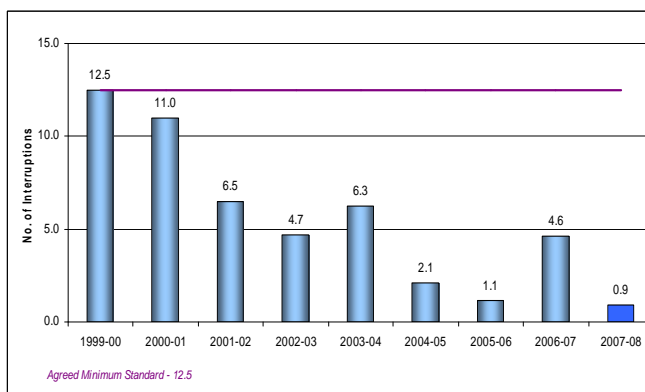
Graph 37: Darwin Region SAIFI – Historical Performance



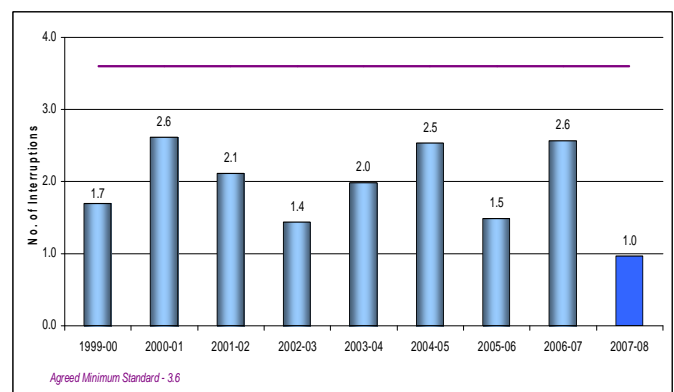
Graph 38: Katherine Region SAIFI – Historical Performance



Graph 39: Tennant Creek Region SAIFI – Historical Performance



Graph 40: Alice Springs Region SAIFI – Historical Performance



Alice Springs and Tennant Creek regions have improved from 2006-07, and combined with the outcomes from prior years, suggests that the minimum standards may need to be reviewed.

Katherine was the only region not to meet the agreed minimum standard, an outcome that can be directly attributed to the outages caused by Channel Island set 7 and Weddell Power Station. The peaks that occur in some quarters for respective regions are directly related to the issues associated with SAIDI which have been mentioned above.

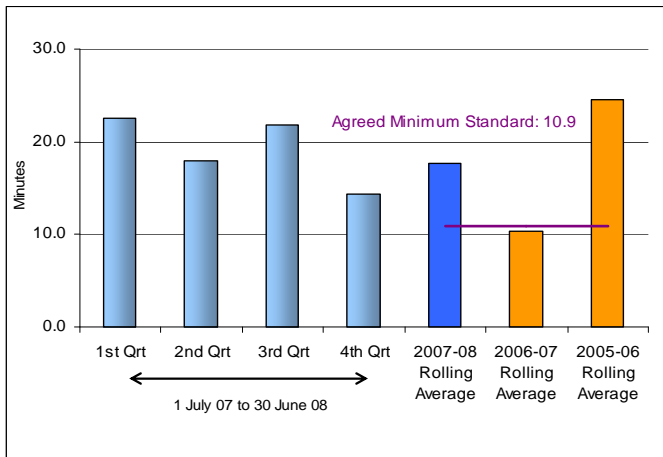
**CAIDI**

*(c) the average interruption duration per customer – CAIDI*

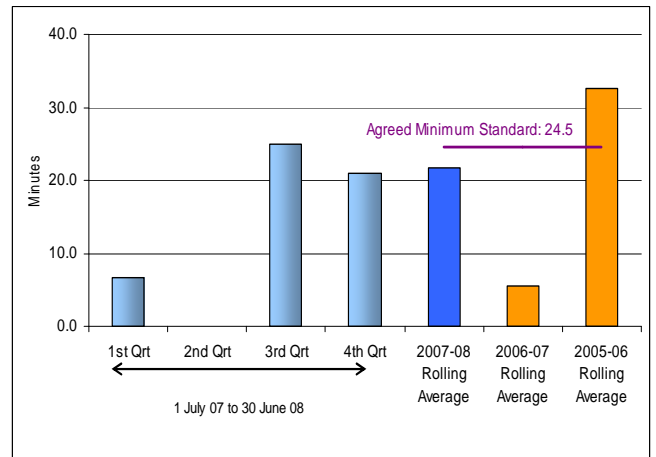
| Region        | Agreed Minimum Standard | Power and Water’s Actual Performance         |   |   |   |                   |
|---------------|-------------------------|--|---|---|---|-------------------|
|               |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to Jun 08 | Annual<br>2007-08 |
| Darwin        | 10.9                    | 22.6   | 17.9  | 21.8  | 14.3  | 17.7              |
| Katherine     | 24.5                    | 6.6  | 0.0   | 24.9  | 20.9  | 21.7              |
| Tennant Creek | 10.0                    | 0.0  | 5.0   | 9.9   | 22.9  | 14.9              |
| Alice Springs | 34.2                    | 12.2   | 0.0   | 29.2  | 10.2  | 13.1              |

Graphs 41 to 44 show Power and Water’s actual performance for the CAIDI key service performance indicator for Generation on a quarterly and annual basis.

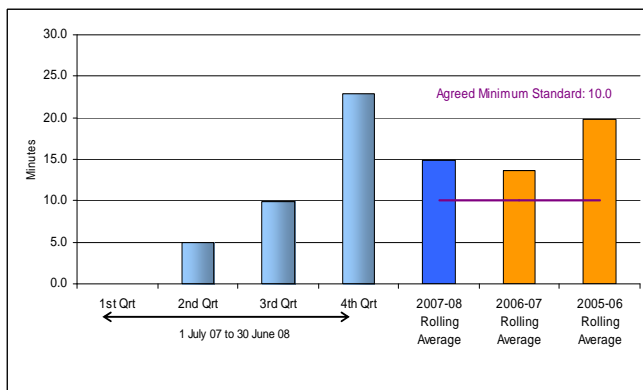
Graph 41: Darwin Region - CAIDI



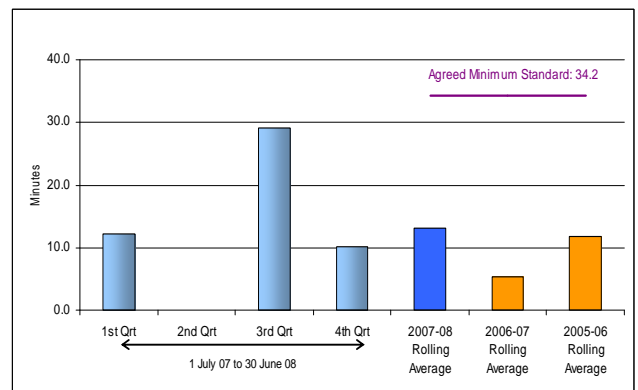
Graph 42: Katherine Region – CAIDI



Graph 43: Tennant Creek Region - CAIDI

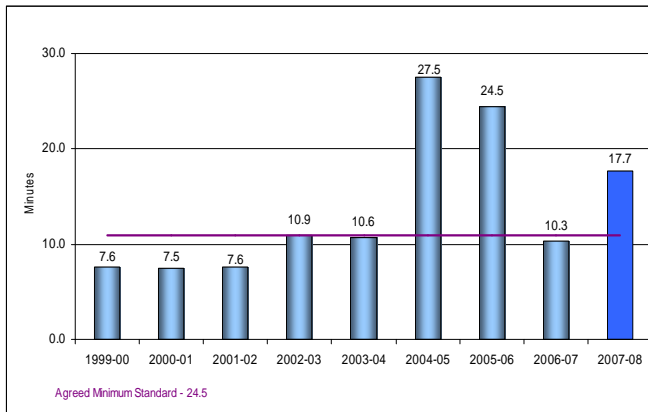


Graph 44: Alice Springs Region – CAIDI

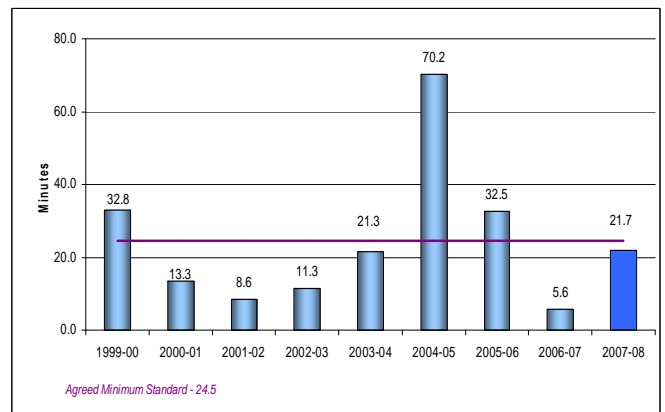


Graphs 45 to 48 show Power and Water’s historical performance for the CAIDI key service performance indicator for Generation.

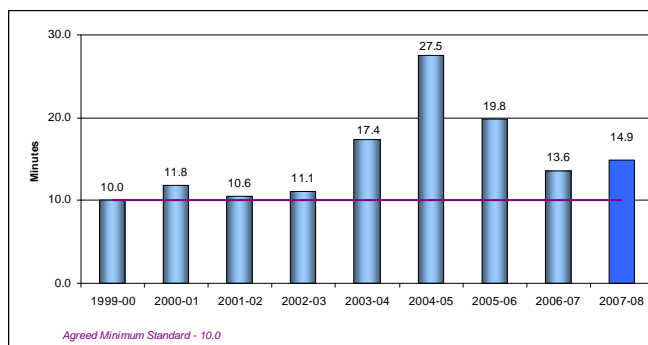
Graph 45: Darwin Region CAIDI – Historical Performance



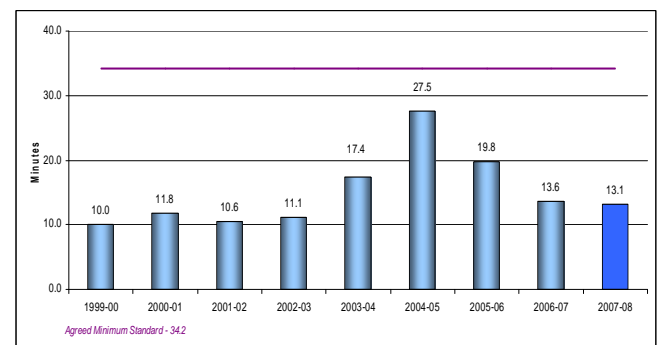
Graph 46: Katherine Region CAIDI – Historical Performance



Graph 47: Tennant Creek Region CAIDI – Historical Performance



Graph 48: Alice Springs Region CAIDI – Historical Performance



Darwin and Tennant Creek regions both failed to meet the minimum standard for CAIDI.

Generation’s CAIDI performance in the Darwin region in 2007-08 breached the minimum standard. This outcome is the result of an increase in SAIDI, whilst SAIFI remained constant.

### 2.3 Feeder Performance

Power and Water has segregated feeders into two categories, interconnected and radial distribution networks. The distinction between the two is that radial networks are predominantly supplied from one source, and there is little opportunity for interconnections with other circuits for security and continuation of supply in the event of planned and unplanned interruptions. Thus the number and duration of interruptions is higher for radial than interconnected distribution networks.

## Interconnected Distribution Networks

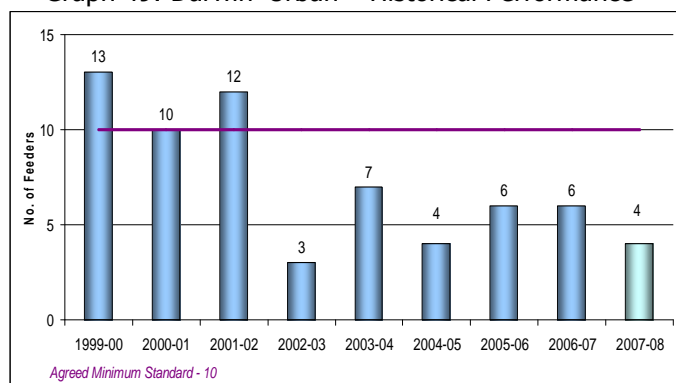
(a) the number of feeders that experience more than 15 interruptions per year

| Region         | Agreed Minimum Standard | Power and Water's Actual Performance            |  |  |  |                   |
|----------------|-------------------------|---|--|--|--|-------------------|
|                |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| Darwin – Urban | 10                      | 0   | 1  | 1  | 2  | 4                 |
| Alice Springs  | 4                       | 0   | 0  | 1  | 0  | 1                 |

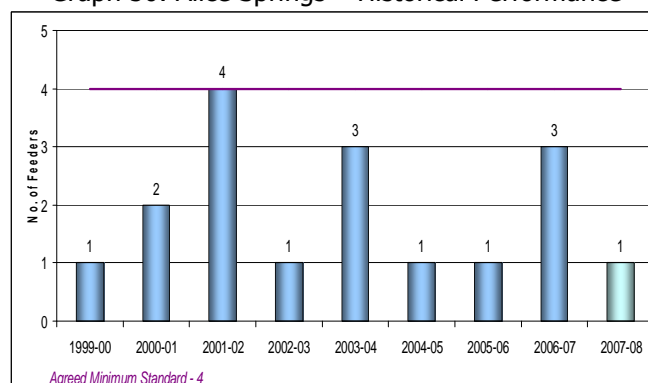
Power and Water met the agreed minimum standard in both the Darwin – Urban and Alice Springs regions.

Graphs 49 to 50 show Power and Water's historical performance for the number of feeders that experience more than 15 interruptions per year for interconnected distribution networks on an annual basis for the Darwin - Urban and Alice Springs region.

Graph 49: Darwin–Urban – Historical Performance



Graph 50: Alice Springs – Historical Performance



The feeders that experienced more than 15 interruptions in the Darwin – Urban region were 11BE13 Kormilda, 11CA12 Millner, 11PA21 Yarrowonga, and 11SN01 Fannie Bay. The 11CA12 – Millner feeder also reported poor performance in 2006-07, with undergrounding having commenced to address these reliability concerns.

(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            |  |  |  |                   |
|----------------|-------------------------|---|--|--|--|-------------------|
|                |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| Darwin - Urban | 27%                     | 0%  | 1%   | 5%   | 5%   | 5%                |
| Alice Springs  | 10%                     | 0%  | 0%   | 4%   | 4%   | 4%                |

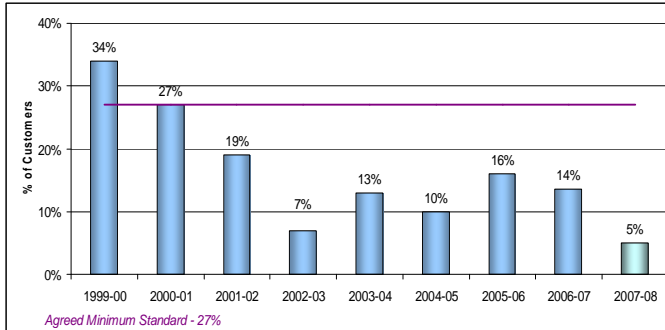
Power and Water met the agreed minimum standard in both the Darwin - Urban and Alice Springs regions, with continued noteworthy improvements in the former.

Graphs 51 to 52 show Power and Water's historical performance for the percentage of customers supplied by feeders that experience more than 15 interruptions per year for

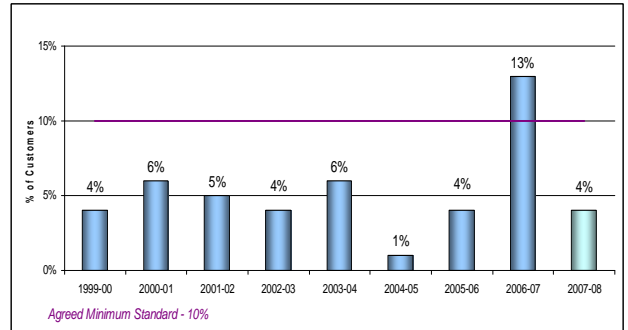


interconnected distribution networks on an annual basis for the Darwin - Urban and Alice Springs region.

Graph 51: Darwin – Urban – Historical Performance



Graph 52: Alice Springs – Historical Performance



The percentage of Darwin – Urban customers supplied by feeders that experienced more than 15 interruptions during 2007-08 fell to a historic low of 5%, which is a significant improvement on the 2006-07 result of 14%.

The percentage of Alice Springs customers supplied by feeders that experienced more than 15 interruptions during 2007-08 fell below the historic average of 5% to record a final result of 4%. This is also an improvement on the 2006-07 result of 13%, which was the worst result in eight years.

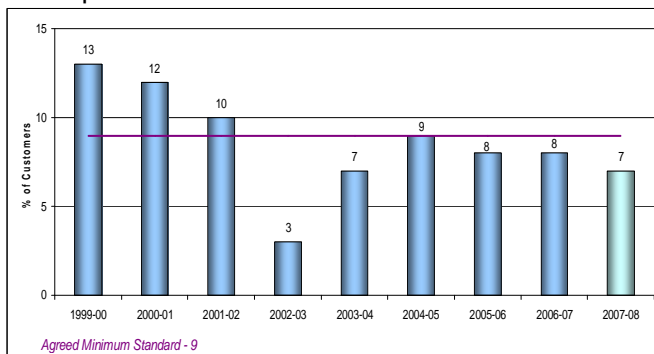
*(c) the number of feeders that experience more than 1,500 minutes of interruptions per year*

| Region         | Agreed Minimum Standard | Power and Water’s Actual Performance            |  |  |  |                   |
|----------------|-------------------------|---|--|--|--|-------------------|
|                |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| Darwin – Urban | 9                       | 0   | 2  | 5  | 0  | 7                 |
| Katherine      | 4                       | 1   | 0  | 0  | 1  | 2                 |

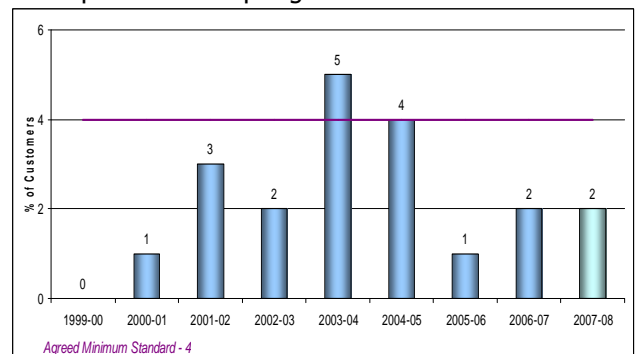
Power and Water met the agreed minimum standard in both the Darwin – Urban and Alice Springs regions.

Graphs 53 to 54 show Power and Water’s historical performance for the number of feeders that experience more than 1,500 minutes of interruptions per year for interconnected distribution networks on an annual basis for the Darwin – Urban and Alice Springs region.

Graph 53: Darwin–Urban – Historical Performance



Graph 54: Alice Springs – Historical Performance



The feeders that experienced more than 1,500 minutes of interruptions in the Darwin – Urban region during 2007-08 were 11BE13 Kormilda, 11CA12 Millner, 11PA21 Yarrowonga, 11AK02 Knuckey Street, 11CA22 Nakara, 11SN19 Ludmilla, and 11BE09 Jail. The Millner feeder will be included in the undergrounding program, while Kormilda is to be addressed as part of the feeder upgrade program.

The 22RG13 Brewer 1 and 22RG04 Brewer 2 feeders in Alice Springs experienced more than 1,500 minutes of interruptions during 2007-08.

### Radial Distribution Networks

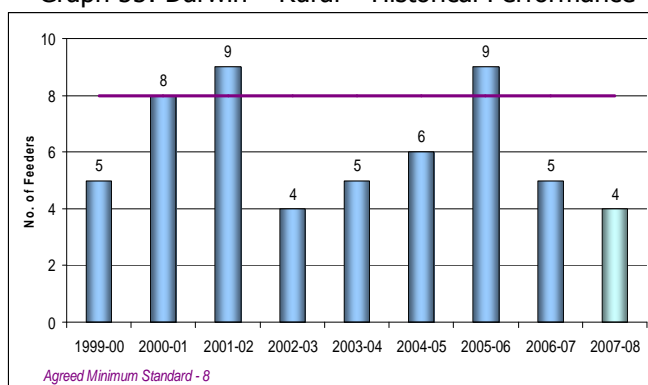
(a) the number of feeders that experience more than 27 interruptions per year

| Region         | Agreed Minimum Standard | Power and Water's Actual Performance            |  |  |  |                   |
|----------------|-------------------------|---|--|--|--|-------------------|
|                |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| Darwin - Rural | 8                       | 0   | 2  | 2  | 0  | 4                 |
| Katherine      | 7                       | 0   | 1  | 1  | 0  | 2                 |
| Tennant Creek  | 3                       | 0   | 0  | 0  | 0  | 0                 |

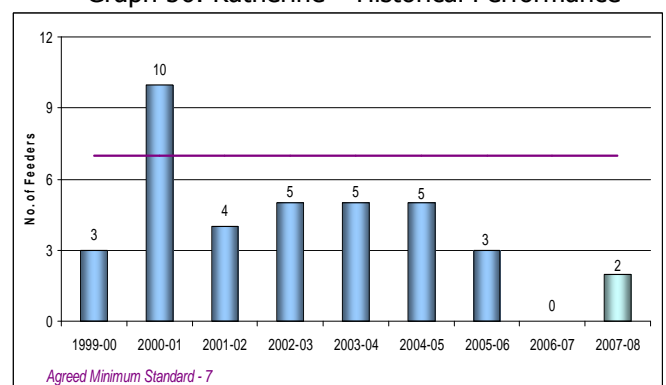
Power and Water met the agreed minimum standard in 2007-08 in each of the regions for which this indicator has been set.

Graphs 55 to 56 show Power and Water's historical performance for this indicator for the Darwin - Rural and Katherine regions.

Graph 55: Darwin – Rural – Historical Performance



Graph 56: Katherine – Historical Performance



The Darwin – Rural feeders that experienced more than 27 interruptions during 2007-08 were 22MA02 Batchelor, 22MA03 Adelaide River, 22MM07 Noonamah, and 22MM11 Darwin River. The Adelaide River feeder is being upgraded in sections each year.

The feeders which were also outside the standard in 2006-07 were 22MA02 Batchelor, 22MM07 Noonamah, and 22MM11 Darwin River. An upgraded inspection program has commenced aimed at improving the performance of these feeders.

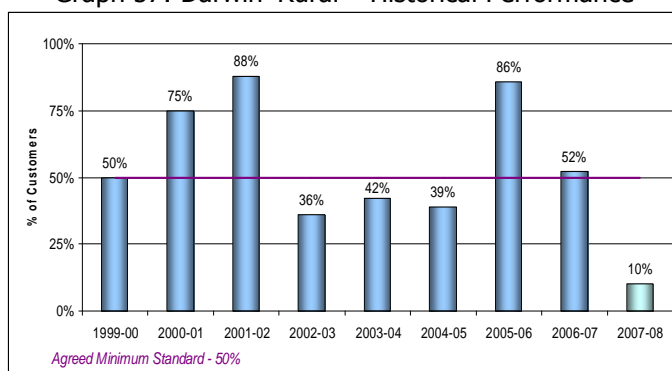
The feeders in Katherine that performed outside the agreed minimum standard were 22KP07 Mataranka, and 22KP12 Florina.

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

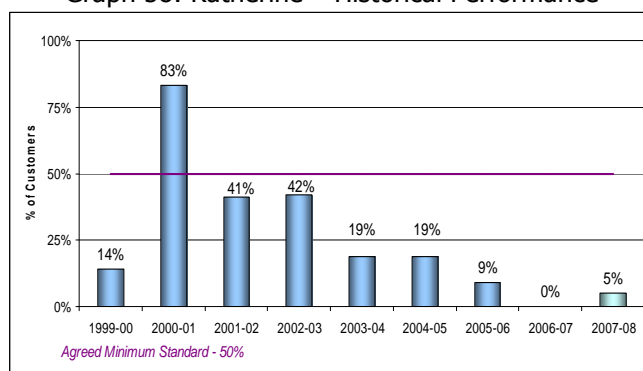
| Region         | Agreed Minimum Standard | Power and Water's Actual Performance            |  |  |  |                   |
|----------------|-------------------------|---|--|--|--|-------------------|
|                |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| Darwin – Rural | 50%                     | 0%  | 10%  | 10%  | 10%  | 10%               |
| Katherine      | 50%                     | 0%  | 3%   | 5%   | 5%   | 5%                |
| Tennant Creek  | 32%                     | 0%  | 0%   | 0%   | 0%   | 0%                |

In 2007-08, Power and Water met the agreed minimum standard in each of the regions for which this indicator has been set, with graphs 57 to 58 showing Power and Water's historical performance for this indicator for the Darwin - Rural and Katherine regions.

Graph 57: Darwin-Rural – Historical Performance



Graph 58: Katherine – Historical Performance



The percentage of Darwin - Rural customers supplied by feeders that experienced more than 27 interruptions during 2007-08 decreased to a historic low of 10%, a significant improvement on the 2006-07 result of 52% and the historic average of 53%.

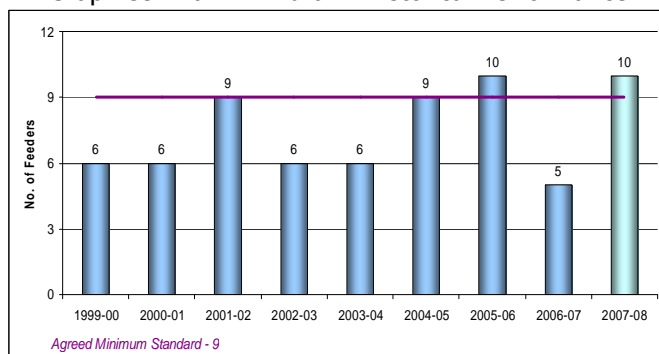
The percentage of Katherine customers supplied by feeders that experienced more than 27 interruptions during 2007-08 decreased below the historic average of 26% to record a final result of 5%.

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

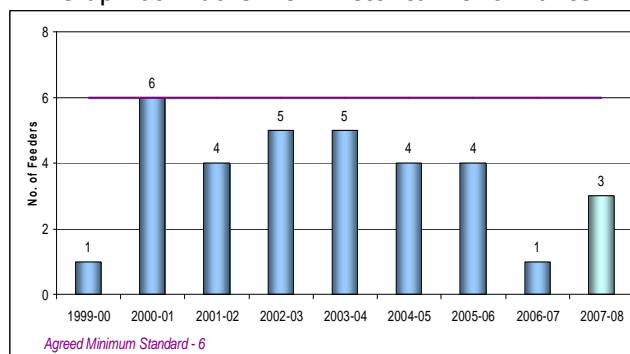
| Region         | Agreed Minimum Standard | Power and Water's Actual Performance            |  |  |  |                   |
|----------------|-------------------------|---|--|--|--|-------------------|
|                |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| Darwin – Rural | 9                       | 1   | 1  | 8  | 0  | 10                |
| Katherine      | 6                       | 0   | 2  | 0  | 1  | 3                 |
| Tennant Creek  | 3                       | 0   | 0  | 0  | 0  | 0                 |

Power and Water met the agreed minimum standard in Katherine and Tennant Creek, but was outside the standard in the Darwin - Rural region by one feeder. Graphs 59 to 60 show Power and Water's historical performance against this indicator.

Graph 59: Darwin–Rural – Historical Performance



Graph 60: Katherine – Historical Performance



The number of Darwin - Rural feeders that experienced more than 2,500 minutes of interruptions during 2007-08 exceeded the agreed minimum standard by one. This is only the second time that this indicator has not been met.

The performance against this indicator in Katherine saw an increase of two feeders compared to the 2006-07 result (which had been the best outcome in seven years), but was still within the agreed standard.

### Feeder Reliability Initiatives

Power and Water is implementing several initiatives to improve reliability of the distribution network. These include:

- The implementation of a more comprehensive and strategically managed condition monitoring program to ensure maintenance is completed on an as required and when needed basis. This is intended to reduce the number of faults in the system.
- More active monitoring of feeder performance. Power and Water has been increasing the number of staff and expertise in its Asset Management Group and is approaching a position whereby the monitoring and analysis of feeder performance is in line with internal and external reporting requirements so that efforts can be made to curb poor performance before the feeder reaches the threshold of a poor performing feeder.
- The above will be the driver for the feeder upgrade program which continues to run. This program was initiated in 2003 with the focus on replacing insulators and crossarms, with the insulator upgrade program nearing completion. The program has been widened to accommodate the installation of re-closers and upgrade work to minimise faults or improve system security of both overhead and underground feeders. Programs are generated as required on the analysis of outage and/or fault data.
- Power and Water has also commenced installing lightning arrestors more strategically within its overhead distribution system to reduce re-closes and outages caused by lightning.
- The Darwin undergrounding program is continuing. This provides immediate improvement to those customers who have been transferred to underground supply. Rapid Creek and Millner are due for completion in December 2009.

- The replacement of aging assets in the distribution systems is also in progress. At present the programs are focusing on the two oldest types of switching apparatus Power and Water has in its system.

### 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.*

| NT Wide       | Agreed Minimum Standard | Power and Water's Actual Performance            |  |  |  |                   |
|---------------|-------------------------|---|--|--|--|-------------------|
|               |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| Northern      |                         | 174   | 230  | 277  | 120  | 801               |
| Katherine     |                         | 31  | 93   | 43   | 27   | 194               |
| Tennant Creek |                         | 2   | 10   | 7  | 7  | 26                |
| Southern      |                         | 24  | 23   | 27   | 22   | 96                |
| All Customers | n/a                     | 231   | 356  | 354  | 176  | 1,117             |

Regional data for this indicator is presented for the first time, with comparisons possible in future years as a time series is established.

### 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            |  |  |  |                   |
|---------------|-------------------------|---|--|--|--|-------------------|
|               |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| All Customers | 2%                      | 1%  | 1%   | 1%   | 1%   | 1%                |

Power and Water met the agreed minimum standard.

*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            |  |  |  |                   |
|---------------|-------------------------|---|--|--|--|-------------------|
|               |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| All Customers | 10%                     | 13%   | 13%  | 22%  | 17%  | 16%               |

Power and Water did not achieve the minimum standard for services across the Territory. This was largely attributable to the sustained increase in the number of new connections and a shortage in contractor availability. There was also an increase in connections in semi-rural areas and due to travel and distance it was logistically more efficient to wait until several requests had been received for an area.

*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            |  |  |  |                   |
|---------------|-------------------------|---|--|--|--|-------------------|
|               |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| All Customers | 35%                     | 43%   | 12%  | 36%  | 35%  | 32%               |

Power and Water met the agreed minimum standard.

*(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            |  |  |  |                   |
|---------------|-------------------------|---|--|--|--|-------------------|
|               |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| All Customers | 58,679                  | 22,734  | 18,724   | 15,228   | 21,767   | 78,453            |
| All Customers | 63%                     | 71%   | 57%  | 40%  | 63%  | 58%               |

Power and Water met the agreed minimum standard in 2006-07, however in 2007-08 the performance of the call centre was significantly affected by a high staff turnover in the second and third quarters. It is noted that in the months when call centre staff levels fall below eight, the average grade of service dropped under 50%.

To help alleviate this issue in 2008-09, overflow staff have been established at front counters and Q-master, the new call centre IT system, has been implemented. Q-master is expected to provide efficiencies such as skills based routing and call back capabilities.

*(c) the number of customer complaints*

| NT Wide              | Agreed Minimum Standard | Power and Water's Actual Performance            |  |  |  |                   |
|----------------------|-------------------------|---|--|--|--|-------------------|
|                      |                         | 1 <sup>st</sup> Quarter<br>Jul 07 to<br>Sept 07 | 2 <sup>nd</sup> Quarter<br>Oct 07 to<br>Dec 07 | 3 <sup>rd</sup> Quarter<br>Jan 08 to<br>Mar 08 | 4 <sup>th</sup> Quarter<br>Apr 08 to<br>Jun 08 | Annual<br>2007-08 |
| Darwin               |                         | 264   | 407  | 615  | 492  | 1778              |
| Katherine            |                         | 27  | 26   | 30   | 38   | 121               |
| Tennant Creek        |                         | 6   | 9  | 14   | 13   | 42                |
| Alice Springs        |                         | 83  | 90   | 99   | 119  | 391               |
| <b>All Customers</b> | <b>5,146</b>            | <b>380</b>                                      | <b>532</b>                                     | <b>758</b>                                     | <b>662</b>                                     | <b>2,332</b>      |

Power and Water met the agreed minimum standard. Regional data for this indicator is also presented for the first time, with comparisons possible in future years as a time series is established.

## **5 CONSECUTIVE BREACHES**

Consecutive breaches (based on adjusted data) of the agreed minimum standards were only reported for three of the 46 performance indicators: Darwin Network CAIDI, Tennant Creek Generation CAIDI and new connections not provided to new subdivisions in urban areas within five working days.

As discussed above, Power and Water has either commenced or is continuing a number of initiatives aimed at improving feeder and hence network reliability, thereby reducing the frequency and duration of outages experienced by customers. Meanwhile, the sustained increase in the number of new connections in urban areas and a shortage in contractor availability during 2007-08 were responsible for Power and Water not being able to connect as many new subdivisions within five working days as set by the standard. The number of new subdivisions and Power and Water's connection timeframes are largely driven by broader economic conditions.

## **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](mailto:djuna.pollard@powerwater.com.au).