VICTORIAN ELECTRICITY DISTRIBUTION BUSINESSES

COMPARATIVE PERFORMANCE REPORT FOR CALENDAR YEAR 2009

December 2010

AUSTRALIAN ENERGY REGULATOR

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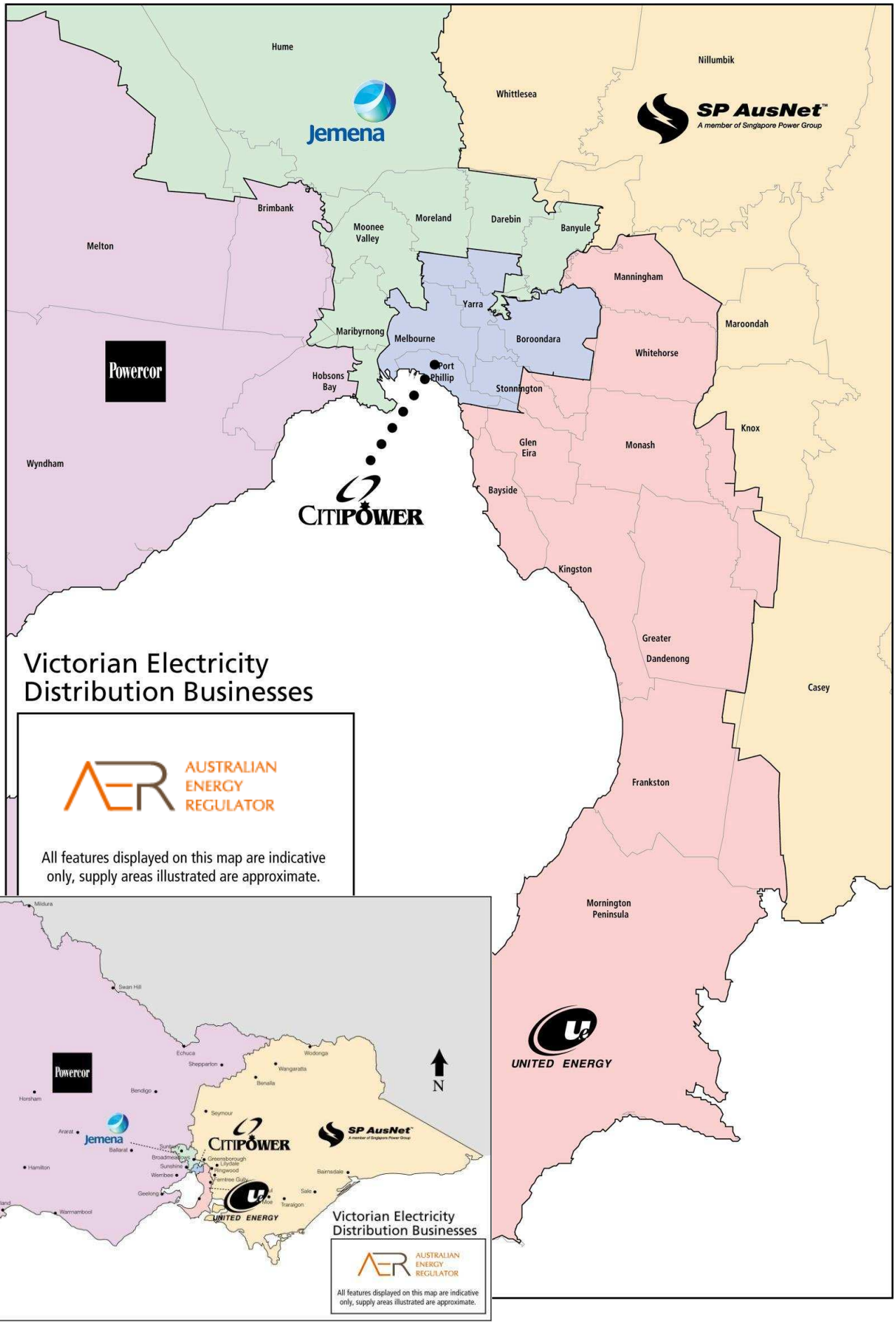
Supply Areas of Victorian Electricity Distribution Businesses



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Preface

This report provides an overview of the performance of the Victorian electricity distribution network service providers (DNSPs) during the 2009 calendar year.

Extended heatwaves and extremely high temperatures in late January and early February 2009 seriously impacted the level of supply reliability in Victoria. Temperatures in Melbourne exceeded 43 degrees Celsius for three days in a row from 28 to 30 January 2009. Approximately one week later, on 7 February 2009 (black Saturday) when the most devastating bushfires hit Victoria, temperatures in Melbourne reached a record 46.6 ^{o}C.

The heatwaves resulted in higher power usage, and coupled with transmission and distribution network faults and outages, including the unavailability of the Bass Link connection to Tasmania, a series of load shedding events was initiated during these periods in order to maintain the integrity of the power system.

This resulted in the heatwaves contributing to a significant deterioration in performance against supply reliability measures. Overall, with the inclusion of the heatwave and related events, DNSPs in 2009 reported that:

- the total minutes-off-supply the average customer experienced was 255, or 12 per cent more than in 2008
- the total number of sustained interruption experienced by the average customer was 2.53, or 41 per cent more interruptions than in 2008
- 7.8 per cent of customers experienced greater than 10 hours without supply, which was greater than the 6.8 per cent in 2008
- the number of customer appointments not met on time, connections not made on the agreed date and streetlights not repaired within the agreed time increased
- the amount of payments made by DNSPs to customers for low supply reliability increased from approximately $2.24 million in 2008 to $11.28 million
- the number of customer complaints increased from 0.94 per 1000 customers to 1.1.

Even after these extreme events are removed from performance measures, the results indicate a deteriorating trend in the overall level of supply reliability from 2005. The AER has introduced a stronger service incentive to promote better reliability of supply from 2011, and will continue to monitor and report on DNSP's performance under the new requirements.

The role of the Australian Energy Regulator

As part of the transition to national regulation of electricity distribution and retailing, the Australian Energy Regulator (AER) is now responsible for exercising certain powers and functions previously undertaken by the Essential Services Commission of Victoria (ESCV) for the Victorian jurisdiction. The new responsibilities are conferred on the AER by the operation of the National Electricity (Victoria) Act 2005 (NEVA) in accordance with the Trade Practices Act 1974 and the Australian Energy Market Agreement.

The current Victorian distribution network revenue and service level targets were set by the ESCV for the current regulatory control period (2006–10). The NEVA delegates power to the AER to administer the ESCV's Electricity Distribution Price Review 2006–10 Final Decision (EDPR) under the Victorian regulatory framework. This expires on 31 December 2010.

The AER has set the revenue and service levels for the 2011–15 regulatory control period under the National Electricity Rules. Information about the AER's 2011–15 distribution determination is available from the AER's website.[1]

In addition to the administration of the EDPR, the NEVA confers economic regulatory functions, powers and duties on the AER regarding compliance monitoring and enforcement of the Electricity Distribution Licence conditions of the Victorian electricity distribution network service providers (DNSPs). This includes the monitoring of the service performance levels provided by the DNSPs. Public reporting of performance of these monopoly businesses is one of the key elements that underpins the economic regulatory frameworks under both the Victorian system as well as under the national framework. Therefore, the AER decided to continue the performance reporting system of the ESCV until the end of the 2006–10 regulatory period.

This report is prepared by the AER under the Victorian regulatory framework as a continuation of the series of performance reports previously published by the ESCV. The AER is developing a new reporting framework for DNSPs under the National Electricity Rules which will apply in the 2011–15 regulatory control period.

Previous reports published by the AER and the ESCV are available from:

- http://www.aer.gov.au/content/index.phtml/itemId/731983
- www.esc.vic.gov.au/public/Energy/Regulation+and+Compliance/Performance+Reports/.

[1] At www.aer.gov.au/content/index.phtml/itemId/718202.

Purpose of this report

This report covers the supply reliability and quality, customer service and profitability for the 2009 regulatory year of the five Victorian DNSPs: Jemena Electricity Networks[2], CitiPower, Powercor, SP AusNet[3] and United Energy. It provides an overview of the operating environment of these DNSPs and summarises their performance against the financial assumptions and service standards underlying their respective revenue determinations for this period.

Annual DNSP performance reports provide customers with comprehensive information about the services they receive, and promote better service by comparing and encouraging each DNSP to improve its performance relative to other DNSPs.

Controls on DNSPs' prices were fixed for the 2006–10 regulatory period under the 2006–10 EDPR. If a DNSP outperforms the financial assumptions underpinning these price controls, it may retain the resulting increase in profits for a period. The AER has taken into consideration the cost reductions and other efficiency gains made by the DNSPs in the 2006–10 regulatory period in making its determination for the 2011–15 regulatory control period. Encouraging DNSPs to improve their efficiency, benefits both the businesses (through the retention of increased earnings) and consumers (through lower prices charged in subsequent regulatory control periods).

The 2006–10 EDPR has a financial incentive scheme to promote and encourage the DNSPs to meet and exceed the target levels of reliability. The scheme contains:

1. A service term (S factor) in the price control formula, in the form of (1+CPI)(1−X)(1+S factor). If a DNSP provides an average level of reliability better than the target levels, then its distribution revenue will rise in subsequent years. If reliability is worse than the target levels, the revenue will fall. The S factor is based on DNSPs' average performance in the preceding years.
2. Guaranteed Service Level (GSL) payments to customers for low reliability. Customers are entitled to receive a payment if they experience more than the specified number of supply interruptions, or more than the specified hours of supply interruptions, in a calendar year.

The GSL scheme is designed to direct DNSPs' attention to the worst served customers.

Comparisons of the financial or operational performance levels achieved by the Victorian DNSPs must allow for basic differences across the networks. The ESCV accounted for these differences, including the diverse geographic and other environmental factors, when setting the reliability targets in the EDPR.

This structure of this report is arranged as follows:

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[2] Prior to August 2008 Jemena was known as Alinta AE. It was known as AGL Electricity Ltd before 2006.
[3] SP AusNet is the trading name of SPI Electricity Pty Ltd.

- Chapter 1 provides a summary of the DNSPs' financial and service level performance during 2009, as contained in this report.

- Chapter 2 outlines DNSPs' reported financial performance for 2009 against the original 2004 forecasts, modified for the advanced metering infrastructure rollout.

- Chapter 3 details the levels of reliability and quality of supply, and DNSPs' performance against targets set in the price review.

- Chapter 4 describes the standard of service delivered to customers.

- Chapter 5 presents the health card report of the DNSPs.

- Chapter 6 reports on DNSPs' call centres' performance during the five busiest days of 2009.

- Appendixes contain more detailed financial and operational performance information.

1 Summary

This report presents the 2009 financial and service quality performance of Victoria's five electricity distribution network service providers (DNSPs): Jemena Electricity Networks, CitiPower, Powercor, SP AusNet[4], and United Energy Distribution. The report also provides details of the DNSPs' progressive performance trends over the regulatory period of the Electricity Distribution Price Review 2006–10 (EDPR) and, where relevant, the previous 1996–00 and 2001–05 regulatory periods.

This section provides an overview of the DNSPs' profitability, and their services delivered to customers in 2009, in terms of the levels of supply reliability, quality of electricity supply, Guaranteed Service Level (GSL) payments made to customers, level of customer complaints and call centre performance.

1.1 Profitability

Largely continuing the trend that prevailed throughout the 2001–05 regulatory period and in the 2006–10 regulatory period, most DNSPs reported higher actual returns on their regulated assets than forecast for 2009, the exception being SP AusNet. The forecasted amounts are outlined in the 2006–10 EDPR and adjusted to account for the roll out of advance metering infrastructure.

- Jemena earned a return of 8.6 per cent compared to a forecast of 5.2 per cent
- CitiPower earned a return of 8.9 per cent compared to a forecast of 5.9 per cent
- Powercor earned a return of 9.2 per cent compared to a forecast of 5.3 per cent
- United Energy earned a return of 7.3 per cent compared to a forecast of 6.2 per cent.
- SP AusNet reported lower actual returns than forecast for 2009 and earned a return of 5.0 per cent compared to a forecast of 5.5 per cent.

The following are the key reasons for the difference between actual and forecast returns:

- All DNSPs except for SP AusNet reported higher than forecast revenue in 2009. Jemena by 11.5 per cent, CitiPower by 10.1 per cent, Powercor by 13.6 per cent and United Energy by 1.6 per cent. SP AusNet earned 1.3 per cent less than forecast.
- All DNSPs except for SP AusNet spent less on operating and maintenance in 2009 than forecast, Jemena by 12.7 per cent, CitiPower by 17.2 per cent, Powercor by

[4] SP AusNet is the trading name of SPI Electricity Pty Ltd. This report only covers SP AusNet's service levels as a DNSP. It should be noted that SP AusNet also owns and operates the electricity transmission network in Victoria. The AER reports separately on transmission network service providers' performance—see http://www.aer.gov.au/content/index.phtml?itemId=661380

14.0 per cent and United Energy by 3.9 per cent. SP AusNet spent 0.3 per cent more than forecast.

- Jemena, SP AusNet and United Energy reported higher capital expenditure than forecast by 32 per cent, 25.6 per cent and 10 per cent respectively. CitiPower spent 23.2 per cent less capital expenditure than forecast and Powercor spent 15.2 per cent less capital expenditure than forecast.

- All Victorian DNSPs in 2009, reported customer contributions for customer initiated augmentation works substantially higher than forecast for the eighth consecutive year. All of the DNSPs exceeded the forecasts by a significant margin: Jemena by 87.5 per cent, CitiPower by 285.3 per cent, Powercor by 97.9 per cent, SP AusNet by 25.6 per cent and United Energy by 10 per cent.

The following table and charts show the DNSPs' average pre-tax return on assets, revenue, operating and maintenance expenditures, and capital expenditures compared with the original forecast.

Table 1.1 Pre-tax return on DNSPs assets, 2009 (percentage)

	Forecast	Actual
Jemena	5.2	8.6
CitiPower	5.9	8.9
Powercor	5.3	9.2
SP AusNet	5.5	5.0
United Energy	6.2	7.3

Figure 1.1 Electricity DNSPs revenue (difference from forecast)

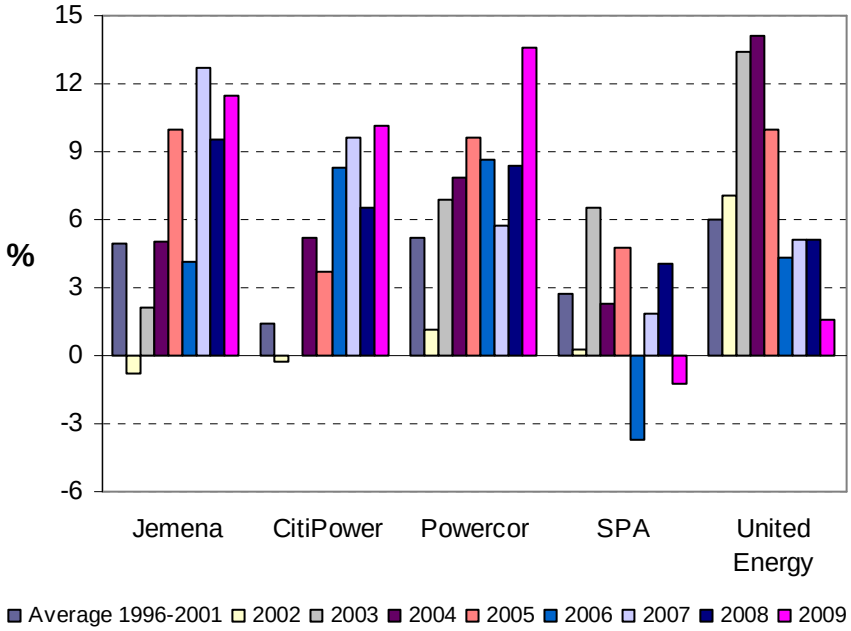


Figure 1.2 Operating and maintenance expenditure by electricity DNSPs (difference from forecast)

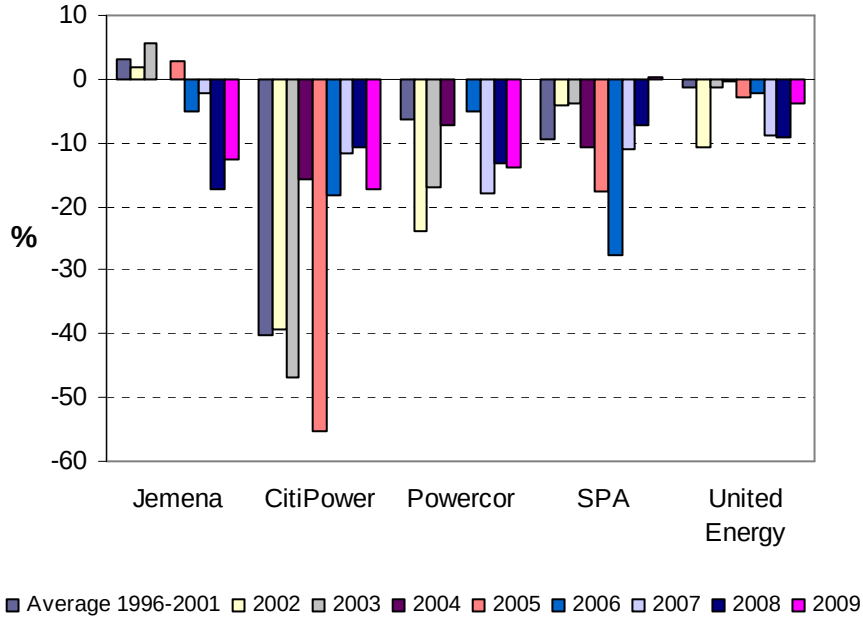
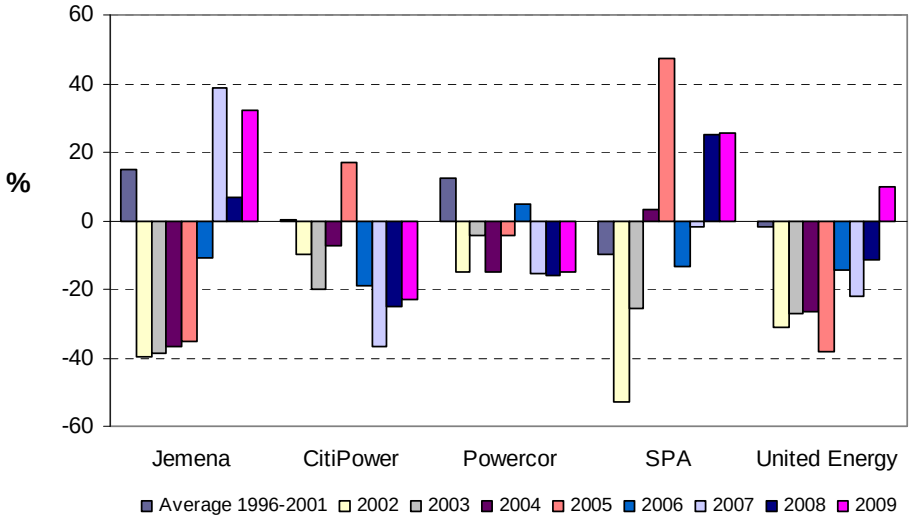


Figure 1.3 Net capital expenditure by electricity DNSPs (difference from forecast)



1.2 Reliability and quality of supply

1.2.1 State-wide

Extended heatwaves and extremely high temperatures in late January and early February 2009 seriously impacted the level of supply reliability in Victoria. Temperatures in Melbourne exceeded 43 degrees Celsius for three days from 28 to 30 January 2009. About one week later, on 7 February 2009 (black Saturday), temperatures in Melbourne reached a record 46.6 ^{o}C. [5]

The heatwave resulted in higher power usage and network faults, including the unavailability of the Bass Link to Tasmania. As a result, load shedding was necessary to keep the electricity system running.[6] In addition to the load shedding, localised distribution network failures also contributed substantially to the decline in supply reliability.

The 7 February 2009 'Black Saturday' bushfires, in addition to destroying local electricity networks in the affected areas, also caused major transmission network outages and load shedding events in the east, north and north-east of the state.

The Victorian DNSPs had a long standing trend of improving performance in terms of the number of minutes-off-supply (excluding extreme events) since accurate reporting began in 1996. However, from 2005–09, in part due to extreme storms in 2008, the January heatwave in 2009, and other unusual events, there has been an increasing trend in the number of total minutes-off-supply.

In 2009, the overall reliability of electricity supply declined in terms of the average total minutes-off-supply experienced by a Victorian customer. The average total minutes-off-supply in 2009 was around 12 per cent greater than in 2008. This translated into the greatest number of minutes-off-supply in the 13 years since accurate reporting began in 1996. United Energy was the only Victorian DNSP to report a reduction in the number of minutes-off-supply.

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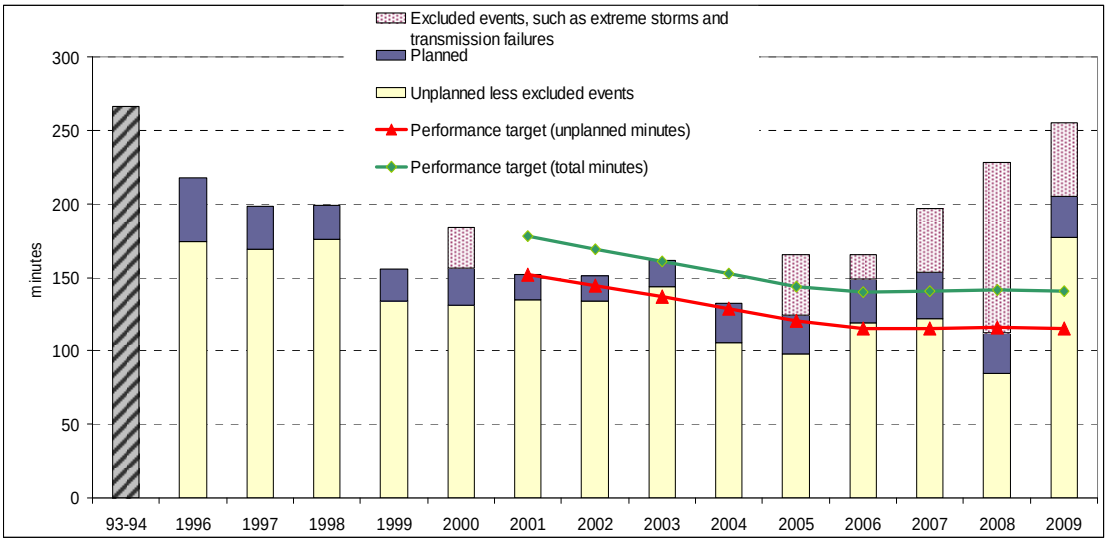
[5] Bureau of Meteorology's *Special Climate Statement 17* report.

[6] Detailed information on the issues with the power system during this heatwave event is available from AEMO's website at: http://www.aemo.com.au/reports/232-0128.html

Figure 1.4 Average total minutes-off-supply per Victorian customer



Note: Excluded events include load shedding due to lack of generation capacity, transmission network failures and exceptionally large storms.

Prior to 2000, the minimum standard for supply reliability was an average of 350 minutes-off-supply in total (250 minutes for urban customers and 500 minutes for rural customers). Prior to 2001, DNSPs' performance targets were not separated into planned and unplanned outages.

From 1996 until 2008, there was a long term trend of at least stable performance when extreme events are excluded from the performance measures. However, in 2009, the Victorian DNSPs reported worsening reliability in terms of the number of unplanned minutes-off-supply, even after excluded events are removed. The shorter term trend now appears to be for an increasing minutes-off-supply since 2005.

Removing the effects of excluded events, the Victorian DNSPs reported:

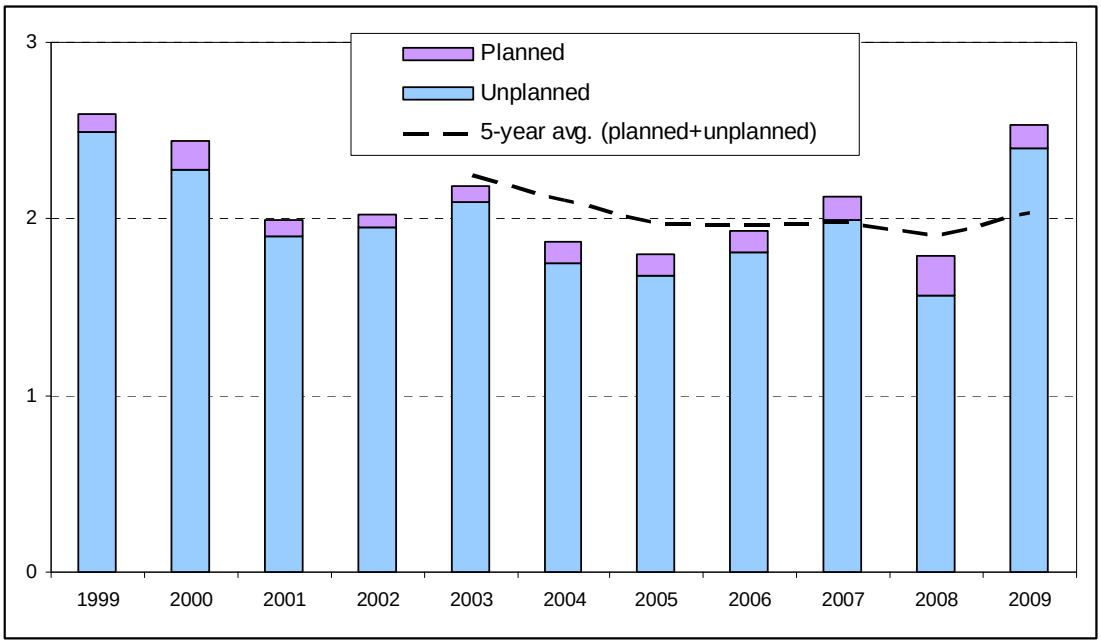
- 178 average unplanned minutes-off-supply (SAIDI) in 2009, compared to 84 minutes in 2008, representing an 111 per cent increase

- about 39 per cent increase in number of unplanned interruptions to 1.74 sustained interruptions per customer on average, reversing the previous downward improvement trend.

Section 3.1.1 provides more detail on the DNSPs' aggregate performance, and section 3.2 provides information of the DNSPs' performance against S factor targets. Section 4.2 details the GSL thresholds and payments for reliability.

Figure 1.5 shows the trend in reliability in terms of the average number of sustained supply interruptions per customer (including the effects of abnormal events).

Figure 1.5 Average number of sustained supply interruptions per customer



Before 2009, there had generally been a downward trend on the number of sustained interruptions per customer. In 2009, there was an average of 2.53 sustained interruptions per customer which was approximately 42 per cent more than in 2008—the highest level since 1999.

With excluded events removed, on average customers experienced 1.87 interruptions, 0.4 more sustained interruptions than in 2008. In 2009, the DNSPs had around 41 per cent fewer planned sustained interruption in aggregate than in 2008 although in 2009 the average duration of the planned interruptions was 69.1 per cent longer.

1.2.2 Individual DNSPs—overall reliability

In 2009, the DNSPs were affected by the late January and early February heatwaves, which had a substantial impact on reliability. However, in order to provide readers with the actual experiences of customers on average, below is a summary of the DNSPs' performance including the effect of excluded events.

- **SP AusNet** reported 366 unplanned average minutes-off-supply (around 22 per cent worse than in 2008). In total (unplanned and planned average minutes-off-supply), SP AusNet's customers experienced 419 minutes-off-supply on average. SP AusNet commented that its performance in 2009 was badly affected by the January heatwave, February bushfire (Black Saturday), three storm days in August, and a storm day in January and September. These incidents together contributed 206 minutes, which is 56 per cent of the total 366 unplanned average minutes-off-supply. In 2009, SP AusNet customers experienced 17 per cent less planned minutes off supply compared to 2008.

- **United Energy** reported 131 unplanned average minutes-off-supply (55.6 per cent better than in 2008). In total, United Energy's customers experienced 156 minutes-off-supply on average.

- **Powercor** reported 308 unplanned average minutes-off-supply (131 per cent worse than in 2008). In total, Powercor's customers experienced 335 minutes-off-supply on average.

- **Jemena** reported 130 unplanned average minutes-off-supply (12 per cent worse than in 2008). In total, Jemena's customers experienced 139 minutes-off-supply on average).

- **CitiPower** reported 63 unplanned average minutes-off-supply (40 per cent more than in 2008). In total, CitiPower's customers experienced 67 minutes-off-supply on average.

1.2.3 Individual DNSPs—reliability excluding abnormal events

In 2009, the DNSPs' networks were affected to varying degrees by extreme events such as the January heatwave and load shedding due to a shortfall in generation capacity. In addition, transmission assets can fail, which may result in customers' experiencing outages that are not caused by the DNSPs. When removing the effects of excluded events:

- **CitiPower** reported 34 total average minutes-off-supply which made it the only DNSP to outperform its target.

- **Jemena** reported 97 total average minutes-off-supply which meant it was 18 per cent above (worse than) its target.

- **Powercor** reported 216 total average minutes-off-supply. This was about 8 per cent worse than its target.

- **SP AusNet** reported 411 total average minutes-off-supply which was about 92 per cent above its target. In 2009, the number of average unplanned minutes-off-supply recorded by SP AusNet was 99 per cent greater than its target. It commented that the January heatwave and the February bushfire accounted for 24 and 106 minutes to this performance indicator.

- **United Energy** reported 129 total average minutes-off-supply. This put its performance about 62 per cent worse than its target.

More information on this can be found in section 3.2 and 3.4.

1.2.4 Quality of supply

The performance indicators show that the number of voltage variation events in 2009 was similar to that in 2008 with a few exceptions:

- **Jemena** reported 18 voltage surge events, affecting 246 customers, up from the 11 surge related events which affected 69 customers in 2008. It reported 29 over-voltage events due to poor voltage regulation which affected 2684 customers, down from the 3971 customers affected by the 46 events in 2008.

- **SP AusNet** reported 31 surge events which affected 86 customers, up from the 9 events in 2008 which affected 27 customers.

- **Powercor** reduced the number of voltage events due to poor voltage control from nine in 2008 to one in 2009.

Further information is provided in section 3.5.

1.2.5 Guaranteed service level payments

When DNSPs do not achieve a minimum standard of customer service, they are required to make GSL payments to affected customers. In aggregate:

- the DNSPs have shown a reasonably steady percentage of late appointments from 2003–09. In 2009, 74 of the appointments made by DNSPs did not commence within 15 minutes of the arranged time.

- 18.4 in every 10 000 connections were not made on the agreed date, which is slightly more than the 14.8 in every 10 000 connection reported in 2008.

- there was an increase in the percentage of streetlights not fixed by the required time from around 1.2 per cent in 2008 to 5.9 per cent. None of the DNSPs performed better in 2009 than in 2008 for this measure.

Chapter 4 provides more information on these performance measures.

1.2.6 Customer complaints

Overall, the DNSPs recorded an increase in the number of complaints received, to 1.1 complaints for every 1000 customers.

Jemena experienced the most number of customer complaints per 1000 customers in 2009, with a reported 2.4 complaints per 1000 customers. CitiPower and Powercor recorded the lowest complaints per 1000 customers of 0.14 and 0.29 respectively.

Section 4.3 provides more information on the number of complaints received.

1.2.7 Long term health assessment

The health card consists of measures to indicate whether a DNSP has implemented appropriate long term strategy and plans to ensure adequate ongoing performance. The health card indicators are defined in Table A.1 of appendix A.

- Except for CitiPower, all DNSPs have ‘orange’ rating for reliability of supply. This is reflective of the significant decline in reliability in 2009.

- CitiPower received an ‘orange’ light for bushfire mitigation because it had five priority-2 category maintenance items outstanding at the beginning of the fire season on 30 November 2009. All these priority-2 items were located in a low bushfire risk area and were completed by 20 December 2009.

- Regarding correct application of excluded service charges, Jemena, CitiPower and Powercor all received 'orange' ratings.

- The quality of supply measures for United Energy was highlighted 'orange' rating because its reported number of voltage variation events was 12 per cent higher than that of the previous year.

Chapter 5 provides more information on this performance measure.

1.2.8 Call centre performance during wide-scale events

This section focuses on the reported performance of the Victorian DNSPs' call centres on the five busiest days as measured by the total number of calls entering the fault line. These days usually occur when there are wide-scale outage events affecting a DNSP's network:

- For each DNSP's top three busiest days, the average wait times were well above the annual average. However, for the fourth and fifth busiest days of Jemena, and the fourth busiest day of United Energy, the call waiting times were below their respective annual average.

- The three days of the 28–30 January heatwave period was the busiest period for the DNSPs call centres in 2009. These three days comprised the three busiest days for CitiPower, Jemena, Powercor and United Energy and were three of the four busiest days for SP AusNet.

- The average of all DNSPs' waiting time increased by 300 per cent during 28–30 January compared to the average. The longest daily average waiting time was 13.9 minutes for Powercor's call centre on 28 January.

There is not a perfect relationship between the average total minute-off-supply and the number of calls to call centre fault lines. This is likely to be related to the timing and type of event. For instance, a short outage affecting a large number of customers may result in a different volume of calls than a prolonged outage affecting a smaller number of customers.

Section 4.4 provides more information on these performance measures.

DNSPs' annual average call centre performance measures are reported separately under the national reporting template, which are available from the AER's website.

2 Profitability

2.1 Purpose and scope

The Essential Services Commission's (ESCV) 2006–10 price review published in October 2005, controls the prices that Victorian DNSPs may charge for the distribution of electricity in the 2006–10 regulatory period, from 1 January 2006 to 31 December 2010.[7] The price review is based on financial assumptions, including:

- the level of operating and capital expenditure required to deliver the regulated services
- the revenue expected from distribution services to customers
- the returns needed to continue to attract investment capital to the regulated activities.

This section reports on the DNSPs' recent performance against these financial assumptions (modified as necessary for the advanced metering role-out), compared with their performance for the 2001–05 regulatory period. The DNSPs' performance for the previous period is of historical interest and may indicate trends in the DNSPs' expenditure.

In 2006, the Victorian Government decided that there should be a rollout of advanced interval meters to all Victorian electricity customers. The regulatory framework provides for a pass through arrangement for metering costs incurred by DNSPs, whereby metering charges are to be set with reference to a combination of actual costs and forecasts of expenditure budgets determined by the AER using a building block approach.

As such, for metering services, in the 2009 comparative performance report, the AER has used the forecasts of revenue, capital and operating expenditure from the *Final determination—Victorian advanced metering infrastructure review, 2009–11 AMI budget and charges applications*. This is a departure from previous performance reports where the forecasts for metering services reflected those contained within the ESCV's 2006–10 price review. The AER considers this adjustment is necessary to properly compare DNSPs' revenue against their forecast costs and revenue.

This report is prepared on the basis of the ESCV's reporting arrangements for the 2006–10 regulatory period and has been prepared to be, as far as practicable, consistent with the conventions used by the ESCV in preparing past performance reports. For this reason, the data presented in this report may not be entirely consistent with the data presented in the AER's Victorian electricity distribution determination 2011–15.

[7] DNSPs transport electricity along high and low voltage powerlines. The cost of distribution to customers represents approximately 40 per cent of an average residential customer's electricity bill.

DNSPs' prices for the 2006–10 regulatory period are set by the ESCV's EDPR.[8] However, if a DNSP outperforms the financial assumptions underpinning the price controls,[9] it may retain some of the resulting profits. The setting of price controls by the AER for the 2011–15 regulatory control period takes into account any cost reductions and other efficiency gains made by the DNSPs during 2006–10. This encourages the DNSPs to improve their efficiency benefits the businesses (through the retention of increased earnings) and consumers (through lower prices charged in subsequent regulatory control periods).

A principal indicator of financial performance is the comparison of each DNSP's measured return on assets (derived from providing regulated distribution services) against the forecast return for the same regulatory period. The following sections provide specific information on DNSPs' financial performance regarding:

- returns on assets
- revenue
- capital expenditure
- operating and maintenance expenditure.

2.2 Return on assets

Return on assets is a measure of each DNSP's overall financial performance in providing distribution services. An increase in revenue or a reduction in operating expenses increases the return on assets. A reduction in the level of capital expenditure reduces the regulatory value of the DNSPs' assets, resulting in an increase in the return on assets during the regulatory control period. The following formula is used to derive the return on assets:

Return on assets (per cent) =

- (Revenue – Operating and maintenance expenditure – Regulatory depreciation)

Divided by

- Average regulatory asset value

The actual return on assets has been calculated using a method consistent with that used to calculate the forecast returns in the Electricity Distribution Price Review 2006–10.

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[8] The average price that each DNSP may charge for distribution services is affected by inflation, the DNSP's service performance over the period, and the introduction of a change in certain taxes. In all other respects, it is fixed. This means a reduction in demand or a fall in operating costs,

[9] Under incentive regulation, regulated entities are permitted to continue to receive part of the benefit associated with efficiency gains from one regulatory period into the next regulatory period. This incentive is designed to ensure the businesses continue to strive for efficiency gains.

The ESCV calculates the regulatory value of each DNSP's assets by accounting for the actual capital expenditure and proceeds from the disposal of assets, adjusted for inflation and regulatory depreciation. It used this approach to establish regulatory asset values at the start of 2006 and to project them over the 2006–10 period. For the purposes of this report the AER has adjusted the regulatory asset based to account for the roll out of advanced metering infrastructure.

The ESCV adopted a real after-tax return on assets of 5.9 per cent for the 2006–10 regulatory period, reflecting its estimate of the returns required to attract equity and debt finance into the industry. To obtain an accurate basis for comparison with the DNSPs' calculated returns, three points must be considered:

- The returns on assets presented in this report are expressed in pre-tax terms. To derive the implied post-tax return, the allowance made for taxation in the forecast returns must be added.

- The assumptions in the price controls include a share of the benefits associated with cost reductions achieved by the DNSPs for 2001–05 (efficiency carryover). The after-tax return on assets must reflect these assumptions.

- The process of setting the price controls includes a smoothing of the DNSPs' revenue over the regulatory period. Expected returns may, therefore, be higher than the average in some years and lower in others.

Table 2.1 shows the average real pre-tax returns expected for 2006–10 at the time of the price review, reflecting the first and second considerations.[10]

Table 2.1 Expected real pre-tax return on assets, 2006–10 (per cent)

	After-tax return	Tax allowance	Efficiency carryover	Total
Jemena	5.9	0.5	0.3	6.7
CitiPower	5.9	0.5	0.3	6.7
Powercor	5.9	0.4	0.0	6.3
SP AusNet	5.9	0.5	0.4	6.8
United Energy	5.9	0.4	0.5	6.7

[10] The returns described are the real returns the distributors are expected to receive, that is, the return in addition to compensation for inflation. For example, a return of 7 per cent on top of inflation at 2.5 per cent would give a total (nominal) return of about 9.7 per cent.

Table 2.2 shows that all DNSPs except SP AusNet earned returns above forecast in 2009:

- Jemena earned a return of 8.6 per cent compared to a forecast of 5.2 per cent
- CitiPower earned a return of 8.9 per cent compared to a forecast of 5.9 per cent
- Powercor earned a return of 9.2 per cent compared to a forecast of 5.3 per cent
- United Energy earned a return of 7.3 per cent compared to a forecast of 6.2 per cent.
- SP AusNet reported cent lower actual returns than forecast for 2009 and earned a return of 5.0 percent compared to a forecast of 5.5 per cent.

The following are the key reasons for the difference between actual and forecast returns:

- All DNSPs except for SP AusNet reported higher than forecast revenue in 2009. Jemena by 11.5 per cent, CitiPower by 10.1 per cent, Powercor by 13.6 per cent and United Energy by 1.6 per cent. SP AusNet earned 1.3 per cent less than forecast.
- All DNSPs except for SP AusNet spent less on operating and maintenance in 2009 than forecast, Jemena by 12.7 per cent, CitiPower by 17.2 per cent, Powercor by 14.0 per cent and United Energy by 3.9 per cent. SP AusNet spent 0.3 per cent more than forecast.
- Jemena, SP AusNet and United Energy reported higher capital expenditure than forecast by 32 per cent, 25.6 per cent and 10 per cent respectively. CitiPower spent 23.2 per cent less capital expenditure than forecast and Powercor spent 15.2 per cent less capital expenditure than forecast.
- All Victorian DNSPs in 2009, reported customer contributions for customer initiated augmentation works substantially higher than forecast for the eighth consecutive year. All of the DNSPs exceeded the forecasts by a significant margin: Jemena by 87.5 per cent, CitiPower by 285.3 per cent, Powercor by 97.9 per cent, SP AusNet by 25.6 per cent and United Energy by 10 per cent.

Table 2.2 Pre-tax return on distribution assets, 2009 (per cent). Percentage, based on 2009 reported asset values

	Forecast	Actual
Jemena	5.2	8.6
CitiPower	5.9	8.9
Powercor	5.3	9.2
SP AusNet	5.5	5.0
United Energy	6.2	7.3

Figures 2.1–2.5 show each DNSP's actual returns compared with the forecast pre-tax returns over the period from 1997–09. The figures show that the actual returns on assets of all DNSPs, except SP AusNet exceeded their forecast for 2009.

Figure 2.1 Jemena pre-tax return on distribution assets

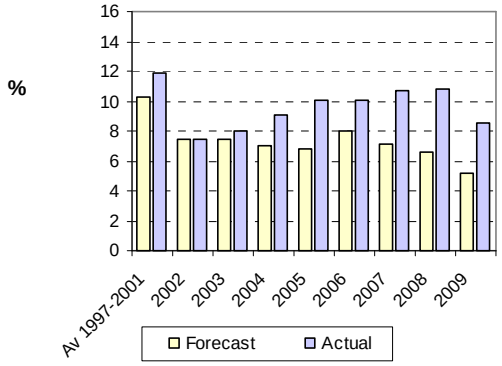


Figure 2.2 CitiPower pre-tax return on distribution assets

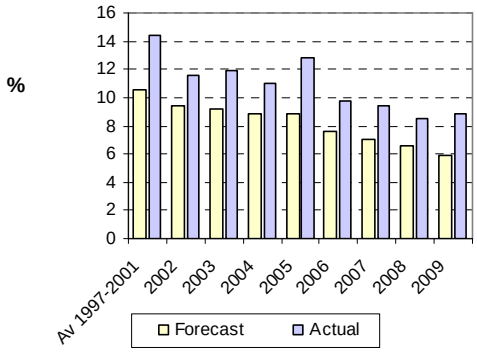


Figure 2.3 Powercor pre-tax return on distribution assets

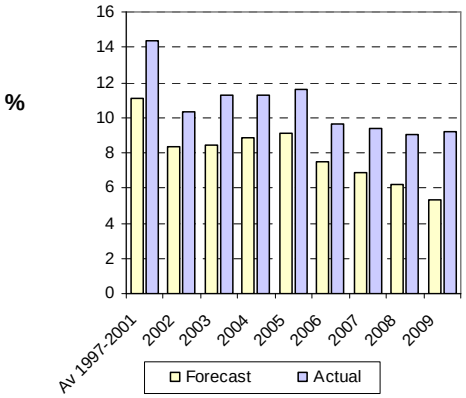


Figure 2.4 SP AusNet pre-tax return on distribution assets

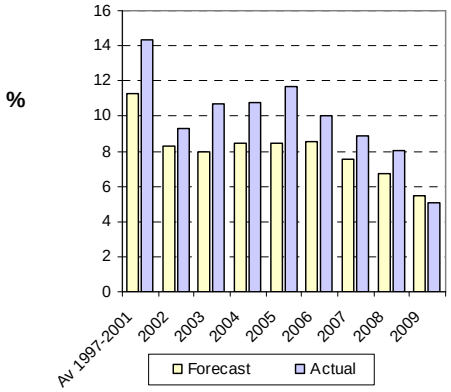
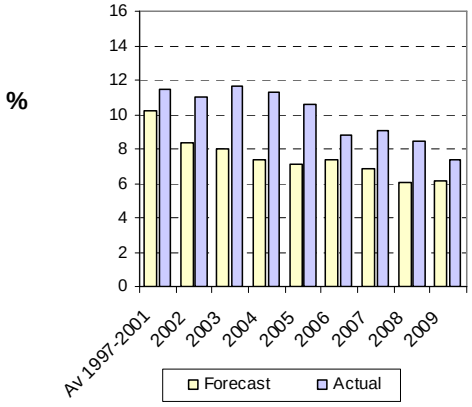


Figure 2.5 United Energy pre-tax return on distribution assets

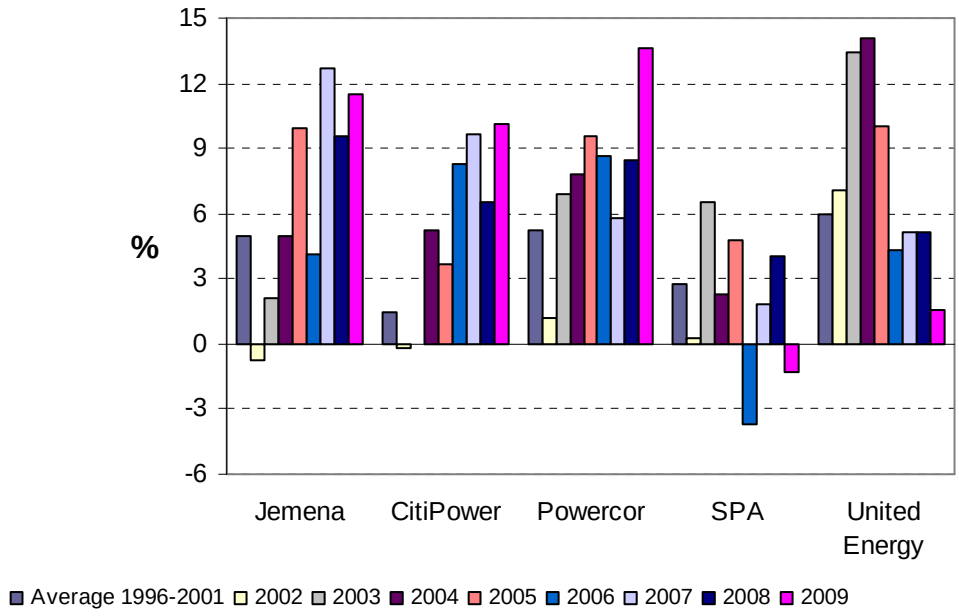


2.3 DNSP revenue

The energy distributed by the electricity DNSPs substantially governs the revenue they receive. Figure 2.6 and figure 2.7 show the distribution revenue earned and energy distributed, in terms of the variance between the forecast and actual amounts each year.[11] Figure 2.6 shows that all DNSPs except for SP AusNet reported higher than forecast revenue in 2009. Jemena by 11.5 per cent, CitiPower by 10.1 per cent, Powercor by 13.6 per cent and United Energy by 1.6 per cent. SP AusNet earned 1.3 per cent less than forecast.

SP AusNet commented that unfavourable weather conditions in 2009 accounted for about 0.8 per cent of the below forecast energy sale; and that original forecast error also contributed to the variation.

Figure 2.6 DNSPs' revenue (difference from forecast)[a]



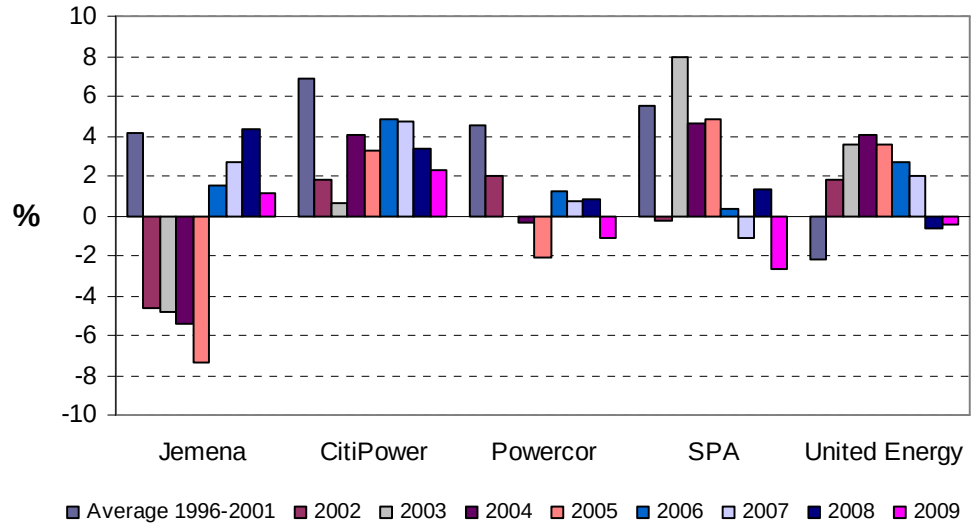
[a] DNSPs' forecast revenues does not include impact of S factor adjustment; whereas the actual revenue reported in the regulatory accounts include S factor impact.

Figure 2.7 shows that two DNSPs distributed more energy in 2009 than forecast. Jemena by 1.1 per cent, CitiPower by 2.3 per cent. Three DNSPs distributed less

[11] Some variance between forecast and actual distribution revenue may result from adjustments for over recovery or under recovery of transmission costs for previous years. These adjustments affect the DNSPs' year-on-year returns, but their net effect will be zero in the longer term

electricity than forecast, Powercor distributed 1.1 per cent less than forecast, SP AusNet distributed 2.7 per cent less than forecast and United Energy distributed 0.4 per cent less than forecast.

Figure 2.7 Energy distributed by DNSPs (difference from forecast)

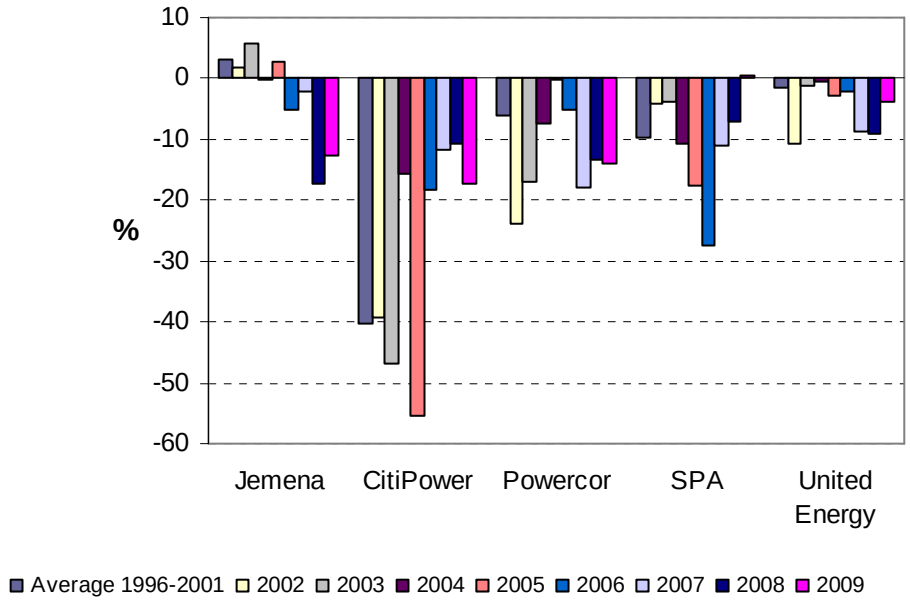


2.4 DNSP expenditures

2.4.1 Operating expenditure

Figure 2.8 compares actual and forecast operating expenditure under the price review. It details the differences between the DNSPs' actual and forecast operating and maintenance expenditures. The figure shows that all of the DNSPs, except SP AusNet, spent less on operating and maintenance in 2009 than forecast. Jemena spent 12.7 per cent less than forecast, CitiPower spent 17.2 per cent less than forecast, Powercor spent 14.0 per cent less than forecast and United Energy spent 3.9 per cent less than forecast. SP AusNet spent 0.3 per cent more than forecast on operating and maintenance expenses.

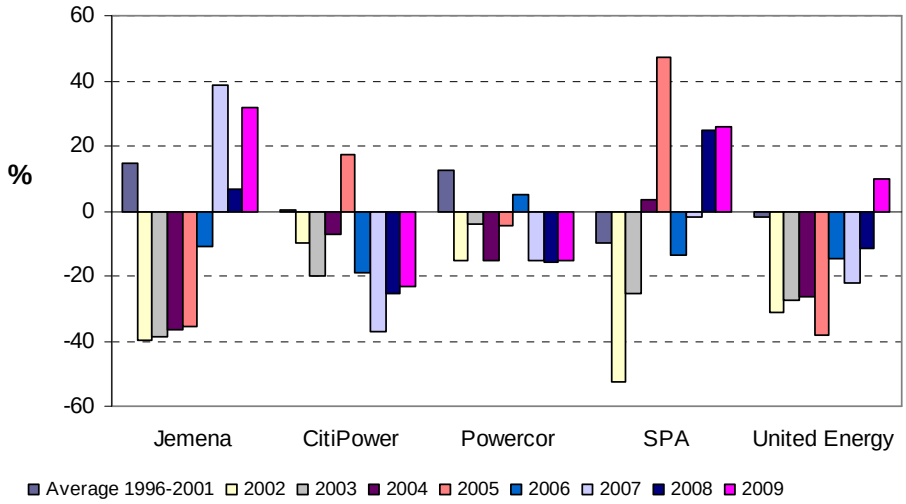
Figure 2.8 Operating and maintenance expenditure by DNSPs (difference from forecast



2.4.2 Capital expenditure

Figure 2.9 shows the difference between DNSPs' actual and forecast capital expenditure. The capital expenditure reported is the portion that the DNSPs finance; it excludes the value of any assets paid for by customers. CitiPower and Powercor both spent less than forecast on capital expenses. CitiPower spent 23.2 per cent less than forecast and Powercor spent 15.2 per cent less than forecast. Jemena, SP AusNet and United Energy spent more than forecast on capital expenses. Jemena spent 32.0 per cent more than forecast, SP AusNet spent 25.6 per cent more than forecast and United Energy spent 10 per cent more than forecast.

Figure 2.9 Net capital expenditure by DNSP (difference from forecast)

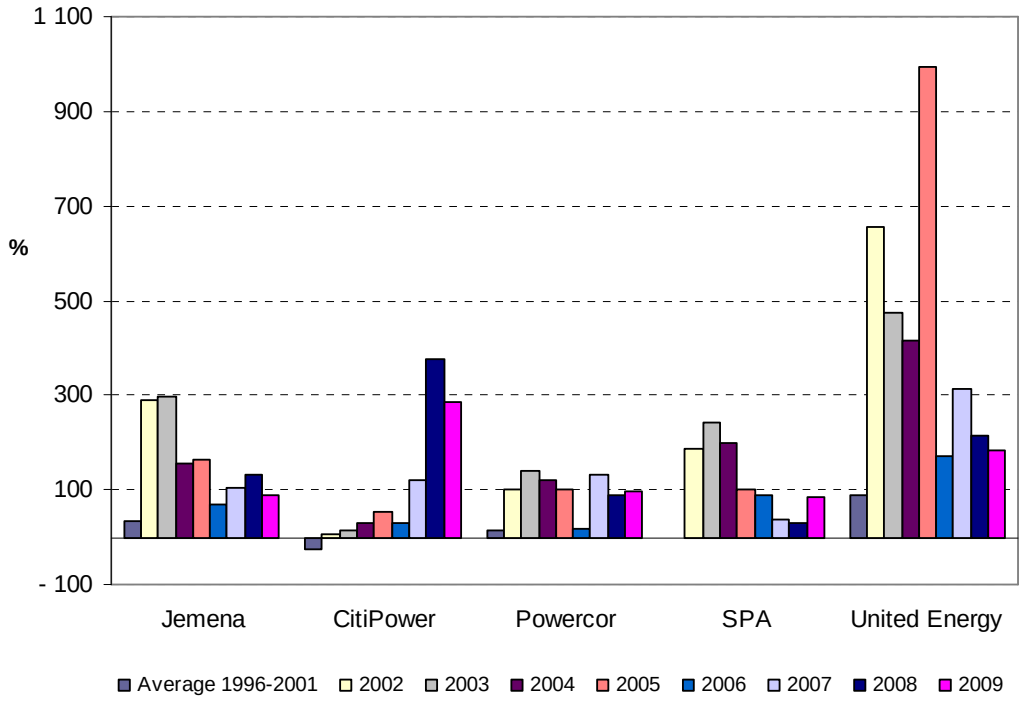


DNSPs can obtain a contribution from customers towards the costs of capital works under the ESCV's Electricity industry guideline No. 14: provision of services by electricity DNSPs.[12] This applies when the works are required to enable an increase in the customer's use of the network (for example, an industrial customer expanding operations), or to connect a new subdivision to the grid. An increase in the level of customer contributions may reduce the DNSP's capital expenditure requirement, which may be reflected as an efficiency gain because it increases the measured return on assets.

Figure 2.10 shows the difference between forecast and actual customer contributions for customer initiated augmentation works. This figure shows that all five DNSPs reported customer contributions in 2009 substantially higher than forecast for the eighth consecutive year. All of the DNSPs exceeded the forecasts by a significant margin: Jemena by 87.5 per cent, CitiPower by 285.3 per cent, Powercor by 97.9 per cent, SP AusNet by 25.6 per cent and United Energy by 10 per cent.

12 Under the ESCV's guideline no. 14, customers are required to pay only the difference (if any) between the incremental cost of the capital works and the incremental distribution network tariff revenue arising from those works.

Figure 2.10 Customer contributions to the cost of capital works (difference from forecast)



3 Reliability and quality of supply

This part of the report addresses:

- the reliability of supply and the customers' experience of supply interruptions, across the state as a whole and in the five DNSPs' supply areas
- DNSPs' performance levels compared to the reliability targets set under the price review
- the quality of supply experienced by customers.

3.1 Reliability of supply

Some interruptions—or outages—are inevitable and customers cannot be guaranteed continuous supply. Planned outages occur when a DNSP needs to disconnect supply to undertake maintenance or construction works. The Electricity Distribution Code requires that DNSPs give customers a minimum of four business days written notice of a planned outage. Year-on-year variance in planned minutes-off-supply is directly related to the maintenance and capital works activities undertaken by a DNSP.

When the supply is disconnected unexpectedly it is known as an unplanned outage. These outages are caused by external factors such as lightning and other weather events, trees, birds, possums, vehicle impacts and vandalism, or by equipment failure due to overload and general deterioration. Unplanned outages typically have a greater effect on customers than planned outages, because customers have no warning to take the necessary action to manage the impact of the supply interruption.

The key measures for supply reliability are:

- minutes-off-supply, or the total minutes that a customer could expect to be without electricity over the reporting period
- interruption frequency, or the number of times that a customer could expect to experience supply interruptions in a year
- interruption duration, or the average time taken to restore supply to a customer when an interruption occurs
- momentary interruption frequency, or the number of interruptions of less than one minute that a customer could expect in a year.

A DNSP's reliability of supply is influenced through a financial incentive scheme, which encourages the DNSPs to meet and exceed the target levels of reliability. The scheme contains two key elements:

1. A service term (S factor) in the price control formula, in the form of (1+CPI)(1−X)(1+S factor)

   If a DNSP provides an average level of reliability better than the target levels, then its distribution revenue will rise in subsequent years. If reliability is worse than the target levels, then the revenue will fall. The S factor is based on DNSPs' average performance.

2. Guaranteed Service Level (GSL) payments to customers for low reliability

   Customers are entitled to receive a payment if they experience more than the specified number of supply interruptions, or more than the specified hours of supply interruptions, in a calendar year. The GSL scheme is designed to direct DNSPs' attention to the worst served customers.

For the 2006–10 regulatory period, S factor elements and GSL rates were substantially increased to provide greater incentives to reliability. The previous rates were between $4000 and $11 000 per megawatt hour (MWh) of unserved energy, to reflect the DNSPs' marginal costs of network improvements. The rate for 2006–10 is based on the 2002 Victorian Energy Network Corporation study of customers' valuation of supply reliability and is set at $30 000 per MWh for all customers outside the central business district (CBD) and $60 000 per MWh within the CBD.[13] The GSL payment rates have been increased around fourfold.

Based on information from the DNSPs, the rest of this section covers supply reliability in the following contexts:

- state-wide (section 3.1.1)—the general trend of reliability of supply in Victoria
- each DNSP (section 3.2)—a comparison of the average performance of each DNSP with its peers, across all of its network types
- supply areas (section 3.3)—the general level of supply reliability of all bulk supply points (zone substations) of each DNSP
- distribution feeders (section 3.3.2)—the levels of supply reliability of each category of the distribution feeders (CBD, urban and rural) of the DNSPs. It provides an overall picture of the relative reliability across CBD, urban and rural supply areas of the DNSPs.

3.1.1 State-wide

The Victorian DNSPs had a long standing trend of improving performance in terms of the number of minutes-off-supply since accurate reporting began in 1996. However, from 2005 to 2009—in part due to extreme storms in 2008, the January heatwave in

[13] The value of customer reliability for the 2011–15 regulatory control period has again been significantly increased. This will increase the strength of the incentives placed on DNSPs to improve supply reliability. Further information can be found in the AER's Service Target Performance Incentive Scheme, available at http://www.aer.gov.au/content/index.phtml/itemId/718820

2009 and other unusual events—the total minutes-off-supply has had an increasing trend.

In 2009, the overall reliability of electricity supply declined in terms of the average total minutes-off-supply experienced by a Victorian customer. The average total minutes-off-supply in 2009 was around 12 per cent greater than in 2008.
United Energy was the only Victorian DNSP to report a reduction in the number of minutes-off-supply in 2009.

3.1.1.1 Removing excluded events

When extreme events are excluded from the DNSPs' performance, until 2008 there was still a general trend of improving performance. However, in 2009 the Victorian DNSPs reported worsening reliability in terms of the number of minutes-off-supply, even when excluded events are removed.

Figure 3.1 shows the pattern in supply reliability over the past 15 years in relation to the ESCV's targets for annual improvements in unplanned and total minutes-off-supply. These targets are set in terms of average duration of interruptions experienced by customers across Victoria on average.

In terms of total average minutes-off-supply, Victorian DNSPs were approximately 82 per cent above their targets in aggregate. In 2008, the DNSPs were about 62 per cent above their targets.

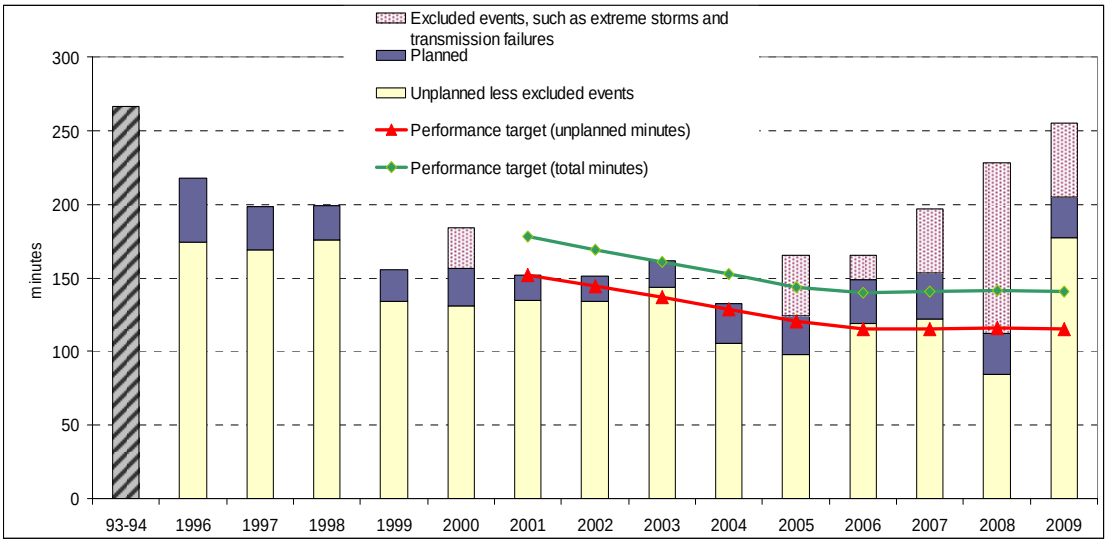
The Victorian DNSPs reported a total average unplanned minutes-off-supply increase of around 111 per cent from 2008. Each of the DNSPs reported an increase in the average minutes-off-supply on their respective networks. This translated into the greatest number of minutes-off-supply in the 13 years since accurate reporting began in 1996.

The results of 2009 were in stark contrast from those in 2008 when the DNSPs had their best results since accurate reporting in began, recording 84 average unplanned minutes-off-supply. In 2009, the DNSPs recorded their worst performance with a total 178 average unplanned minutes-off-supply per customer.

SP AusNet had the greatest percentage increase in total minutes-off-supply when removing excluded events of 113 per cent. CitiPower recorded the lowest number of total minutes-off-supply without excluded events of 34, however, Jemena had the lowest percentage increase from 2008 of 30 per cent. CitiPower was the only DNSP to beat its individual unplanned minutes-off-supply performance target. SP AusNet performed the worst in terms of its percentage of total minutes-off-supply above its target performing around 92 per cent above its target.[14] The DNSPs did not provide specific reasons why performance after excluded events deteriorated. The impact of excluding wide scale events is discussed more in section 3.4.

[14] SP AusNet commented that the February bushfires and several storms in August contributed significantly to the increase in unplanned minutes-off-supply.

Figure 3.1 Average total minutes-off-supply per Victorian customer



Note: Excluded events include load shedding due to lack of generation capacity, transmission network failures and exceptionally large storms.

Prior to 2000, the minimum standard for supply reliability was an average of 350 minutes-off-supply in total (250 minutes for urban customers and 500 minutes for rural customers). Prior to 2001, DNSPs' performance targets were not separated into planned and unplanned outages.

Figure 3.2 Average number of sustained supply interruptions per customer

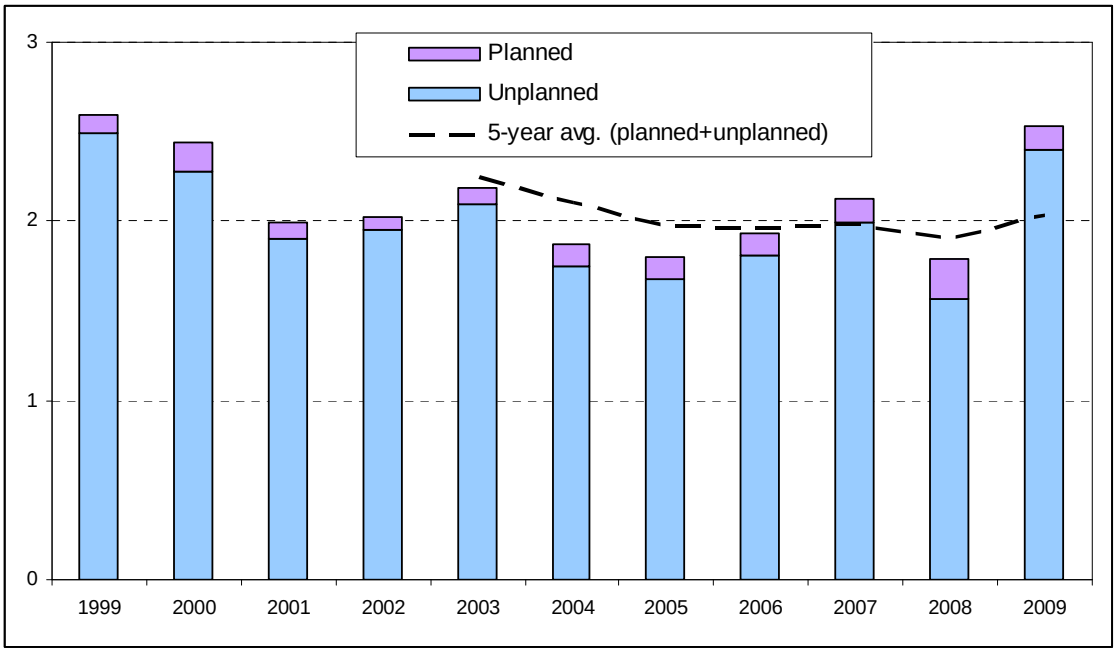


Figure 3.2 shows the total number of sustained interruptions per Victorian customer from 1999. In 2009 there was an average of 2.53 sustained interruptions. This was approximately 41 per cent more sustained interruptions than in 2008. Of the sustained interruptions, 0.13 were planned interruptions required to conduct maintenance on the

network. Another 0.66 were excluded events which were outside the control of the DNSPs.

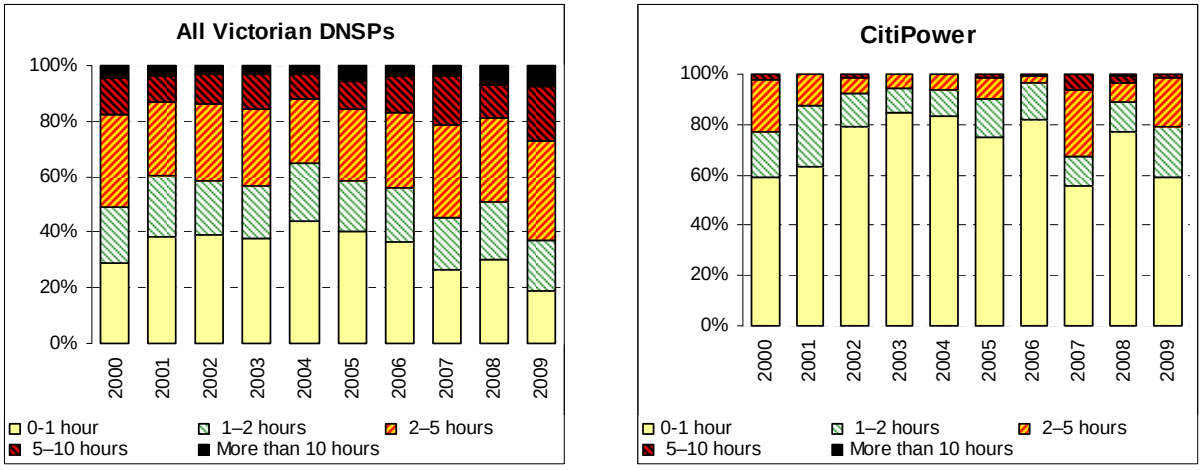
Before 2009 there was a generally improving trend in the number of non-excluded sustained interruptions per customer. Removing the impact of excluded events the DNSPs' 2008 result was the best result in the 11 years presented in Figure 3.2. However, the performance in terms of sustained interruptions per customer in 2009 was the worst result since 1999. The DNSPs have not provided specific reasons for this deterioration in performance after excluded events have been removed.

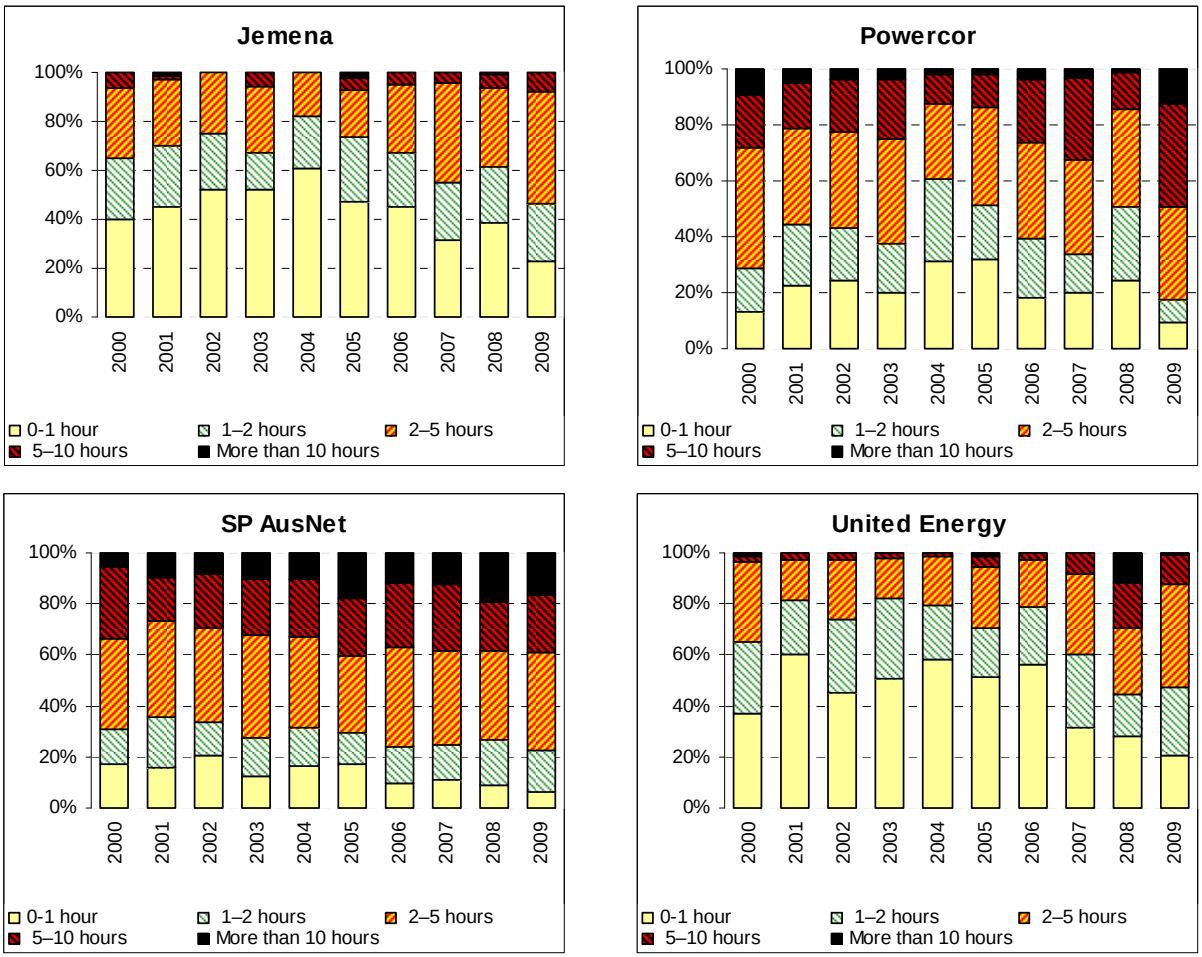
With excluded events removed, on average customers experiences 0.4 more sustained interruptions than in 2008. The DNSPs had around 41 per cent fewer planned sustained interruption in aggregate than in 2008 although in 2009 the average duration of these interruptions was 69.1 per cent longer.

3.1.1.2 Customer experience—best and worst served customers

Supply reliability changes from year to year. The general trend has been a gradual improvement, but outages do not occur to the same extent across the state and the experience of customers varies markedly. To identify whether improvements flow to the worst served customers—rather than only to those who already have a reliable supply—the percentage of customers who experience cumulative minutes-off-supply in each of five off-supply time bands: less than 1 hour, 1–2 hours, 2–5 hours, 5–10 hours and more than 10 hours is presented. Figure 3.3 shows the movement of these percentages over time. A reduction in the percentage of customers in the higher bands of minutes-off-supply and an increase in the percentage of those in the lower bands—a shrinking of the upper bands and lengthening of lower ones—would be a desirable outcome. Such a change would represent a general improvement in reliability for all customers.

Figure 3.3 Minutes-off-supply distribution (figures include all outage events)





When comparing all Victorian DNSPs, supply reliability for customers deteriorated and in particular that of the worst served customers deteriorated in 2009. In 2009 a higher proportion of Victorian customers experience outages totalling more than 10 hours and in the 5–10 hour band. This was also reflected by the declining proportions of customers who experienced outages in the 0–1 hour range or the 1–2 hour range

The proportion of customers who experienced greater than 10 hours off supply increased from 6.8 per cent to 7.6 per cent of customers. The proportion of customers who experienced between 5 and 10 hours off supply had a large increase from 12.2 per cent to 19.3 per cent and the proportion of customers who experienced between 2 and 5 hours off supply also increased from 30.0 per cent to 36.0 per cent. The increase in the proportion of customers in these categories is particularly reflected the number of customers who experienced between 0 and 1 hour of outages over the year. In 2008, 30.4 per cent of customers experienced less than 1 hour of outages and in 2009 only 18.9 per cent of customers experiences between 0 and 1 hour of outages. This is the lowest percentage since the year 2000.

Jemena had a large decrease in the number of customers experience less than 1 hour of outages over the course of the year from 38.8 per cent to 23.2 per cent. This was largely reflected in an increase in the number of customers, from 31.9 per cent to

46.2 per cent of customers experiencing between 2 and 5 hours of outages over the year. Pleasingly, 0 per cent of Jemena's customers experienced greater than 10 hours of outages over the year. However, the continuing trend has been a decreasing number of customers experiencing less than 1 hour of outages over the year, from a high of 60.6 per cent in 2004 to 23.2 per cent in 2009.

CitiPower had reduction in the number of customers experiencing greater than 10 hours of outages and between 5 and 10 hours of outages. The proportion of customers experiencing greater than 10 hours of outages decreased from 0.5 per cent to 0 per cent and the number of customers experiencing between 5 and 10 hours of outages fell from 2.7 per cent to 1.1 per cent. However, the proportion of customers experiencing less than 1 hour of outages over the year decreased from 77.2 per cent to 58.7 per cent and this is reflected in an increase in the proportion experiencing outages between 1 and 5 hours in total.

Powercor had large increases in the proportion of customers experiencing greater than 10 hours of outages and between 5 and 10 hours of outages. The proportion of customers experiencing greater than 10 hours of outages increased from 1.2 per cent to 12.7 per cent, and the number of customers experiencing between 5 and 10 hours of outages increased from 13.2 per cent to 36.6 per cent. Powercor also had a large decrease in the number of customers experiencing less than 1 hour of outages, which fell from 24.6 per cent to 9.4 per cent and in the proportion of customers experiencing between 1 and 2 hours of outages, from 26.1 per cent to 8.2 per cent.

Compared to the other DNSPs, SP AusNet's performance did not change as much in 2009 when compared to 2008. However, SP AusNet had the highest proportion of customers, 16.7 per cent (down from 19.5 per cent), experiencing greater than 10 hours of outages over the year and the smallest proportion of customers, 6.2 per cent (down from 9.0 per cent), experiencing less than 1 hour of interruptions over the year.

United Energy had a large decrease in the proportion of customers experiencing greater than 10 hours of outages, from 11.4 per cent in 2008 to 0.6 per cent in 2009. This appears to be a return to their long term trend as, prior to 2008, United Energy generally had a small proportion of customers in this category. It had a decrease, from 17.8 per cent to 12.1 per cent of customers experiencing between 5 and 10 hours of outages, however, this was still above its long term trend. United Energy's proportion of customers experiencing less than 1 hour of outages continued to decline, from a high of 60.3 per cent in 2001 to 28.1 per cent in 2008 and 20.6 per cent in 2009.

Table 3.1 Worst served customers (average total time off supply for the worst served 15 per cent)

	Target	Reported	Better/(worse) than Target %
Jemena	267	291	(9.0)
CitiPower	138	203	(47.1)
Powercor	535	784	(46.5)
SP AusNet	734	1,374	(87.2)
United Energy	231	371	(60.6)

CitiPower and Powercor commented that their networks' performance were adversely impacted by the heatwave, load shedding and storm events. If excluded events are removed from the reported figures, their 2009 result would be 121 minutes for CitiPower (below target) and 595 minutes for Powercor.

SP AusNet advised that its performance was particularly affected by the February bushfires. A number of customers in the bushfire affected areas were restored several weeks after the fire, in some instances up to two months after. This abnormal restoration time affected the average time off supply for the worst served customers.

3.1.1.3 Causes of interruptions

Figure 3.4 shows the major causes of supply interruptions occurring across each network as reported by each DNSP.[15] The DNSPs reported 53 per cent more supply interruptions than in 2008. As was the case in 2007 and 2008, equipment failure was the most frequent cause of interruptions. It accounted for around 30 per cent of all interruptions, down from 33 per cent in 2008.

There is an unavoidable degree of uncertainty in the attribution and analysis of some of the causes of interruptions. For instance, a storm that uproots a tree and brings down a powerline may be recorded as Weather or Vegetation. Combined, they accounted for 26 per cent of the reported interruptions across the state (down from 33 per cent in 2008), ranging from 38 per cent for SP AusNet to 15 per cent for Jemena.

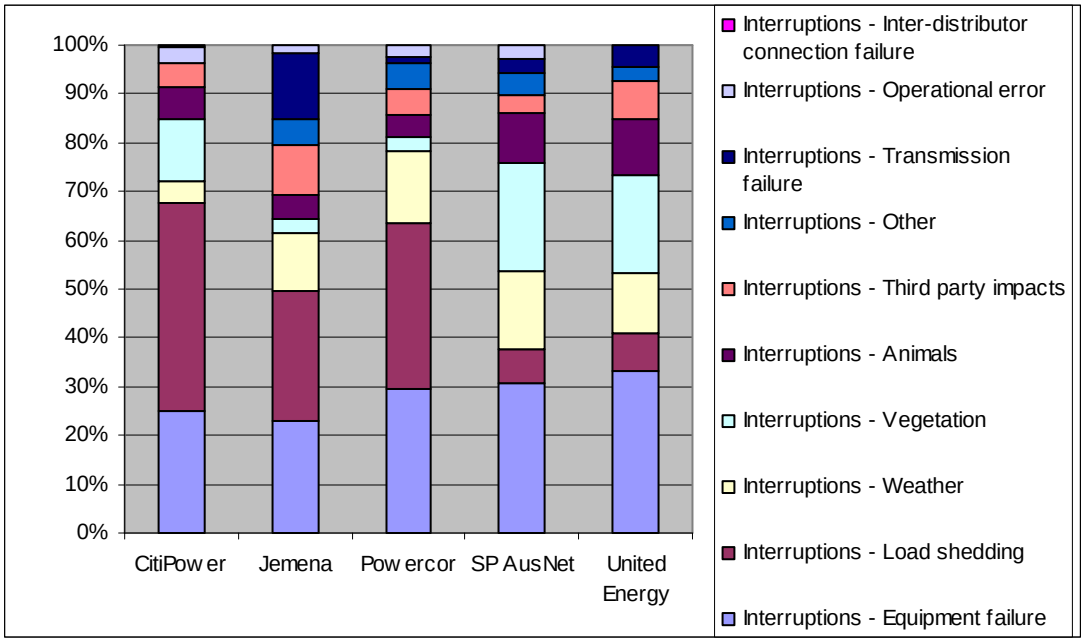
Weather alone was the cause of 14 per cent of all supply interruptions which was down from 22 per cent in 2008. There were no load shedding incidents in 2008, however, in 2009 load shedding accounted for 21 per cent of supply interruptions. CitiPower was most affected by load shedding in terms of load shedding as a percentage of total interruptions. It caused 42.5 per cent of its total interruptions.

[15] DNSPs report against specific categories of supply interruptions as defined in the ESCV's *Information Specification (Service Performance) for Victorian Electricity Distributors*, 1 January 2009.

Animal interference in the network accounted for 7 per cent of all supply interruptions. DNSPs reported that operational error accounted for only 2 per cent of all supply interruptions.

Powercor had 2 247 188 supply interruptions which was the most of any Victorian DNSP. This was 101 per cent more interruption than it experienced in 2008. CitiPower experienced the fewest number of interruptions, with 300 861 compared to 160 632 in 2008.

Figure 3.4 Causes of supply interruptions 2009



CitiPower commented that the heatwave and load shedding events of 2009 accounted for 130 466 interruptions, hence the difference of results between 2009 and 2008.

Powercor advised that there were 763 442 interruptions caused by load shedding, 29 836 interruptions by transmission outage and 142 876 interruptions caused by the heatwave in its area, all were excluded from the service incentive scheme. These interruptions account for the key difference between 2008 and 2009.

SP AusNet advised that 31 and 22 per cent of supply interruptions in its area were due to equipment failure and vegetation respectively. Storms in January, August and September contributed to the high number of vegetation related outage. The figure of 31 per cent due to equipment failure is unusual, compared with the average figure of 12 per cent. It considered that the increase in equipment failure impact was probably influenced by the heatwave and the bushfires.

3.2 Victorian DNSPs

This section considers the supply reliability performance of each DNSP compared with its performance history since 1999. The DNSPs have very different network characteristics that can affect reliability. Powercor and SP AusNet both have significant numbers of customers in regional areas: the longer powerlines in these

areas generally require longer travel times and longer times to locate and repair faults. Jemena and United Energy have mostly urban distribution networks. CitiPower's network in and around the CBD is substantially underground, and its high level of interconnection allows it to quickly reconnect customers to another source of supply during network faults. Appendix A contains further details of the networks.

In this section, the reliability of supply is considered without excluding the effects of abnormal events beyond the DNSPs' control. The reliability figures reflect the customers' experience of all the outages that occurred.

3.2.1 Minutes-off-supply

Unplanned outages account for by far the larger part of the total minutes-off-supply. Generally, unplanned outages are also more troublesome to customers. Planned outages—for which customers are entitled to receive at least four days notice—generally relate to maintenance and other works that are under the DNSPs' control. The 2006–10 price review set targets for each DNSP's reliability, in terms of minutes-off-supply and other measures. Section 3.4 discusses the DNSPs' performance against these targets.

Figure 3.5 and figure 3.6 show each DNSP's level of supply reliability, in terms of average planned and unplanned minutes-off-supply per customer for each year since 1999. The five-year moving average also shows the trend in performance that customers experienced including the minutes-off-supply attributable to the January heatwave and other unusual events.

In terms of unplanned minutes-off-supply for Victoria, there was a 13 per cent increase from 2008–09. This equates to a 12 per cent increase in the total minutes-off-supply experienced by the average customer. All DNSPs are displaying an increasing trend in the unplanned average minutes-off-supply experienced by customers, although in 2009, United Energy reported fewer unplanned average minutes-off-supply than in 2008. This is in part because of the extreme storm events in 2008 which are not removed from the data in figure 3.5–3.10. In aggregate, DNSPs had the same number of planned average minutes-off-supply as in 2008.

- CitiPower reported 63 unplanned average minutes-off-supply which was 40 per cent more than in 2008. When removing excluded events CitiPower reported 30 unplanned average minutes-off-supply which was 36 per cent worse than 2008. CitiPower's customers experienced 67 minutes-off-supply which is fewer than the other DNSPs' customers. This is unsurprising as it is given a higher value of customer reliability and its network is substantially undergrounded.

- Jemena reported 130 unplanned average minutes-off-supply which was 12 per cent more than in 2008. On average, Jemena's customers experienced 139 minutes-off-supply which was the second fewest minutes-off-supply of Victorian DNSPs after CitiPower. When removing excluded events, Jemena's customers experienced 86.5 unplanned average minutes-off-supply which was 34 per cent more that in 2008. Jemena has had a steadily increasing trend in the unplanned and planned minutes-off-supply.

Jemena advised that the increasing number of average minutes-off-supply in general was mainly due to increasing upstream transmission supply failures and generation shortages outside its control, and more wide spread major events. From 2001–05 these events accounted for 39.0 minutes-off-supply, and 140.5 minutes-off-supply between 2006–09.

- Powercor reported 308 unplanned average minutes-off-supply. This was significantly more (132 per cent) than in 2008. Powercor's customers on average experienced a total of 335 minutes-off-supply, or 113 per cent more than in 2008. When removing excluded events Powercor reported 189 unplanned average minutes-off-supply (60 per cent worse than in 2008).

  Powercor advised that it was adversely affected by the January heatwave (excluded event) and storms.

- SP AusNet reported 366 unplanned average minutes-off-supply which was around 22 per cent more than in 2008. This result was SP AusNet's worst result since consistent reporting began in 1996. SP AusNet has now had an increasing trend in unplanned minutes-off-supply since 2006. However, its planned minutes-off-supply has been reducing over the same period. In total, SP AusNet's customers on average experienced 419 minutes-off-supply on average. When removing excluded events, SP AusNet's average unplanned average minutes-off-supply was 358—177 per cent more than in 2008.

  SP AusNet advised that part of the reason for its declining performance in 2009 was due to the summer heatwave (excluded event), February bushfires and late winter storms.

- United Energy reported 131 unplanned average minutes-off-supply which was 55.6 per cent fewer minutes than in 2008. On average, United Energy's customers experienced 50 per cent fewer total minutes-off-supply than in 2008. However, when removing excluded events, United Energy's network experienced 105 unplanned average minutes-off-supply which was 68 per cent more than in 2008.

  United Energy advised that it was adversely affected by events including the January heatwave, February heat, April lightning, August wind and November lightning which contribution to a total 49.6 average minutes-off-supply for the affected months. The number of planned interruptions increased due to increased capital expenditure projects and increased volume of major reinforcement and replacement projects.[16]

[16] United Energy also commented that the general increase in average minutes-off-supply it has been experiencing is mainly due to supply failures outside its control and more wide spread major events—accounting for 31.8 minutes-off-supply increase from 2001 to 2005 level; and 307.3 minutes from 2006 to 2009.

Figure 3.5 **Average unplanned minutes-off-supply per customer** [a]

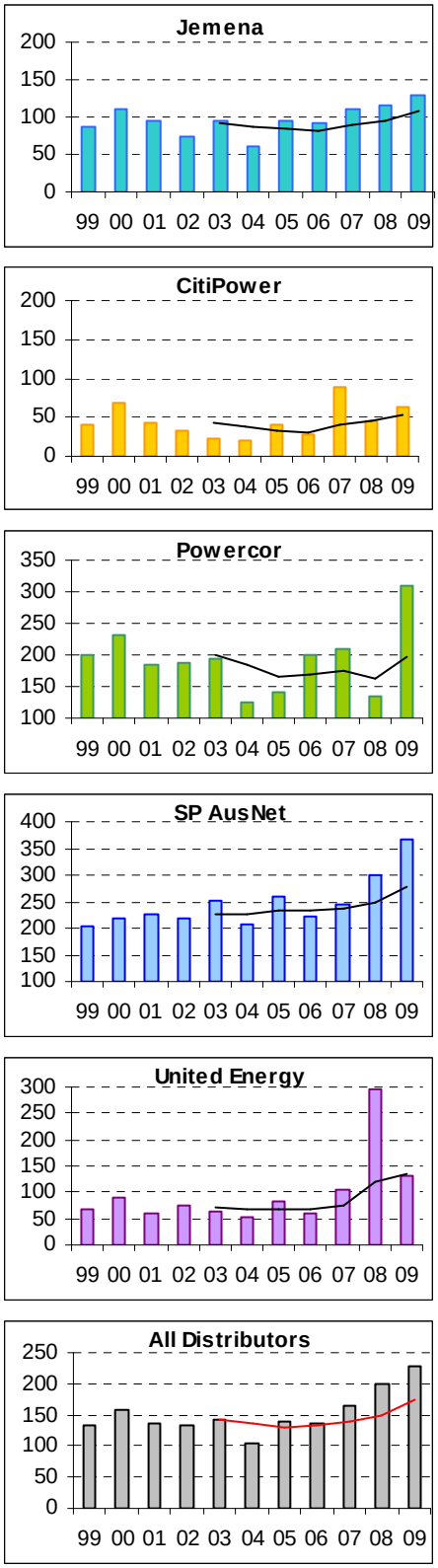
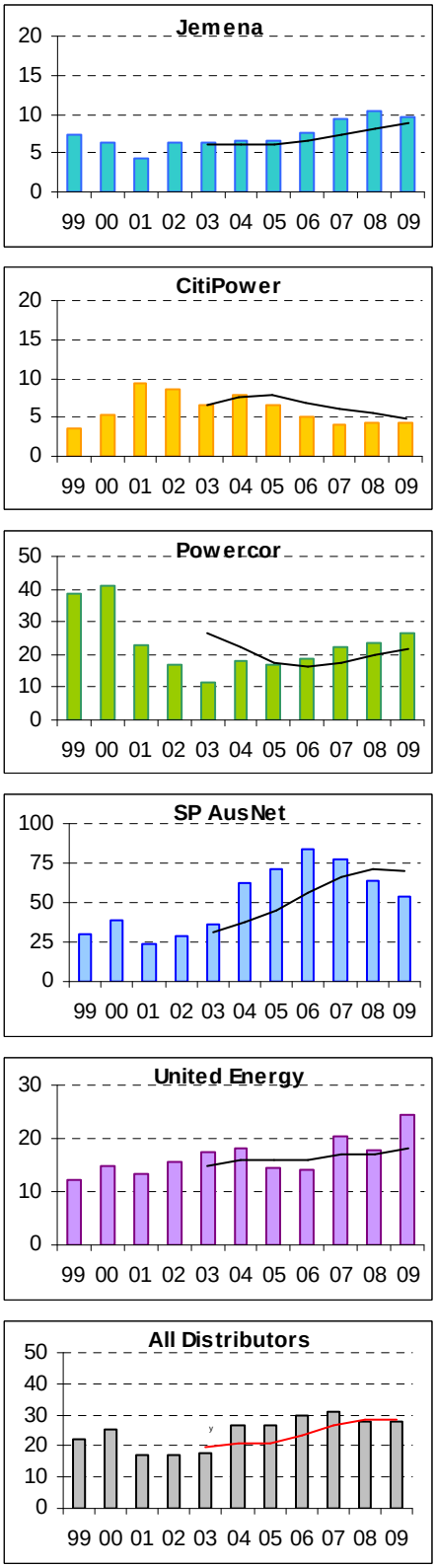


Figure 3.6 **Average planned minutes-off-supply per customer** [a]



[a] Includes the impact of the January 2009 heatwave and other excluded events

3.2.2 Number of unplanned sustained interruptions

Supply interruptions lasting more than 1 minute are called 'sustained' interruptions. Figure 3.7 shows each DNSP's performance (including the impact of extreme events) for the average number of unplanned sustained interruptions experienced by their customers, along with the performance trends of the DNSPs:

- Jemena reported 53 per cent more planned and unplanned average sustained interruptions. Its unplanned average sustained interruptions increased 56 per cent from 1.29 in 2008 to 2.01 in 2009. Of the 2.01 unplanned sustained interruptions, 0.73 were caused by excluded events. When removing excluded events from 2008 and 2009 Jemena's planned and unplanned average sustained interruption performance declined 36 per cent.

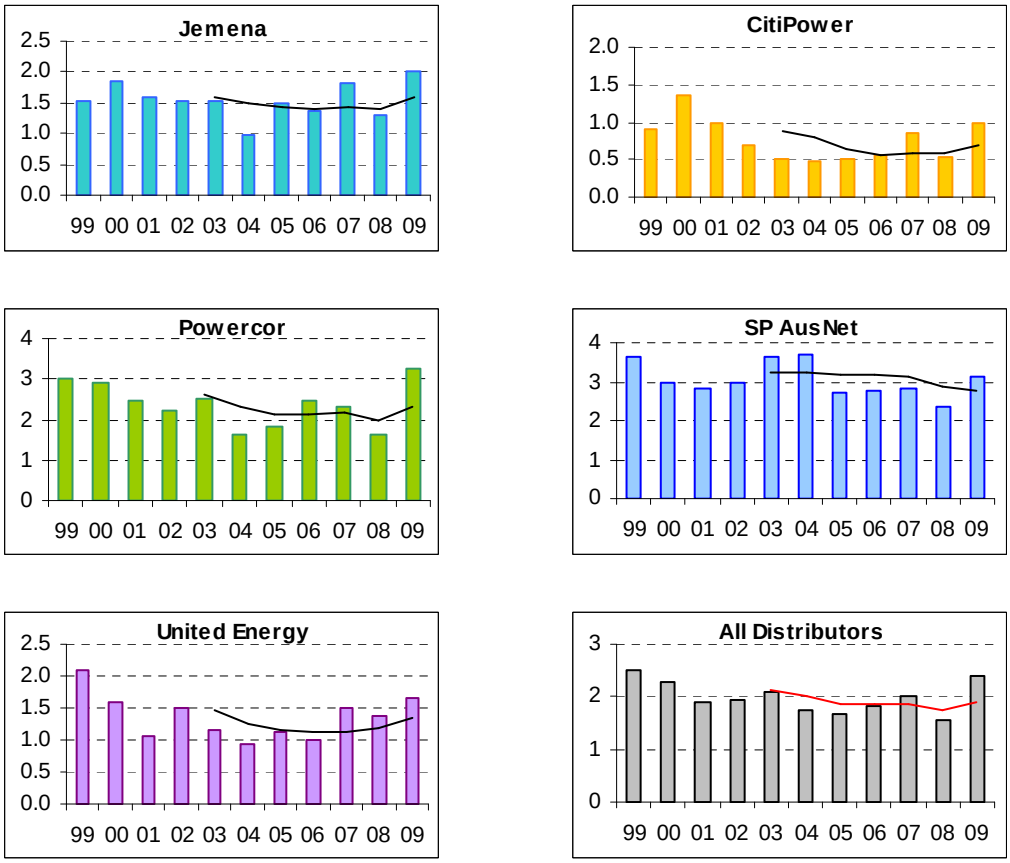
- CitiPower's unplanned average sustained interruptions increased 87 per cent from 0.53 in 2008 to 0.99 in 2009. The performance in this regard was its worst since the year 2000 when it reported 1.35 unplanned interruptions. When removing excluded events from CitiPower's total average sustained interruptions its performance was 50 per cent worse than in 2008.

- Powercor's customers also experienced a large increase in the number of unplanned average sustained interruptions of 98 per cent, from 1.64 in 2008 to 3.25. This reported performance has reversed Powercor's trend of improving performance. Powercor's performance was 26 per cent worse than in 2008 when removing excluded events.

- SP AusNet reported fairly consistent unplanned average sustained interruptions from 2005–07, and a decrease of about 16 per cent from 2007–08. However, in 2009 SP AusNet recorded 3.11 unplanned sustained interruptions which was 32 per cent higher than in 2008. Its total of sustained interruptions was 3.37 compared with 2.64 the year before. When removing excluded events from SP AusNet's total average sustained interruptions its performance deteriorated 36 per cent from 2008.

- United Energy reported 1.66 average unplanned sustained interruptions as compared to 1.39 in 2008. This was a decline in performance of 19 per cent which was the smallest percentage decline from of any Victorian DNSP. Its total sustained interruptions was 1.74 which was more than the 1.44 interruptions reported in 2008. When removing excluded events, United Energy recorded 1.42 total sustained average interruptions which was 31 per cent more interruptions than in 2008.

Figure 3.7 Average number of unplanned interruptions per customer [a]



[a] Includes the impact of the January 2009 heatwave and other excluded events

3.2.3 Duration of unplanned sustained interruptions

Figure 3.8 shows the average duration of unplanned interruptions for each of the DNSPs since 1999. The average duration of interruptions, like other performance measures, is affected by the characteristics of the networks. For instance it will take longer to rectify a supply interruption in a long-rural network. Also, in a CBD or urban network fixing faults in underground cables can be a long process.

In aggregate, the average total outage duration for all Victorian DNSPs reduced from 127 minutes in 2008 to 101 minutes in 2009. Although this was is in part due to the 2 April 2008 storms which negatively affected the performance in 2008, the Victorian DNSPs also experienced heatwaves and storms, especially in the first three months of 2009. All DNSPs other than Powercor achieved reductions in the average duration of interruptions. However, in aggregate, the DNSPs still have an increasing trend.

- CitiPower has had an increasing trend in the average duration of unplanned interruptions for the past six years. CitiPower's average duration of unplanned interruptions was 64 minutes which was 24 per cent less than in 2008, but was still 5 per cent higher than its average unplanned interruption duration from 1999–09.

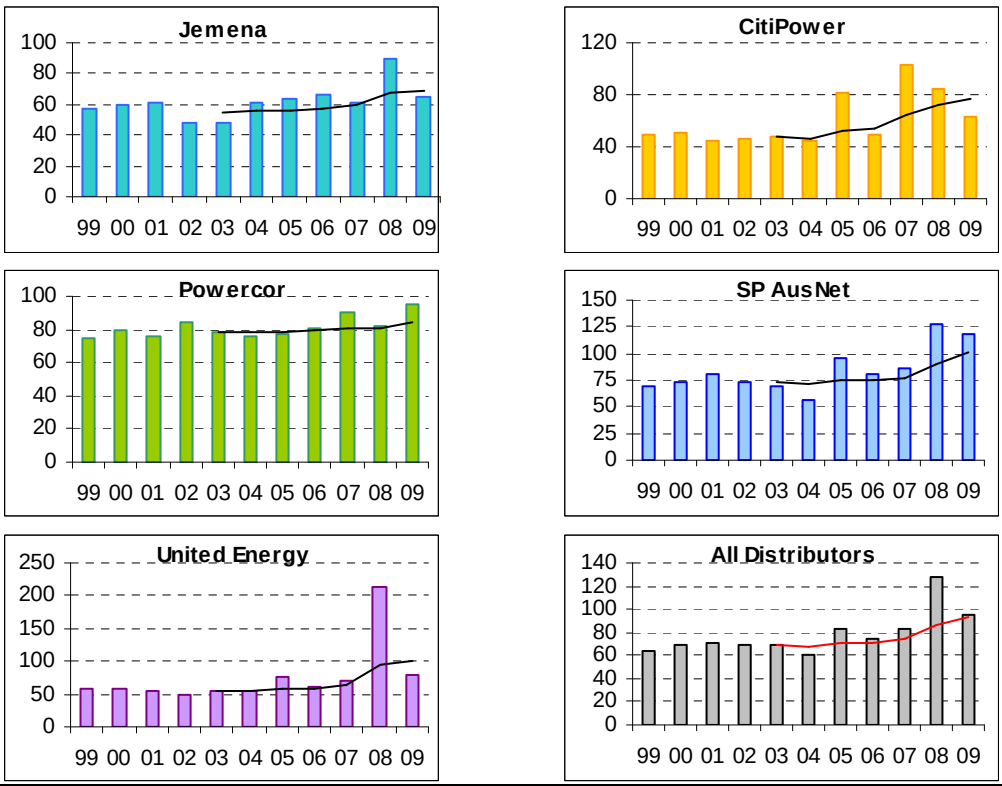
- Jemena's average unplanned network outage duration decreased 25 minutes to 65 minutes or a decrease of 28 per cent, but was 3.2 per cent higher than its average unplanned interruption duration from 1999–09. Jemena's trend is flattening after a spike in 2008.

- Powercor's average unplanned duration of supply interruptions trend has been reasonably flat, with a slight increase in 2009. Powercor's average unplanned duration of supply interruptions was 95 minutes which was 16 per cent more than in 2008. It was also 17 per cent higher than its average unplanned interruption duration from 1999–09. This may have been a result of the storms and heatwaves experienced in the first three months of 2009.

- SP AusNet has had an increasing trend in the average duration of unplanned interruptions over the past three years. In 2009, SP AusNet reported an average duration of unplanned interruptions of 118 minutes, 8 per cent less than in 2008, but 40 per cent more than its average unplanned interruption duration from 1999–09.

- United Energy's average unplanned network outage duration decreased 134 minutes to 79 minutes, or a decrease of 63 per cent since 2008. This was in part due to the 2 April 2008 storms which meant that in 2008, United Energy's average durations of supply interruptions was 200 per cent greater than in 2007. The 2009 result returns United Energy closer to its long term average. However, its 2009 result was still 5.3 per cent higher than its average unplanned interruption duration from 1999–09.

Figure 3.8 Average duration of unplanned interruptions per customer (minutes)



3.2.4 Momentary interruptions

Momentary interruptions are brief power outages lasting less than 1 minute. They are mainly caused by auto-reclose devices, which are installed on the network to restore supply following a transient fault. Such faults may be due to contact with birds, animals and vegetation, lightening or other causes. The auto-reclose devices isolate the damaged parts of the network and enable other healthy parts for almost instantaneous restoration of supply. The alternative to a momentary interruption is a sustained outage requiring an operator to restore supply, sometimes hours later.

Momentary interruptions generally have less impact on customers than sustained interruptions. Some transient faults may result in momentary interruptions that affect more customers than necessary. Further, some customers may experience an excessive number of momentary interruptions, which also have the potential to damage some of the customer's equipment. As of 1 January 2006, DNSPs have a new obligation to make guaranteed service level (GSL) payments to customers who experience more than 24 momentary supply interruptions in a year. Part of the DNSPs' revenue also depends on achieving targets for momentary interruption frequency under the S factor of the service incentive scheme.

Figure 3.9 and figure 3.10 show the trends of momentary interruptions to customers, measured in terms of whole and part feeder outages. The number of part feeder momentary interruptions generally increased over time because more auto-reclose devices were installed on distribution feeders to break down the lines into smaller sections and thus limit the number of customers affected by momentary interruptions. The more recent trend for all DNSPs in aggregate, however, appears to be downwards, perhaps in response to the introduction of financial incentives and penalties.

- Jemena has had a relatively flat trend in terms of whole feeder momentary interruptions. The number of part feeder momentary interruptions has been declining since 2006.

- CitiPower has experienced a declining (improving) trend in terms of whole feeder momentary interruptions. However, in 2009, it experienced more interruption than in 2008. This was also its greatest number of momentary interruption since 2004.

- Powercor's whole feeder and part feeder momentary interruptions trend is declining. Although, in 2009 it experienced more whole feeder interruptions than in 2008.

- SP AusNet, like Powercor, has a declining trend in whole and part feeder momentary interruptions. However, its 2009 its performance deteriorated from 2008.

- United Energy has a significantly declining trend in whole feeder momentary interruptions and a significantly increasing, or worsening trend in part feeder interruptions. Its part feeder momentary interruptions reduced in 2009.

Figure 3.9 **Number of momentary interruptions per customer (whole feeder) [a]**

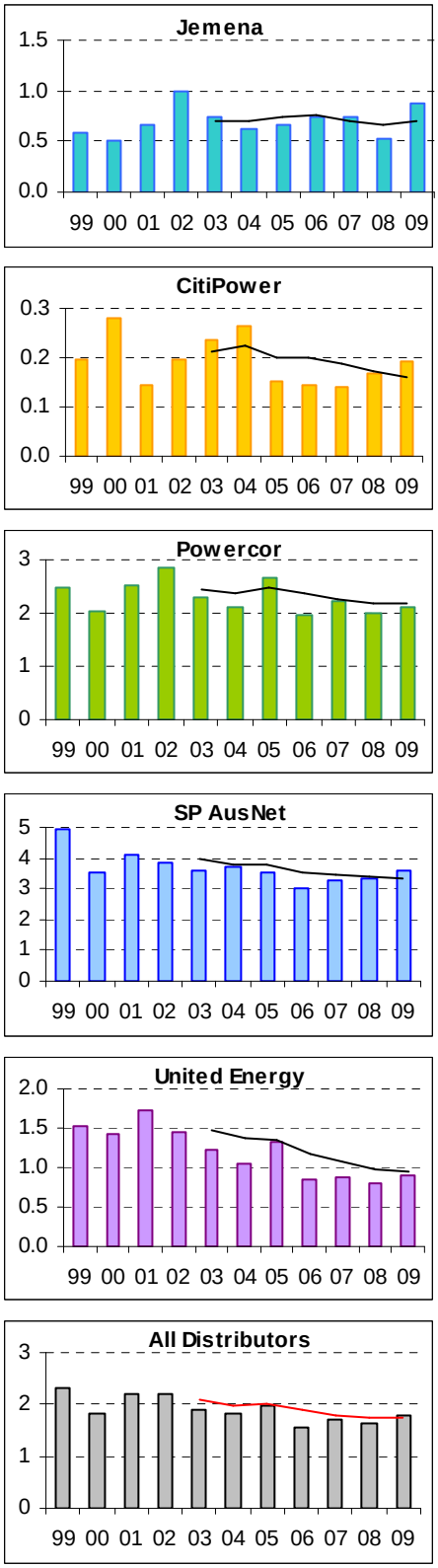
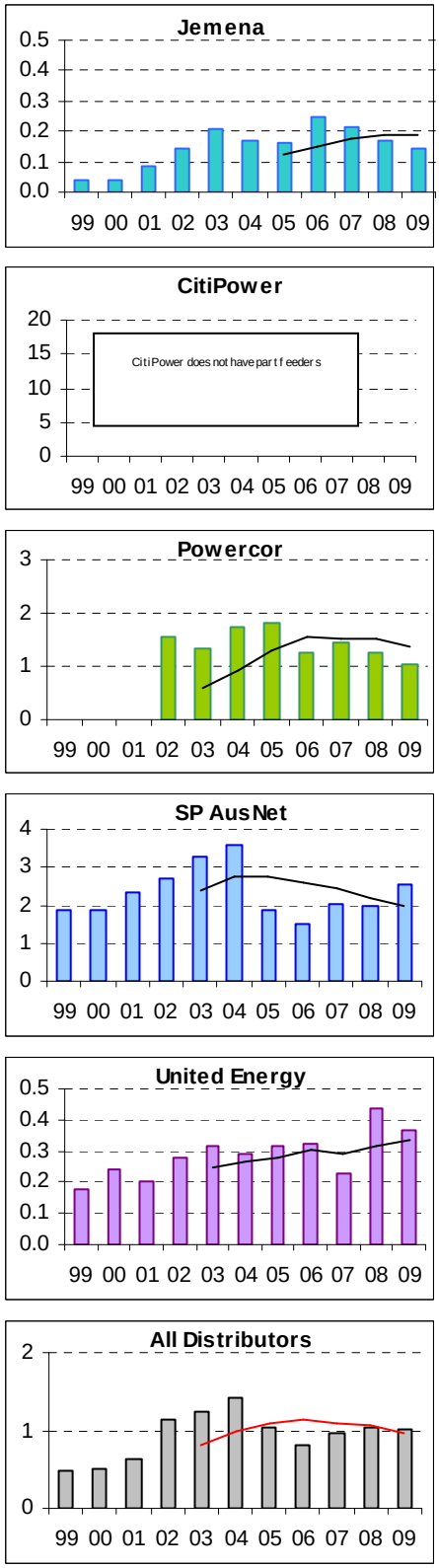


Figure 3.10 **Number of momentary interruptions per customer (part feeder) [a]**



[a] Figures include events exempted from the service incentive scheme (see section 3.4)

3.3 Supply areas

There are approximately 240 zone substations and supply areas across Victoria. Appendix D shows maps of the areas that are the responsibility of the DNSPs and details the reliability of supply in each zone for comparison over the past five years. The figures and maps in Appendix E show the average minutes-off-supply per customer in each supply area in 2009, to allow comparison of DNSPs across Victoria.

3.3.1 Worst performing supply areas—all DNSPs

Table 3.2 shows the three supply areas with the highest average minutes-off-supply for each DNSP—that is, those supply area that performed worst in 2009.

Table 3.2 Supply reliability for each DNSP for total minutes-off-supply in 2009

	Supply areas		Average minutes-off-supply per customer		
		Customers	2008 (minutes)	2009 (minutes)	Per cent change
CitiPower	Northcote	17 367	99	209	211
	Port Melbourne	2 951	20	199	973
	Montague	6 919	22	171	782
Jemena	Sunbury	13 969	121	325	168
	Tottenham	1 100	64	269	318
	Footscray West	11 936	232	262	13
Powercor	Cobden	775	365	1 178	223
	Ouyen	3 464	167	850	409
	Electricity Trust SA	355	951	811	(–15)
SP AusNet	Kinglake	2 246	627	10 882	1 736
	Murrindindi	57	289	9 361	3 237
	Rubicon A	4 606	922	2 930	318
United Energy	Carrum	21 680	203	299	48
	Mornington	19 234	162	291	80
	Boronia	280	519	277	(–47)

SP AusNet advised that:

- 89 per cent of the total minutes-off-supply at Kinglake was contributed by the 7 February Bushfire

- 86 per cent of the total minutes-off-supply at Murrindindi was contributed by the 7 February Bushfire

- 73 per cent of the total minutes-off-supply at Rubicon A was contributed by the 7 February Bushfire.

3.3.2 Comparison of central business district, urban and rural networks

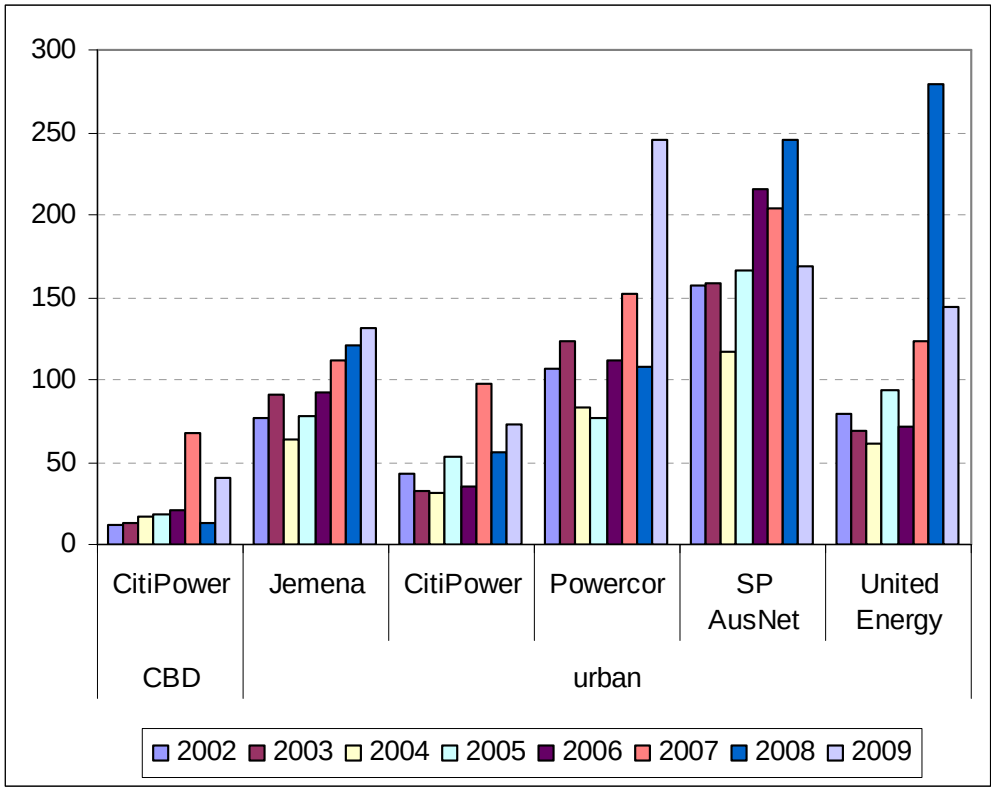
There are approximately 1880 active distribution feeders in Victoria categorised as CBD, urban, short rural and long rural. Potentially, feeders in the same category may perform to a similar level of reliability: CBD feeders should be more reliable than urban ones, which should be more reliable than rural feeders. These classifications, however, are somewhat general; reliability within a category varies from one DNSP to another, given differences in terrain, weather, asset condition and management performance.

Figure 3.11 to 3.14 demonstrate how supply reliability varies with the types of distribution feeder, and how the performance of feeders varies across the DNSPs. The figures include the total minutes-off-supply due to both planned and unplanned interruptions, and show the total number of such interruptions for the average customer in different areas of the Victorian network. The interruptions include those caused by abnormal events such as load shedding caused by the 16 January 2007 bushfires, the 2 April 2008 storm and the January heatwave in 2009.

3.3.2.1 Central business district

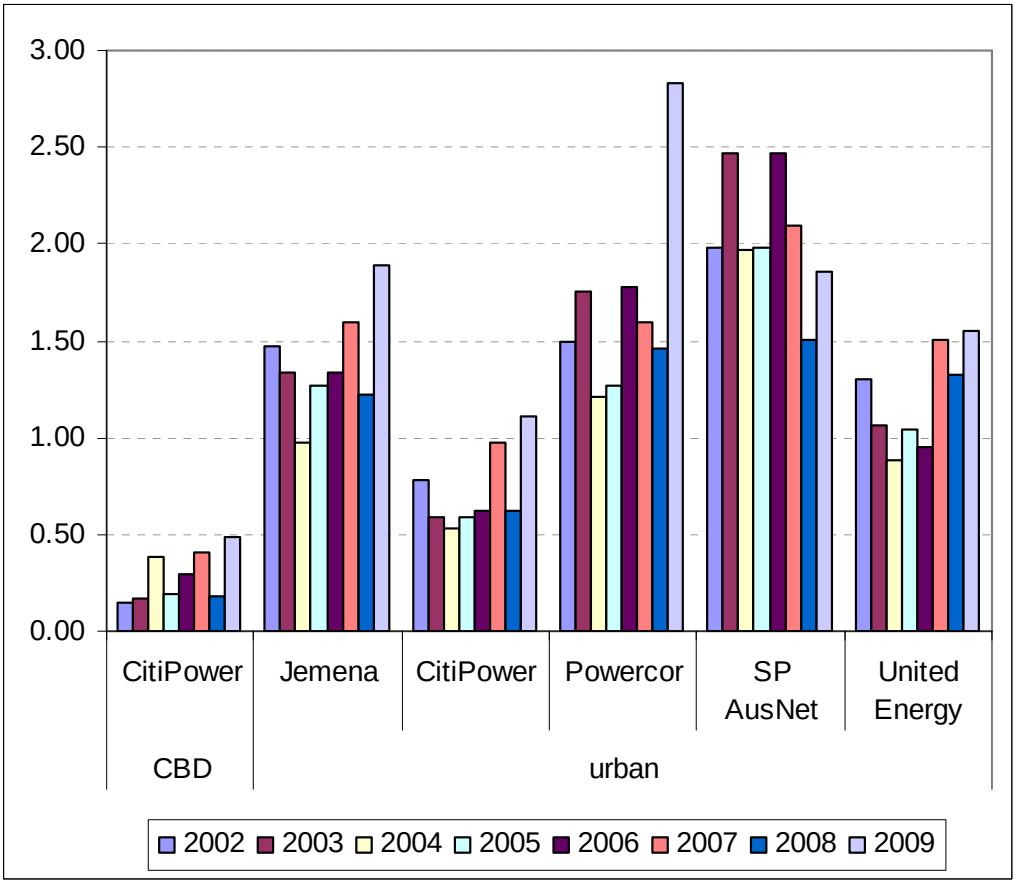
Only CitiPower has CBD feeders. CitiPower's CBD feeders did not perform as well as in 2008. In 2009, the average CBD customer experienced 40 minutes-off-supply, which was 204 per cent worse than the 13 minutes experienced in 2008. The average-minutes-off-supply experienced by CitiPower's CBD customers was also 25 per cent greater than its 5 year average.

Figure 3.11 Average minutes-off-supply per customer CBD and urban areas



The number of sustained interruptions experienced by CitiPower's CBD customers also increased in 2009. The average number of sustained interruptions was 172 per cent higher than in 2008. This was CitiPower's worst result as shown in figure 3.12. CitiPower's second worst result was in 2007, which was largely driven by excluded load shedding and a water damage incident. CitiPower's 2009 average sustained interruption performance was 58 per cent worse than its 5 year average performance.

Figure 3.12 Average sustained interruption frequency CBD and urban areas



3.3.2.2 Urban

In CitiPower's urban network, the average minutes-off-supply increase from 56 minutes in 2008 to 73 minutes, a 30 per cent increase. Likewise, the average number of sustained interruptions had a significant increase from 0.63 in 2008, to 1.1 in 2009. However, CitiPower's urban feeders still had fewer minutes-off-supply and sustained interruptions than any other DNSP's urban feeders.

Urban customers in Jemena's network have experienced a steady increase in the number of minutes-off-supply experienced since 2004. In 2009, the average customers in this network experienced 132 minutes-off-supply which was up from 121 minutes from the year before. The number of sustained interruptions per customer on average increased from 1.2 to in 2008 to 1.9.

Powercor had the largest percentage increase in the average number of minutes-off-supply of all the DNSPs' urban networks. In 2008, Powercor's urban customers experienced 108 minutes-off-supply on average, however, in 2009 the average customer experienced 245 minutes. This is off the back of a reduction in number of minutes-off-supply and sustained interruptions from 2007 to 2008. The number of average sustained interruptions experienced by Powercor customers increased from 1.46 to 2.83 in 2009. Figure 3.11 and figure 3.12 show that the result is Powercor's worst reported result.

SP AusNet's urban customers experienced a reduction in the number of minutes-off-supply. In 2009, there were 168 minutes-off-supply, down from 245 minutes in 2008. This performance was also well below the 5 year average of 200 minutes-off-supply. However, on average, there was 0.34 more sustained interruptions, or a total of 1.85 sustained interruptions.

United Energy's urban customers experienced a significant improvement in the number or minutes-off-supply compared to 2008. In 2009, the average minutes-off-supply was 144, down from 279 in 2008. This result was still slightly above the five year average of 142 minutes-off-supply. The average number of sustained interruptions increased from 1.32 in 2008 to 1.55.

3.3.2.3 Rural

Figure 3.13 Average minutes-off-supply per customer rural areas

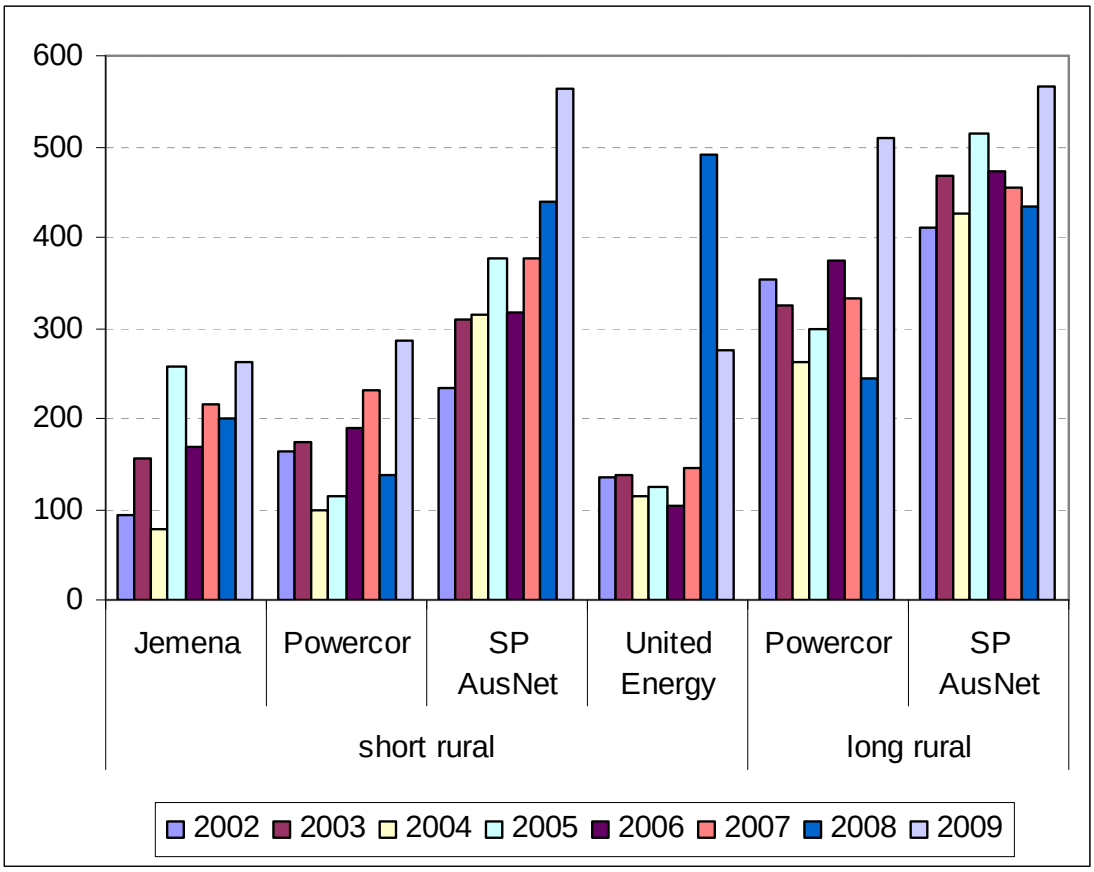
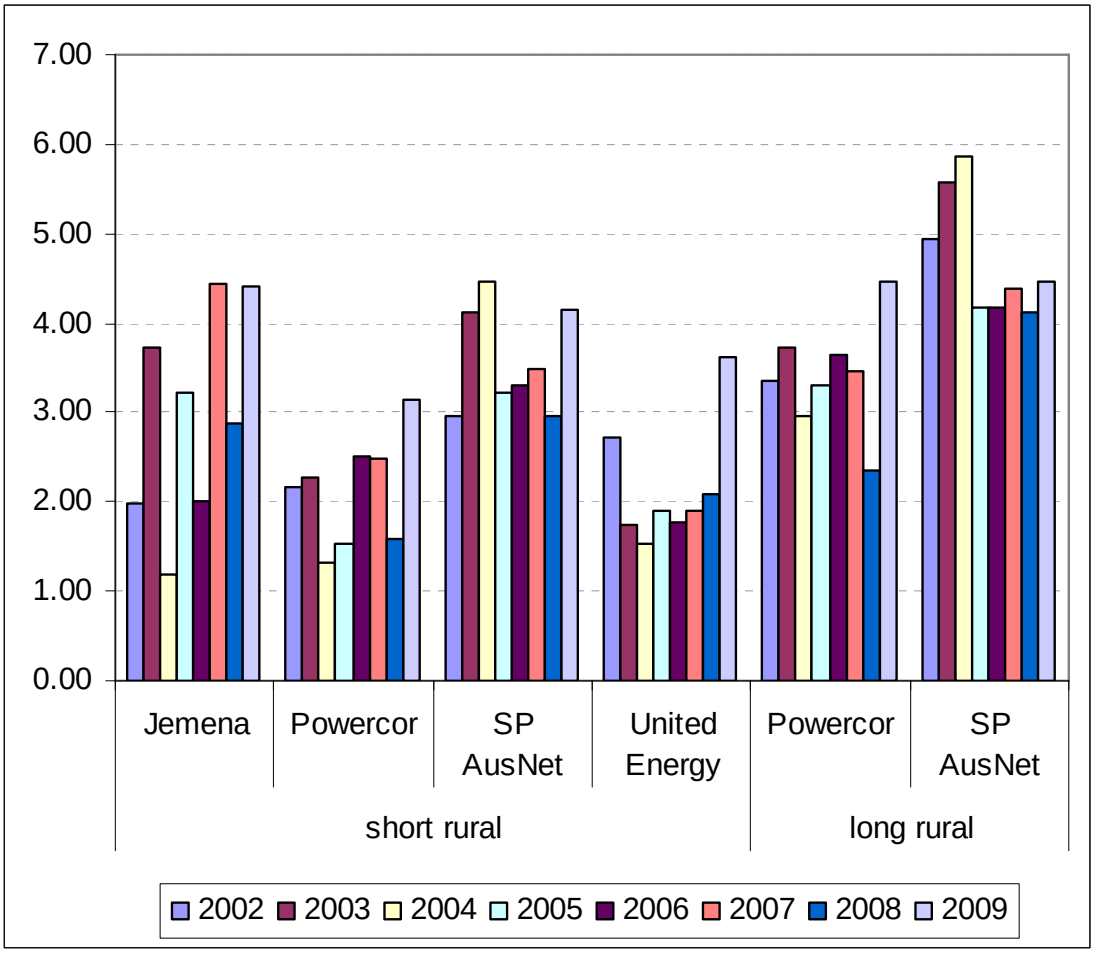


Figure 3.14 Average sustained interruption frequency rural areas



Jemena's supply reliability for short rural feeders deteriorated in 2009 both in terms of the average number of minutes-off-supply and the average number of sustained interruptions. The average minutes-off-supply increased from 199 minutes in 2008 to 261 minutes in 2009. Figure 3.13 show that this was the greatest number of average minutes-off-supply reported by the DNSPs. The average number of sustained interruptions per short rural customer also increased, from 2.9 in 2008 to 4.4. This result was almost the same number which occurred in 2007, which was affected by a major outage on the Somerton line.

Short rural customers on Powercor's network also experienced more minutes-off-supply and sustained interruptions than in 2008. Average minutes-off-supply increased 109 per cent from 2008 to a total of 286 minutes. The result was 55 per cent higher than the most recent 5 year's average. From 2008, the average number of sustained supply interruptions increased by 1.6 interruptions to 3.1.

Supply reliability on Powercor's long rural network also declined. In 2009, the average minutes-off-supply increased to 510 minutes or 109 per cent from 2008. This was on the back of two successive decreases in 2007 and 2008. Nevertheless, the 2009 performance was still 45 per cent higher than the past 5 year's average. The average number of sustained interruptions increased from 2.4 in 2008 to 4.5. This was

the same number of interruptions as SP AusNet on its long rural feeder—which is the only other Victorian DNSP with long rural feeders.

In SP AusNet's short rural feeder network, the average number of minutes-off-supply was 563, which was 28 per cent more than in 2008. It is the most minutes-off-supply reported by any DNSP on a short rural line. The result was 36 per cent higher than SP AusNet's 5 year average. SP AusNet reported a higher average number of sustained interruptions per customer of 4.2 compared to 3 interruptions in 2008.

SP AusNet reported 566 minutes-off-supply on average for its long rural feeder. This was 30 per cent higher than in 2008, and 16 per cent higher than its 5 year average. SP AusNet has maintained a relatively steady average number of sustained interruptions over the past 5 years. It reported an average of 4.5 sustained interruptions in 2009, compared with 4.1 in 2008.

SP AusNet advised that its network was significantly impacted by the February bushfires and several storms in 2009. In particular, the February bushfire had a severe impact on both short and long rural feeders. The February bushfire contributed to 26 and 24 per cent of the total minutes-off-supply of its short and long rural feeders respectively.

The number of minutes-off-supply for an average United Energy short rural customer significantly decreased in 2009, from 490 in 2008, to 275. However, in 2008, United Energy's minutes-off-supply increased significantly by 236 per cent from 2007. As a result, the average number of minutes-off-supply in 2009 was still 21 per cent higher than the 5 year average. United Energy reported 3.6 sustained interruptions per customer, compared with 2.1 in 2008.

3.3.3 Feeders below low-reliability thresholds

The ESCV set low-reliability thresholds for feeder classes, based on levels of reliability experienced by the worst-served five per cent of customers. These thresholds were revised in the 2006–10 price determination, based on feeder performance data for 1999 to 2004. The ESCV requires DNSPs to provide comments on their plans for each feeder which falls below the reliability threshold.

In revising the thresholds, the ESCV took into account that CitiPower's CBD network is predominantly underground. Any single outage occurring underground is likely to take significantly longer to locate and repair than an outage in an overhead powerline. To provide a more balanced view of when CBD customers experience poor reliability, the ESCV set a minutes-off-supply threshold in the CBD that only applies where average feeder interruption frequency is greater than one. The ESCV also introduced thresholds for the average number of momentary interruptions in all DNSPs' urban and rural networks

Table 3.3 shows the current and previous low-reliability feeder thresholds.

Table 3.3 Low-reliability feeder thresholds (by feeder category)

Feeder category	2001–05	2006–10	
	Average annual total minutes-off-supply (SAIDI)	Average annual total minutes-off-supply (SAIDI)	Momentary interruptions frequency per customer (MAIFI)
CBD	65	70 [a]	na
Urban	280	270	5
Short rural	710	600	12
Long rural	1010	850	25

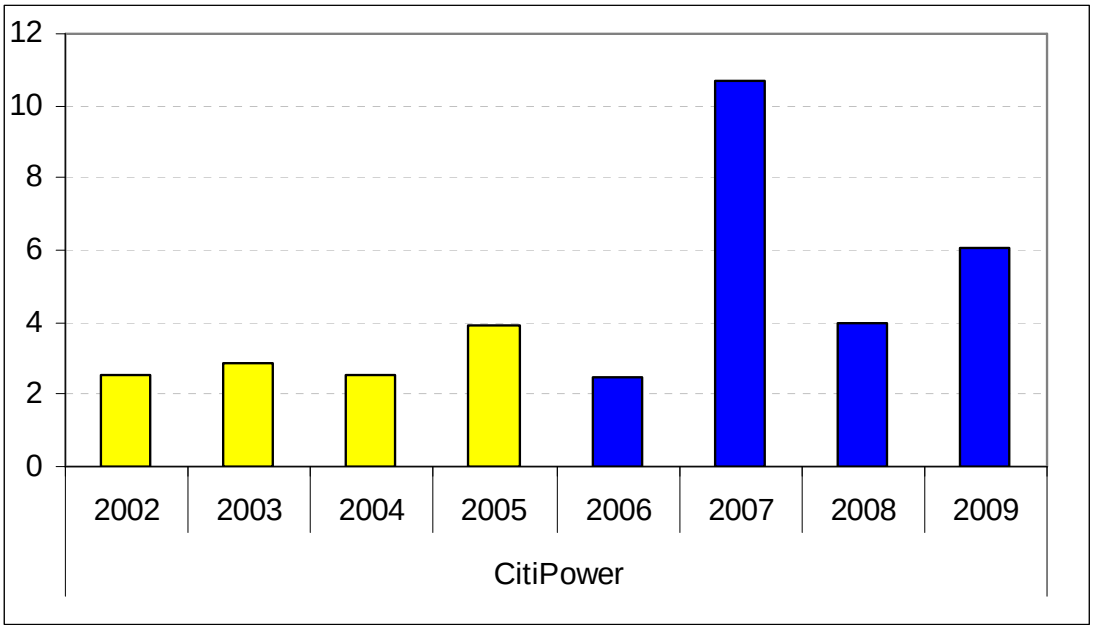
[a] When more than one sustained interruption occurs on the feeder.

Table C.22 in Appendix C identifies all the distribution feeders that did not achieve this threshold performance level in 2009. The table details the performance of these feeders in 2009 (and in 2008 if the feeders appeared in the previous report). Figure 3.15–3.18 compares low-reliability feeders for each feeder type and for each DNSP. The interruptions which result in feeders operating above the threshold levels include those caused by abnormal events such as the January 2009 heatwave and load shedding.

3.3.4 Low-reliability central business district feeders

Figure 3.15 shows the percentage of CitiPower's CBD feeders performing above the low-reliability threshold, or in other words, feeders which are have low reliability as measured by this indicator. CitiPower recorded 6 per cent of feeders above the reliability threshold. This is a deterioration in performance from 2008, during which 4 per cent of CBD feeders were above the threshold. The number of feeders above the low-reliability threshold in 2009 was also above the average from 2006 which is 5.8 per cent.

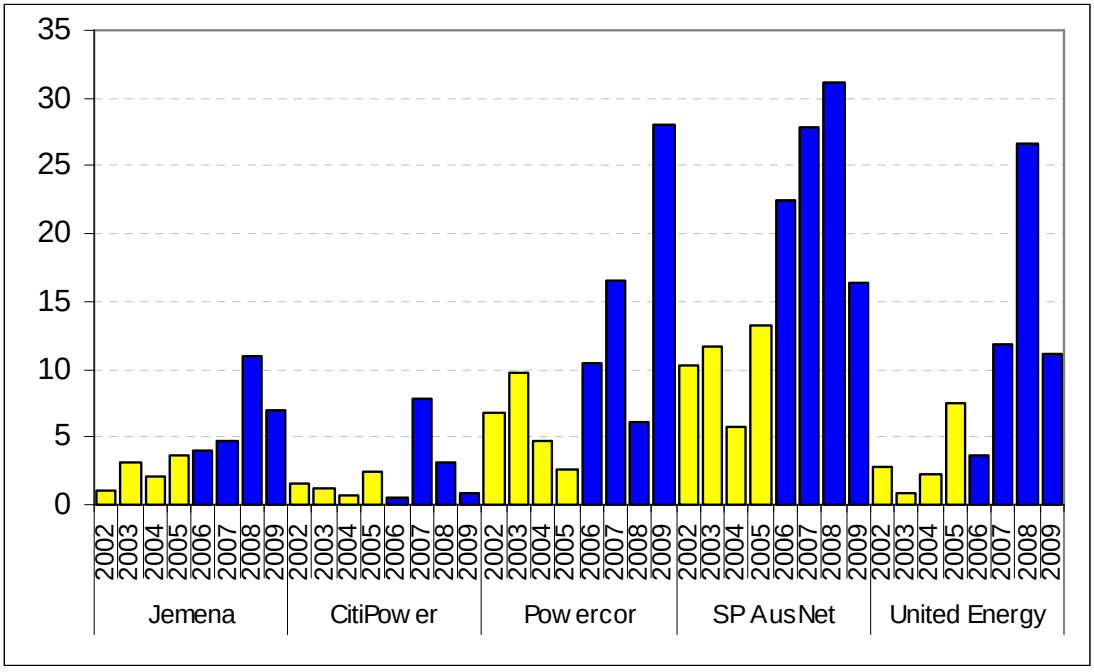
Figure 3.15 Central business district feeders (percentage of feeders in the category exceeding low-reliability threshold)



3.3.5 Low-reliability urban feeders

Figure 3.16 shows that there was variability between the performances of the DNSPs' urban feeders. Jemena, CitiPower, SP AusNet and United Energy had a fewer feeders above the low-reliability threshold than in 2008, however, Powercor had substantially more.

Figure 3.16 Urban feeders (Percentage of feeders in the category exceeding low-reliability threshold)



CitiPower recorded 0.86 per cent of its urban feeders above the low-reliability thresholds. CitiPower has reduced the number of low-reliability urban feeders above the threshold for the past three years.

6.1 per cent of Powercor's urban feeders had low-reliability in 2008 which was an improvement from the number reported in 2006 and 2007 despite them being impacted by the 2 April 2008 storm and adverse weather events. However, in 2009, 28 per cent of Powercor's urban feeders were above reliability thresholds.

Jemena reported that 7 per cent of its urban feeders were above reliability thresholds as compared with 11 per cent in 2008. Jemena noted that the increase in percentage of low reliability feeders from 2005 was due to the increase in upstream supply failures and wide spread major events. Jemena also noted that the percentage of low reliability feeders has been fairly constant, at around 2.4 per cent for the past three years when approved exclusions are removed.

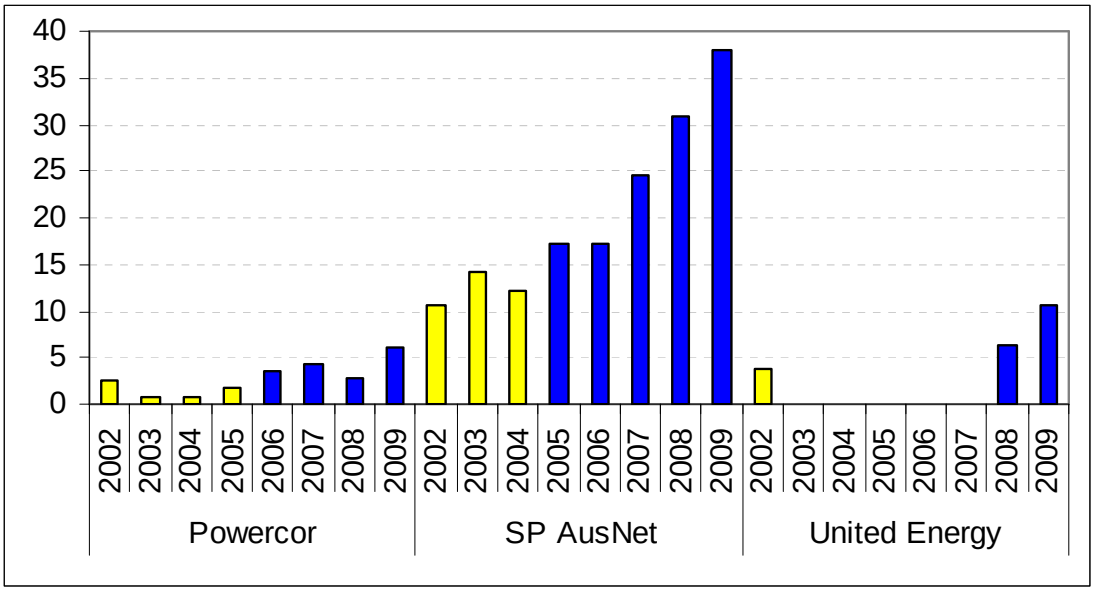
Around 16 per cent of SP AusNet's feeders were above the reliability threshold which is significantly less than the 31 per cent in 2008. However, in 2008, SP AusNet advised that when removing the effects of the 2 April 2008 storm only 16 per cent of its feeders would have been above the reliability thresholds.

United Energy had a reduction in the percentage of low-reliability feeders to 11 per cent from around 27 per cent in 2008. United Energy's feeders were also affected by the 2 April storm in 2008. United Energy advised that the increase in urban feeders above the threshold from 2007 was mainly due to transmission asset failures and wide spread major events. With excluded events removed, the percentage of feeders above the reliability thresholds from 2007–09 were 5.7, 3.5 and 6 per cent respectively.

3.3.6 Low-reliability rural feeders

Rural feeders are categorised by the ESCV as either short rural feeders or long rural feeders. Short rural feeders are defined as feeders with a load density below 300 kVA/circuit km, the length of the feeder is less than 200 km and the network is typically composed of radial feeders. Long rural feeders are the same but have a feeder length of greater than 200km.

Figure 3.17 Short rural feeders (Percentage of feeders in the category exceeding low-reliability threshold)

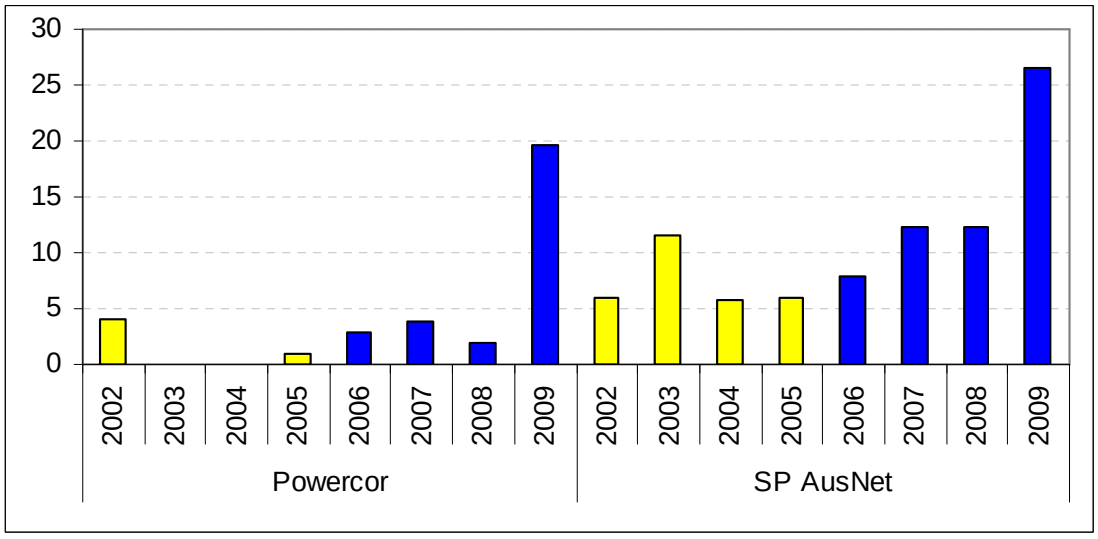


United Energy's percentage of feeders above the reliability thresholds was around 10.5 per cent. In 2008, the percentage of feeders above the threshold was about 6.5 per cent.

SP AusNet has experienced an increasing trend in the percentage of feeders above low-reliability thresholds. In 2009, 38 per cent of its short rural feeders were above reliability thresholds, compared to 31 per cent the year before. SP AusNet advised that its rural feeders were badly affected by February bushfire and other storms.

Only 6 per cent of Powercor's feeders were above reliability thresholds which was the lowest percentage of all the DNSPs with short rural feeders.

Figure 3.18 Long rural feeders (Percentage of feeders in the category exceeding low-reliability threshold)



Only Powercor and SP AusNet have long rural feeders. Powercor had a significant increase in the percentage of low reliable feeders from 2 per cent in 2008 to 19.6 per cent. SP AusNet also had a substantial increase in the number of long rural feeders above the thresholds, from 12.2 per cent in 2007 and 2008, to 26.5 per cent in 2009—or a 117 per cent increase. SP AusNet advised that its rural feeders were badly affected by February bushfire and other storms.

3.4 Reliability of supply compared with price review targets

The ESCV's price review for the 2006–10 regulatory period set minimum service levels in terms of the number and duration of electricity outages. DNSPs are required to pay Guaranteed Service Level (GSL) payments to customers when the minimum service levels are not met. In the current system, any customers will automatically receive GSL payments if they experience cumulative unplanned sustained or momentary interruptions in a year above certain thresholds. The GSL payment rates were increased to four-times the previous rates in 2006. Chapter 4 gives details of the operation of GSLs.

The price review also reinforced the S factor financial incentive scheme to promote supply reliability. Under this scheme, DNSPs receive a financial reward or penalty depending on whether they have achieved the performance targets set by the ESCV in the price review. The S factor scheme was first introduced in 2001.

The GSL and S factor schemes represent the value to society of not having electricity. The penalty rate is set at 1000 times the distribution service charge of the DNSPs for delivering electricity to the customers.

3.4.1 Excluded events

The high penalty rate represents a very high risk that could make the DNSPs unviable. Therefore, supply interruption events, which are outside the control of DNSPs, or outside the expected capacity of the DNSPs to manage, are excluded from the GSL and S factor schemes. The exempted events include supply outages due to a shortfall in generation capacity, transmission network outages and exceptionally wide-scale supply outages that exceed the thresholds set by the ESCV.

In 2009, 21 applications for excluded events were approved, of which:

- seven related to the January heatwave
- 13 related to transmission asset failures
- one related to weather conditions that were conducive to pole-top fires.

Table 3.4 summarises the effects on customer minutes-off-supply of the excluded events since 2002.

Table 3.4 Average minutes-off-supply per customer due to excluded events

Type of event	2002	2003	2004	2005	2006	2007	2008	2009
Load shedding [a]						33.3	0	41.7
Failure of transmission connections		0.8	0.5	0.2	7.9	2.0	0.4	3.1
Rare events	1.7	13.4		40.5	8.0	8.2	117.2	5.2
Total	1.7	14.2	0.5	40.7	15.8	43.6	117.5	50

[a] some rare events are counted as load shedding as DNSPs can be directed to shed load during rare events

3.4.2 Targets for minutes-off-supply

Table 3.5 outlines the service performance targets for total minutes-off-supply in each DNSP's network. The targets for 2006–10 are fixed in terms of feeder type: CBD, Urban, Short Rural or Long Rural. They vary from year to year as network reconfigurations follow population shifts.

Table 3.5 Targets for total minutes-off-supply per customer (minutes)

	2002	2003	2004	2005	2006	2007	2008	2009
CitiPower	55.8	51.2	46.5	41.8	40.6	40.5	40.6	40.5
Jemena	90	87	85	83	83.1	83.1	82.2	81.8
Powercor	250.0	237.0	225.0	212.0	201.9	201.4	200.2	199.9
SP AusNet	246.0	237.0	227.0	218.0	209.0	211.5	213.7	214.6
United Energy	102.0	94.0	87.0	79.0	83.9	83.9	83.9	78.1

Table 3.6 Comparison between minutes-off-supply targets and reported reliability less excluded events

Performance measure, by DNSP	2009 reported result	2009 targets	Better/(worse) than target (%)
CitiPower			
Planned minutes-off-supply	4.3	9.2	53.5
Unplanned minutes-off-supply	29.6	31.3	5.5
Total minutes-off-supply	33.9	40.5	16.4
Jemena			
Planned minutes-off-supply	9.7	6.5	(49.9)
Unplanned minutes-off-supply	86.9	75.4	(15.3)
Total minutes-off-supply	96.6	81.8	(18.0)
Powercor			
Planned minutes-off-supply	26.6	37.8	29.8
Unplanned minutes-off-supply	189.2	162.1	(16.7)
Total minutes-off-supply	215.8	199.9	(7.9)
SP AusNet			
Planned minutes-off-supply	53.4	34.9	(53.1)
Unplanned minutes-off-supply	357.9	179.7	(99.1)
Total minutes-off-supply	411.4	214.6	(91.6)
United Energy			
Planned minutes-off-supply	24.6	17.7	(39.1)
Unplanned minutes-off-supply	104.8	62.3	(68.3)
Total minutes-off-supply	129.3	79.9	(61.8)

Figure 3.19 compares each DNSP's performance of unplanned minutes-off-supply per customer (less the impact of excluded events) against their targets, with a straight line trend also plotted. The figure starts at 2001 when the service incentive scheme was introduced.

When a DNSP's performance in figure 3.19 is below the 100 per cent line, it represents that the DNSP performed better than its target. CitiPower was the only DNSP to perform better than its target in 2009.

The orange line on the charts represents the trend for each of the DNSPs in relation to their performance targets since 2001. CitiPower, SP AusNet and United Energy and Jemena had an upward—or deteriorating—trend. In particular, SP AusNet's trend line has exceeded the target since 2002.

The trend line is below the target rate for Powercor and CitiPower—although increasing for CitiPower. Jemena's trend line is equal to its target but slightly increasing. SP AusNet and United Energy have an increasing trend line which is above the target rate.

In 2009, all DNSPs experienced a significant increase in the number of unplanned minutes-off-supply. As mentioned, in 2009 CitiPower was the only DNSP to have performance better than the target rate, whereas in 2008, all DNSPs actual performance was better the target rate.

The figure shows the following:

- CitiPower was the only DNSP to outperform its target in 2009. The number of actual unplanned minutes-off-supply was 5.5 per cent better than its target. Other than in 2007, CitiPower has performed better than its target since reporting in 2001.

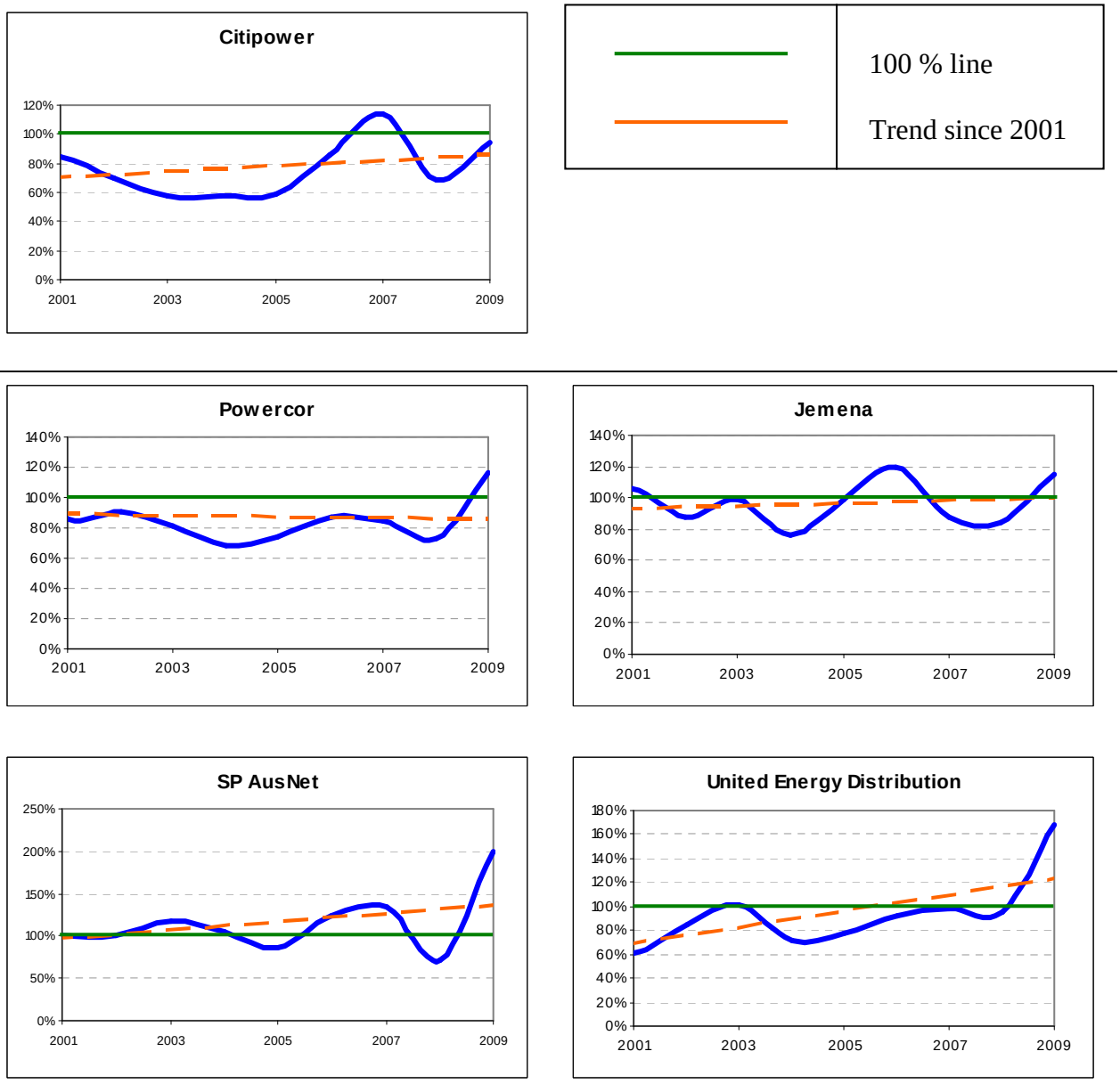
- In 2008, Jemena's average unplanned minutes-off-supply performance was 15 per cent better than its target. However, in 2009 Jemena was around 11.5 minutes or 15.3 per cent worse than its target. This was its second worse result after the result recorded in 2006 in which it was 19 per cent worse than its target. Jemena noted that in 2009, the January heatwave caused the average number of minutes-off-supply to be higher than usual—14.4 average minutes of which were not excluded events.

- Powercor's number of average unplanned minuted-off-supply was worse than its target by around 27 minutes or 16.7 per cent. This was the first time since 2000 that Powercor has performed worse than its target.

- SP AusNet has only performed better than its target in 2008 and 2005. In 2009, the number of average unplanned-minutes-off-supply recorded by SP AusNet was 99.1 per cent more than its target.

- United Energy recorded performance 68.3 per cent worse than its target. This was the first time since 2003 it has breached its target. It reported 105 average unplanned minuets-off-supply once excluded events had been removed.

Figure 3.19 DNSPs' unplanned minutes-off-supply (percentage of annual targets)



3.4.3 Targets for number and duration of interruptions

Table 3.7 shows that CitiPower, Jemena and Powercor performed better than their targets for the average number of unplanned interruptions per customer. As was the case in 2008, CitiPower and Powercor were the best performers, beating their targets for total interruptions per customer by 21 per cent and 13 per cent respectively.

The performance measure of the average duration of unplanned interruptions is derived from the average minutes-off-supply and frequency that are reported for the same unplanned interruptions. In 2009, all DNSPs exceeded their targeted average duration of interruptions. SP AusNet was the worst performing DNSP with performance 92 per cent worse than its target whereas in 2008, SP AusNet was the

only DNSP to perform better than its target in this measure, which it beat by 1 per cent.

Table 3.7 Comparison of frequency and duration targets with reported reliability less excluded events

	Average number of unplanned interruptions per customer			Average duration of unplanned interruptions		
	2009 reported result	2009 targets	Better/(worse) than target (%)	2009 reported result	2009 targets	Better/(worse) than target (%)
CitiPower						
unplanned interruptions	0.56	0.70	21	53.0	44.5	(19)
Jemena						
unplanned interruptions	1.28	1.33	4	67.9	56.8	(20)
Powercor						
unplanned interruptions	1.89	2.17	13	99.9	74.7	(34)
SP AusNet						
unplanned interruptions	2.80	2.70	(4)	128.0	66.5	(92)
United Energy						
unplanned interruptions	1.34	1.15	(17)	78.0	54.4	(44)

3.4.4 Targets for momentary interruptions

3.4.4 shows that Jemena and SP AusNet exceeded their monetary interruption target. The best performing DNSP was Powercor, which performed 28 per cent better than its target.

Table 3.8 Comparison of total momentary interruption targets with reported reliability, all momentary interruptions

	2009 reported result (less excluded events)	2009 targets	Better/(worse) than target (%)
CitiPower	0.19	0.25	25
Jemena	1.01	0.91	(12)
Powercor	3.01	4.19	28
SP AusNet	6.13	5.15	(19)
United Energy	1.25	1.58	20

3.4.5 AER observations regarding DNSPs' supply reliability performance

Overall supply reliability in 2009 deteriorated from previous years. The total minutes-off-supply increased by approximately 12 per cent when compared with performance in 2008. Total sustained interruptions also increased by 41 per cent.

When excluded events were removed from the overall performance, DNSPs' supply reliability deteriorated 83 per cent in terms of minutes-off-supply. In addition, the aggregate number of planned and unplanned sustained interruptions increased by 27.3 per cent.

In 2009, the aggregate reliability for the worst served customers and the best served customers declined. Table 3.1 shows that for all DNSPs, the total minutes-off-supply for the worst served 15 per cent of customers was worse than the target level. In addition, there were fewer customers who experienced 0–1 hours of interruptions and more customers who experienced more than 10 hours without supply, from 6.8 per cent of customer in 2008 to 7.8 per cent. As a result of this performance, in aggregate, the DNSPs were required to make approximately $11.28 million of GSL payments to customers, compared with $2.24 million in 2008, as discussed more in section 4.2.

The deterioration in supply reliability performance can, in part, be attributed to the summer heatwave, which was an excluded event. However, even when excluded exceptional events are removed from the performance data, the DNSPs' aggregate performance still deteriorated. The DNSPs did not provide specific reasons why performance after removing excluded events deteriorated.

3.5 Quality of supply

As well as the reliability or availability of supply, customers can also be negatively impacted by poor quality electricity supply—namely, the technical characteristics of electrical energy delivered. Customers should receive their supply at the nominal voltage (230 volts for most customers) and at a single fundamental frequency of 50 hertz. The key elements for assessing quality of supply are voltage variations and harmonic distortion.

A supply that varies outside the specified limits may prevent the proper operation of customers' equipment or may damage it. The ESCV's Electricity Industry Guideline No. 11: Voltage Variation Compensation, defines the circumstances in which customers are entitled to compensation for damages due to voltage variations.

3.5.1 Performance monitoring

Quality of electricity supply in Victoria is monitored through two key sources:

- the level of customer complaints as reported by DNSPs
- the results of independent regulatory audits of DNSPs.

DNSPs have installed equipment to monitor the quality of supply at each zone substation and at the far end of one distribution feeder supplied from each zone substation. Under the 2006–10 price review, the two predominantly rural DNSPs, Powercor and SP AusNet, were funded to install additional sophisticated voltage monitoring equipment (27 locations for Powercor and 17 for SP AusNet). Installation of the additional monitoring equipment has been completed. The additional equipment will assist the DNSPs to address their supply quality issues.

Three DNSPs—Powercor, SP AusNet and United Energy—have been funded to improve the quality of their supply to customers. These DNSPs are required to report from 1 January 2006 on the number of customers receiving improved quality of supply.

The monitoring of supply quality covers limited supply areas of each DNSP, so direct comparison of each DNSP's recorded voltage variation events is not possible. The AER therefore monitors the trend of changes in the DNSPs' reported information. However, the AER notes that the Victorian Government has mandated a complete rollout of smart meters to replace all existing energy meters by 2013. The new smart meters are expected to have the capability to monitor steady-state voltage as a factor of supply quality, and this monitoring will practically cover the entire customer base by 2013.

Table C.7 to C.9 in appendix C contain DNSPs' reported information on over-voltage events. The performance indicators show that the number of voltage variation events in 2009 was similar to that in 2008, with a few exceptions:

- Jemena reported 18 voltage surge events, affecting 246 customers, up from the 11 surge related events which affected 69 customers in 2008.
- Jemena also reported 29 over-voltage events due to poor voltage regulation which affected 2684 customers, down from the 3971 customers affected by the 46 events in 2008.
- SP AusNet reported 31 surge events which affected 86 customers, up from the 9 events in 2008 which affected 27 customers

- Powercor reduced the number of voltage events due to poor voltage control from nine in 2008 to one in 2009.

Table 3.9 shows the cumulative number of Powercor, SP AusNet and United Energy customers who have received improved quality of supply since the start of the 2006–10 regulatory period, compared with the targets set for those three DNSPs in the price review. The table shows that all three DNSPs met their targets for 2009.

The table also shows the number of steady-state voltage variation events that the DNSPs recorded in 2009. SP AusNet was the only DNSP to report fewer voltage variation events for both zone substations and distribution feeders in 2009. United Energy reported significant increases in the number of voltage fluctuation events in both its zone substations and distribution feeders since 2008.

There is a degree of uncertainty in the collection and analysis of the voltage-variation data. DNSPs estimate the number of customers affected by over-voltage events and identify their causes, on the basis of the customers' complaints and the DNSPs' own investigations. Data in 4.3 may show differences between the networks, in the customers' readiness to complain or the DNSPs' readiness to recognise complaints.

Table 3.9 Number of recorded steady-state voltage variation events, 2009

	Number of customers who received improved quality of supply		Number of events (over- and under-voltage)			
	2009 target	2009 actual	Zone substations		Distribution feeders	
			2008	2009	2008	2009
CitiPower	na	na	42	63	4 808	2,063
Jemena	na	na	214	323	14 587	7,264
Powercor	47 400	49 107	215	266	8 353	8,161
SP AusNet	61 697	77 366	6 040	4 367	42 922 [a]	30,610
United Energy	800 – 1 600	5 701 [b]	32	47	1,435	2,382

[a] SP AusNet advised that, of the 42 922 steady state voltage variations events recorded at the end of high voltage feeders, four out of the 43 sites monitored accounted for almost 89 per cent of the total variations recorded. These four monitors (smart billing meters) are currently installed at commercial/industrial customers (such as major hotels, ski resort and water station) where loads are erratic and voltages above nominal are preferred in order to maintain acceptable voltages at the farthest end of their LV distribution network.

[b] The cumulative number of customers who received improved quality of supply since 2006 in United Energy's network is 28 506. United Energy advised that it has no specific project after 2007 to have significant improvement in quality of supply. The number indicated represents the five year average of this overall result.

4 Customer service

The performance levels of customer service that DNSPs achieved in 2009 were measured in terms of meeting the guaranteed service levels (GSLs). These GSLs relate to meeting appointments with customers on time, making supply connections and fixing streetlights by required dates and maintaining supply reliability above the minimum level. Customer service was also measured in terms of the levels of customer complaints.

4.1 Guaranteed service levels—appointments, connections and streetlights

Table 4.1 gives details of the GSL scheme applying in 2009 to encourage good customer service. The same GSLs applied to these categories of service in the 2001–05 regulatory period.

Table 4.1 Guaranteed payments to customers for poor service, thresholds and payments for the 2006–10 period

Measure	Level of service to incur GSL payment	Minimum GSL payment
Appointments	More than 15 minutes late for appointment with a customer	$20 per event
Connections	Failure to connect a customer by the date agreed	$50 per day (to a maximum of $250)
Streetlights	Failure to repair a streetlight within two business days or by date agreed	$10 [a]

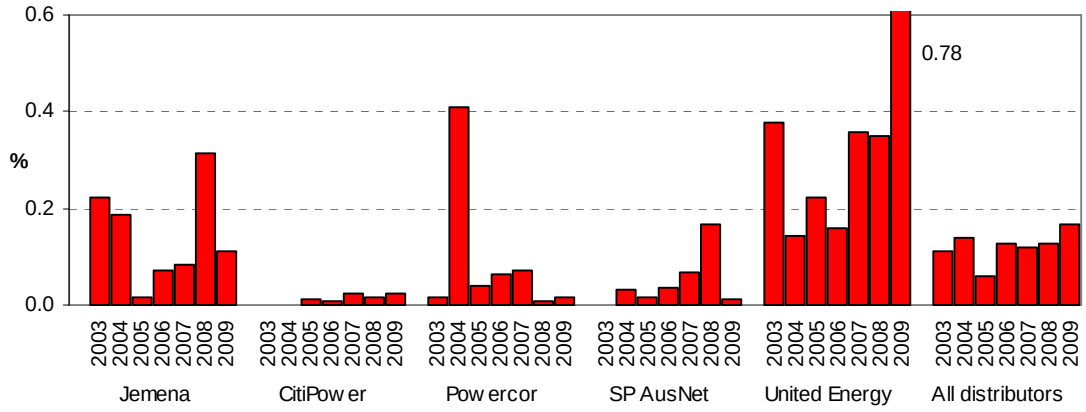
[a] Paid only to the first customer reporting from the immediately neighbouring residence or business.

Figure 4.1 and 4.2 show the number of occasion on which GSL payments became due to customers, in terms of the percentage of customer appointments not met on time and the percentage of new connections not completed on time.

4.1.2 Meeting appointments on time

There has been some volatility in the percentage of appointments not met on time between 2008 and 2009 for most DNSPs—other than CitiPower and Powercor. However, in aggregate the DNSPs have shown a reasonably steady percentage of late appointments from 2003–09. In 2009, 74 of the appointments made by DNSPs did not commence within 15 minutes of the arranged time. Of these, United Energy had 61 late appointments out of the 7800 booked with its customers.

Figure 4.1 Appointments not met on time (percentage of appointments made)

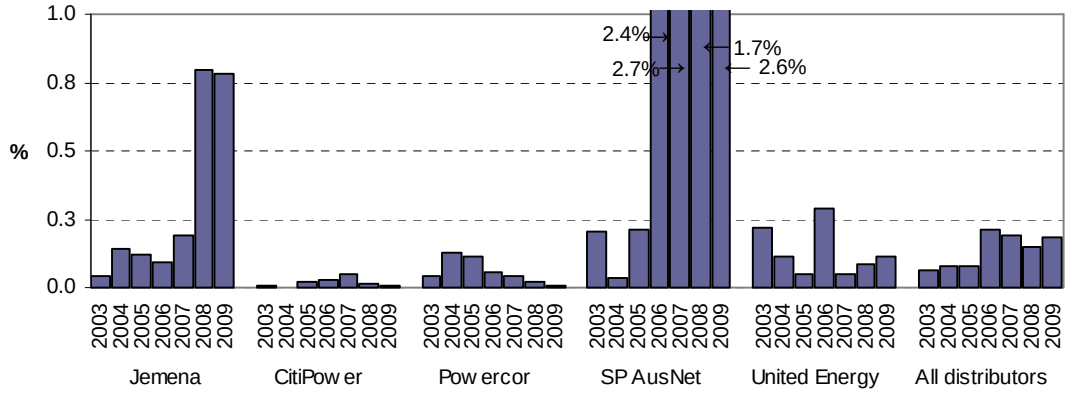


4.1.3 Making new connections by the agreed date

Figure 4.2 shows that of the 14 896 connections made by SP AusNet, in 385 instances or 2.6 per cent of connections, the connection was not completed by the required date. From 2008, the number of connections made by SP AusNet increased by about 10.6 percent, however, the number of connections not made on the agreed date increased around 64.5 per cent. The other DNSPs reported a similar percentage of connections not made by the agreed date as reported in 2008. In aggregate, 18.4 in every 10 000 connections were not made on the agreed date which is more than the 14.8 in every 10 000 connection reported in the year before.

Jemena advised that 42 GSLs were paid for new connections not made by the agreed date in April 2008. The connection work was put on hold as crews were diverted to power supply restoration from the major storm events in April. In 2009, work scheduling errors resulted in 24 GSLs in April (19 of which were in the one block of residential units). Similar scheduling errors occurred in July, which resulted in 19 connection dates being missed. The scheduling process has since been improved along with a change of new connections work contracting arrangements. It expects that the level of this GSL payment will reduce in 2010.

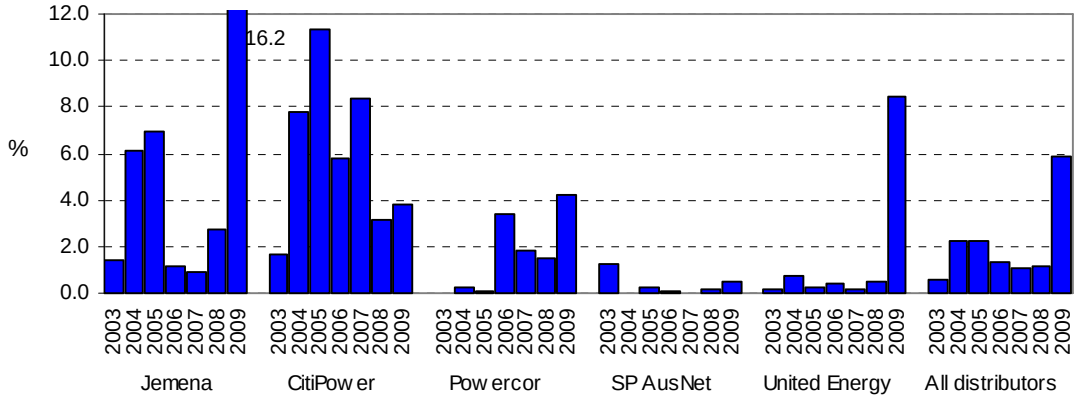
Figure 4.2 Connections not made by agreed date (percentage of new connections)



4.1.4 Repairing streetlights within the agreed time

Figure 4.3 reports the performance of the DNSPs in repairing streetlights within seven business days prescribed by the Public Lighting Code.[17]

Figure 4.3 Streetlights not fixed by required time (percentage of lights reported broken)



Jemena and United Energy reported significant increases in the percentage of streetlights reported broken but not fixed within seven business days. Powercor reported that 4.2 per cent of its streetlights were not fixed by the required time which was a significant increase from 2008. None of the DNSPs had better performance in 2009 than in 2008 in this measure. This contributed to a large aggregate increase in percentage streetlights not fixed by the required time from around 1.2 per cent in 2008 to 5.9 per cent in 2009.

United Energy advised that it completed a review of its public lighting repair performance and identified areas for improvement. Implementation of the identified improvements has commenced and is expected to be completed within the next six months.

Overall, the number of GSL payments increased from 2008 by 83 per cent to 251 payments. This followed a 56 per cent increase in the number of GSL payments from 2007 to 2008.

4.2 Guaranteed service levels — reliability payments

The price review requires DNSPs to make GSL payments to customers who experience reliability that is worse than the specified performance thresholds. From 1 January 2006, an enhanced scheme with additional measures of performance was brought into effect. Table 4.2 provides the details of the new GSL scheme for 2006–10, compared to the previous scheme (for 2001–05).

[17] Available form the ESCV's website at http://www.esc.vic.gov.au/public/Energy/Regulation+and+Compliance/Codes+and+Guidelines/

Table 4.2 Guaranteed service level payments to customers for poor reliability, thresholds and payments for the 2001–05 and 2006–10 regulatory control periods

	Level 1		Level 2		Level 3	
	Threshold	**Payment ($)**	**Threshold**	**Payment ($)**	**Threshold**	**Payment ($)**
2006–10 regulatory period						
Annual cumulative duration of interruptions	20 hrs	100	30 hrs	150	60 hrs	300
Annual number of interruptions	10	100	15	150	30	300
Momentary interruptions [a]	24	25	36	35		
2001–05 regulatory period						
Duration of interruption	15 hrs	80				
Annual number of interruptions (urban)	9	80				
Annual number of interruptions (rural)	15	80				

[a] Momentary interruptions are temporary supply disruptions of less than 1 minute.

Table 4.3 summarises payments that the DNSPs made in 2008 and 2009 for not meeting the supply reliability thresholds for the duration and number of supply interruptions.

Payments made by SP AusNet for long supply restoration time increased 632 per cent to $6 184 400. SP AusNet also had large increases in the payments for low supply reliability and payments for momentary interruptions.

Powercor's GSL payments increased in all categories. The largest percentage increase was for payments for momentary interruptions which increased 231 per cent. For all DNSPs in aggregate, the total amount for GSL payments increased by about 400 per cent to over $11 million.

Table 4.3 Guaranteed service level payments for supply reliability, long supply restoration time

	Number		Number per 1000 customers		Amount paid ($)	
	2008	**2009**	**2008**	**2009**	**2008**	**2009**
Payments due to long supply restoration time						
Jemena	12	545	0.04	1.79	1 550	54 750
CitiPower	411	5	1.40	0.02	41 100	500
Powercor	4358	15 569	6.42	6.31	452 200	1 487 450
SP AusNet	7311	43 186	12.14	70.66	845 000	6 184 400
United Energy	620	8 336	1.00	13.29	90 800	873 150
All DNSPs	12 712	67 641	5.10	26.64	1 430 650	8 600 250
Payments due to low supply reliability						
Jemena	0	0	0	0	0	0
CitiPower	0	0	0	0	0	0
Powercor	730	1 914	1.07	2.77	73 000	190 150
SP AusNet	3920	14 976	6.51	24.50	401 400	1 673 350
United Energy	2	132	0.00	0.21	200	13 200
All DNSPs	4652	17 022	1.86	6.70	474 600	1 876 700
Payments due to frequent momentary interruptions						
Jemena	0	0	0	0	0	0
CitiPower	0	0	0	0	0	0
Powercor	1251	4 493	1.84	6.50	32 695	108 240
SP AusNet	11344	25 123	18.84	41.10	299 290	690 775
United Energy	0	0	0	0	0	0
All DNSPs	12595	29 616	5.03	11.67	331 985	799 015
Total GSL payments						
Jemena					1 550	54 750
CitiPower					41 100	500
Powercor					557 895	1 785 840
SP AusNet					1 545 690	8 548 525
United Energy					91 000	886 350
All DNSPs					**2 237 235**	**11 275 965**

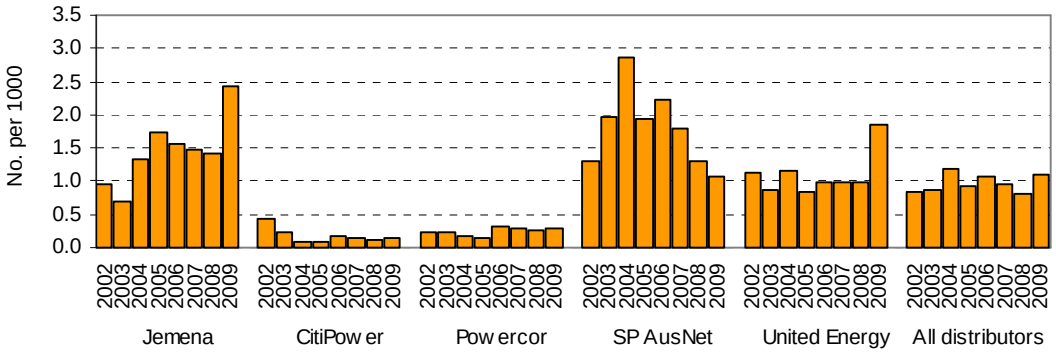
4.3 Customer complaints

Figure 4.4 shows that Jemena and United Energy were the only DNSPs to report significantly more complaints in 2009 than in 2008. SP AusNet and Powercor had a reduction in the number of complaints received. Overall, the DNSPs recorded an increase in the number of complaints received to 1.1 complaints for every 1000 customers.

Jemena experienced the most number of customer complaints per 1000 customers in 2009, with a reported 2.4 complaints per 1000 customers. It attributed the step increase in the number of complaints to prolonged supply restoration time during the major heatwave in late January and the delays in repair of street light faults.

CitiPower recorded the lowest level of complaints, at 0.14 per 1000 customers. Powercor recorded the second lowest level of complaints, at 0.29 per 1000 customers (a slight increase from 0.27 per 1000 in 2008).

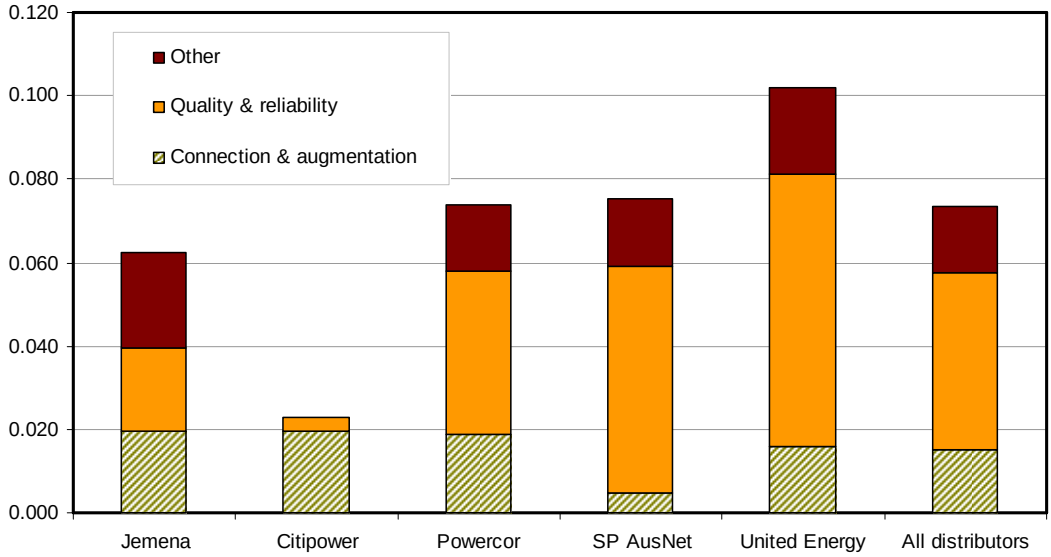
Figure 4.4 Normalised number of complaints to DNSPs (per 1000 customers)



4.3.2 Complaints to Energy and Water Ombudsman (Victoria)

Figure 4.5 shows the number of complaints against the DNSPs that the Energy and Water Ombudsman (Victoria) (EWOV) received for full investigation in 2009 (see box 4.1 for explanation).

Figure 4.5 Normalised number of complaints received by EWOV for full investigation, per 1000 customers



There was no substantial change in the number of complaints received in 2009 compared with 2008. As was the case in 2008, the majority of complaints were in regards to quality and reliability.

Box 4.1 Explanatory note

EWOV defines a complaint as an expression of dissatisfaction regarding a policy, practice or customer service performance of an energy or water provider which is a participant in the EWOV scheme, where a response or resolution is explicitly or implicitly expected.

The figure above only shows 'complaints received for full investigation'. EWOV fully investigates complaints that remain unresolved following two or more contacts between the customer and the provider. In 2009, EWOV received 187 electricity distribution complaints for full investigation.

In addition to 'complaints received for full investigation', there are two other types of complaints:

1. Unassisted Referrals: If a customer has not yet spoken with the energy or water provider about their complaint, EWOV generally refers them back to the provider's call centre, or to a more relevant agency. In 2009, 497 electricity distribution complaints were classified as unassisted referrals.

2. Assisted Referrals: If the customer has spoken once with someone at the provider's call centre about their complaint but it remains unresolved, EWOV usually refers them to a higher-level contact at the provider. In calendar year 2009, EWOV referred 678 electricity distribution complaints to higher-level contacts in the electricity distribution businesses.

4.4 Call centre performance during wide-scale events

During wide-scale outage events, significantly more customers than usual contact DNSPs' call centres to report supply interruptions, safety related matters and/or to obtain supply restoration information. Providing accurate and timely information to affected customers about supply restoration in these situations is an important part of the DNSPs' services to their customers.

In 2006, ESCV undertook a review of DNSPs' call centre performance during wide-scale emergencies during the late January 2006 heatwave period. It found that DNSPs' call centre performance during normal operating conditions was generally satisfactory and trends indicated that their performance was improving over time. However, the ESCV found that the management of wide-scale emergency situations needed to be improved.[18]

Following the above findings, the ESCV modified the reporting arrangement of the DNSPs and required that DNSPs report their call centres' performance during wide-scale events from 2009. This section focuses on the reported performance of the Victorian DNSPs' call centres on the five busiest days—as measured by the total number of calls entering the fault line. These days usually occur when there are wide-scale outage events affecting a DNSP's network. In 2009, these wide-scale emergency events included the 28-30 January heatwave and the 7 February 'Black Saturday' bushfires.

As this is the first year that the call centre performance indicators are reported, trend analysis is not possible.

DNSPs' annual average call centre performance measures are reported separately under the national reporting template, which are available from the AER's website.

Table 4.4 shows the DNSPs' five busiest days based on the number of calls to their call centre fault lines. The three days of the 28–30 January heatwave period were among the top four busiest days of the DNSPs' call centres. For CitiPower, Jemena, Powercor and United Energy; these heatwave days were the three busiest call centre days of 2009.

There appears to be a strong relationship between the average total minute-off-supply and the number of calls to call centre fault lines. Table 4.5 shows the average total minute-off-supply experienced by customers, for each DNSP on its busiest days. The total average minutes-off-supply on these days are generally well above the 2009 average, and this is especially so on the DNSPs' top three busiest days.

However, it is not a perfect relationship between the average total minute-off-supply and the number of calls to call centre fault lines. This is likely to be related to the timing and type of event. For instance, a short outage affecting a large number of

[18] Essential Services Commission, Victoria 2006, *Performance of Electricity Distribution Businesses' Call Centres during Wide-Scale Emergency Situations: Final Report*, 4 October 2006.

customers may result in a different volume of calls than a prolonged outage affecting a smaller number of customers. SP AusNet commented that, another explanation in some instances is that, customers may have other priority considerations such as safety.

Table 4.4 Busiest days in 2009

	Busiest days, based on the number of calls to call centre fault line				
	1st	**2nd**	**3rd**	**4th**	**5th**
CitiPower	29-Jan	30-Jan	28-Jan	3-Dec	18-Jul
Jemena	29-Jan	30-Jan	28-Jan	14-Mar	8-Oct
Powercor	30-Jan	28-Jan	29-Jan	3-Mar	30-Jun
SP AusNet	22-Jan	28-Jan	29-Jan	30-Jan	25-Aug
United Energy	29-Jan	30-Jan	28-Jan	26-Nov	26-Apr

Table 4.5 Average minutes-off-supply on days of highest call volume (ratio to 2009 daily average)

				Busiest days based on calls to call centre fault line		
	1st	**2nd**	**3rd**	**4th**	**5th**	**2009 daily average**
CitiPower	6.85	26.24	2.96	0.11	0.87	0.18
	(38.93)	(149.12)	(16.82)	(0.58)	(4.76)	
Jemena	10.76	35.51	6.96	5.16	0.89	0.36
	(29.79)	(98.32)	(19.26)	(14.29)	(2.47)	
Powercor	71.03	4.96	8.25	14.50	10.22	0.9
	(79.22)	(5.53)	(9.20)	(16.18)	(11.4)	
SP AusNet	12.43	7.52	8.64	11.18	29.3	1.00
	(12.39)	(7.49)	(8.61)	(11.14)	(29.2)	
United Energy	16.27	8.76	14.70	6.04	3.84	0.36
	(45.18)	(24.33)	(40.84)	(16.79)	(10.65)	

Table 4.6 shows total calls to call centre fault lines on the DNSPs' five busiest days in terms of total call volume. The number of calls to each DNSP's call centre fault line, on these days, was well above the daily average for each DNSP in 2009.

Table 4.6 Total calls on days of highest call volume (ratio to 2009 daily average)

	Busiest days based on calls to call centre fault line					
	1st	**2nd**	**3rd**	**4th**	**5th**	**2009 daily average**
CitiPower	4163	4038	3422	1388	1011	204
	(20.4)	(19.79)	(16.77)	(6.8)	(4.95)	
Jemena	12176	12009	4517	2813	2593	378
	(32.21)	(31.77)	(11.95)	(7.44)	(6.86)	
Powercor	40192	16389	14701	11858	11504	1178
	(34.13)	(13.92)	(12.48)	(10.07)	(9.77)	
SP AusNet	129182	102508	23827	19164	14043	1346
	(95.95)	(76.14)	(17.70)	(14.23)	(10.43)	
United Energy	23824	19010	7426	5297	4548	700
	(35.59)	(28.36)	(10.97)	(8.45)	(6.90)	

Table 4.7 shows the average waiting time of a caller for each DNSP over its five busiest days. For each DNSP's top three busiest days, the average wait times were well above the 2009 average. However, on Jemena's fourth and fifth busiest days, and United Energy's fourth busiest day the DNSPs' average wait times were below their respective 2009 averages.

The longest daily average waiting time was 13.9 minutes to Powercor's call centre on 28 January.

Table 4.7 Average waiting time (seconds) on days of highest call volume

	Busiest days (based on calls to call centre fault line)					
	1st	**2nd**	**3rd**	**4th**	**5th**	**2009 daily average**
CitiPower	265.93	184.93	823.28	54.93	132.26	90.56
Jemena	501.44	195.37	303.51	27.52	14.73	89.85
Powercor	443.62	835.34	575.47	258.07	480.83	121.44
SP AusNet	550.54	84.00	202.58	216.21	394.19	61.24
United Energy	528.96	483.25	491.67	85.07	185.18	130.15

Note: Adjusted to remove abandoned calls from the calculation of average waiting times.

Table 4.8 shows peak half-hourly average call waiting times on DNSPs' five busiest days in terms of call volume. Table 4.8 shows that the day with the highest peak average wait time for each DNSP, corresponded to the day with the highest average waiting time.

Table 4.8 Peak average waiting time (seconds) on days of highest call volume

	Busiest days (based on calls to call centre fault line)				
	1st	**2nd**	**3rd**	**4th**	**5th**
CitiPower	1418.645	1037.74	1487.41	179.76	490.08
Jemena	2697.64	2400.83	1627.22	197.17	89.25
Powercor	2345.40	1378.62	2027.74	626.84	870.57
SP AusNet	*	*	*	*	*
United Energy	2738.48	2643.27	1405.82	282.09	1176.40

Note: SP AusNet is unable to provide this measure before 2011.

Of each DNSP's five busiest days, the highest peak waiting time was recorded by United Energy, on 29 January 2009, where it peaked at around 45.6 minutes—compared to its average waiting time over the year of 1 minute and 35 seconds.

4.4.2 Performance during 28–30 January 2009 heatwave

The 28–30 January heatwave increased the number of calls to each DNSP's call centre as compared to usual operating conditions. For all DNSPs, the number of calls queued for response by a human operator increased over this period, with SP AusNet's call centre experiencing the largest increase (around 34 times the daily average of 429 to 14 528). United Energy's call centre also experienced a large increase of around 20 times its 2009 daily average of 498 to 10 012 calls. As noted above, the increase in calls contributed to increases in average wait times for all DNSPs.

4.4.3 Performance during 7–8 February 2009 bushfires

During the February 2009 bushfires period, the number of calls made to call centre fault lines was generally higher than average. However, for no DNSP did this period fall among the days with the highest call activity. On Black Saturday (7 February), there was a noticeable increase in calls queued for a human operator for United Energy's call centre (around 2 times its 2009 daily average to 928). While the total number of calls received was somewhat higher, both CitiPower and Powercor experienced a sharp increase in the number of calls not answered within 30 seconds, with approximately 70 per cent of calls not being answered within 30 seconds. On 8 February, the peak half-hourly average wait time for Powercor was around 27 minutes and 30 seconds, 14 times its 2009 daily average.

Data on call centre performance on 7–8 February was not specifically sought by the AER and as such SP AusNet did not provide specific information on its call centre performance on the 7–8 February 2009.

5 Long term health assessment

In addition to reporting the actual levels of service delivered to customers, the ESCV considered there was a need to monitor whether the DNSPs' long term business decisions are sufficient to achieve an adequate level of service in future. The existing performance indicators of the DNSPs (such as supply reliability measures) are lagging measures—that is, an indicator of the outcome of a previous change of the DNSPs' asset management policy. The ESCV introduced 'health card' measures for the DNSPs for the 2006–10 regulatory period to monitor DNSPs' capacity to achieve an adequate level of service in the future.

The health card consists of measures to indicate whether a DNSP has implemented appropriate long term strategy and plans to ensure adequate ongoing performance. The monitoring system seeks to identify changes that may indicate potential for the deteriorating 'health' of the DNSP, which may be due to an increase in the underlying risks assumed by the DNSP. The criteria therefore include comparisons of each DNSP's performance against its own performance in prior years—to identify trends—and against industry-wide standards—which on their own may not always sufficiently identify desirable and achievable performance levels.

The health card monitoring system is in the form of a traffic-light format, displayed as green (highest rating), orange or red (lowest rating). Table A.1 in appendix A details the assessment criteria of the health card indicators.

Table 5.1 shows the health card assessment results of the DNSPs. The number of red and orange lights has increased from five to nine. DNSPs reported the following issues:

- Except for CitiPower, all DNSPs have 'orange' rating for reliability of supply. This is reflective of the significant decline in reliability in 2009 as discussed in chapter 3.

- CitiPower received an 'orange' light for bushfire mitigation because it had five priority-2 category maintenance items outstanding at the beginning of the fire season on 30 November 2009. All these priority-2 items were located in a low bushfire risk area and were completed by 20 December 2009.

- Regarding correct application of excluded service charges, Jemena, CitiPower and Powercor all received 'orange' ratings. These DNSPs revised one, three and one connection charge offers to customers respectively, as result of customers' complaints.

- The quality of supply measures for SP AusNet was highlighted 'orange' rating because its reported number of voltage variation events was 12 per cent higher than that of the previous year.

Table 5.1 Health card status, electricity DNSPs, 2009 [19]

Key = Red = Orange = Green

Measures	Jemena	CitiPower	Powercor	SP AusNet	United Energy
Reliability of supply		[a]			
Quality of supply					
Network planning					
Complaints to EWOV received for full investigation					
Compliance with safety regulations					
Bushfire mitigation		[b]	[c]		
Regulatory audits (ESC)					
Safety audits (ESV)					
Environmental infringements (EPA)					
Correct application of excluded service charges					
Electrical Incidents					
Quality systems certification (AS9000 series)					
Environmental systems certification (AS 14000)					

Notes:

[a] The level of reliability of CitiPower's CBD network declined in 2009. However, its urban network's performance was better than target levels. The overall level is considered to be better than targets.

[b] CitiPower had five outstanding items (all under the same category) at the beginning of the fire season:

Two were completed in the field on 24 and 28 November 2009 respectively, however were not updated in the Asset Management System by the 30th November which is when job completion is measured.

[19] Refer to Table A.1 of appendix A for the assessment criteria of the health card system.

Two involved the replacement of non-standard public lighting poles which had to be supplied from Melbourne City Council and took longer than expected. Both poles were replaced on 2 December 2009.
One was planned for completion prior to 30 November however was cancelled due to storm activity. This job required a permit from VicRoads which meant applications had to be re-submitted. The earliest date VicRoads could approve the permit was 20 December 2009. The job was completed on the same day.
CitiPower also commented that bushfire mitigation plan should not be included as performance measures for CitiPower as there is negligible bushfire risk in its distribution area compared to the other DNSPs. It also noted that two of the missed items were situated in the Fitzroy Gardens.

[c] Powercor completed all bushfire preparatory works on 30 November 2009, other than those where access was restricted. Access to 66 spans (part of the pre-summer vegetation management program) were restricted due to wet ground conditions. All 66 sites were regularly checked to monitor access conditions to enable the works to be completed as soon as possible. All works were completed by 11th January 2010.

To continue providing information regarding the DNSPs' supply reliability performance, the AER will develop an outcomes monitoring framework, under which the DNSPs will be required to report against. Reporting against this framework will monitor the consistency of the Victorian DNSPs with the AER's 2011–15 Victorian distribution determinations, and increase the transparency and accountability of the service levels delivered to customers. This framework has been foreshadowed in the AER's 2011–15 distribution determination.[20]

[20] Further information regarding the AER's outcome monitoring framework is available at the AER's *Victorian electricity distribution network service providers Distribution determination 2011–2015 Final decision*, chapter 21, http://www.aer.gov.au/content/index.phtml/itemId/740791

A Source of information and background information

This section covers the sources of information, any changes in the previous reporting format, errors identified in the previous report, and other background information relevant to the preparation and interpretation of this report.

Source of information

The analysis of the DNSPs' performances is based on:

- regulatory accounting information provided annually by the DNSPs to the AER
- network performance and customer services information reported by the DNSPs
- complaint information supplied by the Energy and Water Ombudsman (Victoria).

Accuracy of reporting

A.1.1 Reporting consistency

The AER began compiling the performance reports of Victorian DNSPs in 2008. Previously the report was compiling by the ESCV. The AER has calculated the information in its reports from yearly data where previously it was calculated from monthly data. This results in a slight difference in the reporting of customer numbers, which feed into some of the performance measures. The effects of the different reporting methods are immaterial, and comparisons between the years can still be made.

Percentages throughout this document are calculated from the actual performance figures, and therefore may appear slightly different if calculated from the figures in this report due to rounding errors.

For metering services, in the 2009 comparative performance report, the AER has used the forecasts of revenue, capital and operating expenditure from the *Final determination—Victorian advanced metering infrastructure review, 2009–11 AMI budget and charges applications*. This is a departure from previous performance reports where the forecasts for metering services reflected those contained within the ESCV's 2006–10 EDPR. The AER considers this adjustment is necessary to properly compare DNSPs' revenue against their forecast costs and revenue.

This report is prepared on the basis of the ESCV's reporting arrangements for the 2006–10 regulatory period and has been prepared to be, as far as practicable, consistent with the conventions used by the ESCV in preparing past performance reports. For this reason, the data presented in this report may not entirely match with the data presented in the Victorian electricity Distribution Price Review 2011–15.

A.1.2 Financial information

All financial results are inflation adjusted—the DNSPs' price controls permit them to increase average prices each year in line with inflation. It is, therefore, more informative to compare forecasts and actual results when they are expressed in real (inflation-adjusted) terms. In this report, the forecasts and actual results are reported in the dollar value of 1 July 2004, that is, in terms of the purchasing power of a dollar in the middle of 2004. This approach is consistent with the inflation adjustment adopted for the 2006–10 price review.[21]

A.1.3 Reliability of supply and customer service information

Each DNSP undertook a regulatory compliance audit in 2009. The scope of the audit included the accuracy of selected performance information reported by the DNSPs to the AER. The audits were conducted by independent auditors nominated by the DNSPs and approved by the AER. The audit findings indicated that DNSPs generally maintained a satisfactory level of accuracy in reporting key performance indicators. Errors were typically less than 2 per cent.

Health card measures

A 'health card' summary of leading indicators has been developed to identify changes in DNSPs' performance which may lead to deterioration of network services over time. The health card is presented in table 5.1 in the body of the report. The following defines the measures that are included in the health card.

[21] A contentious issue for utility regulators has been whether prices (and underlying asset values) should be escalated for the sharp jump in consumer prices caused by the introduction of the Goods and Services Tax (GST). No adjustment to the published price indexes has been made in this report.

Table A.1 Health card measures

Measure	Green light [a]	Orange light [a]	Red light [a]
Reliability	Equal or better than targeted level of reliability for unplanned SAIFI and unplanned SAIDI	Worse than targeted level of reliability for unplanned SAIFI or unplanned SAIDI during the year	Worse than targeted level of reliability for unplanned SAIFI or unplanned SAIDI during the last two years
Voltage quality	Decreasing or flat trend in the total number of voltage variations (steady state, 1 minute and 10 seconds) over the five year period, or part thereof where records are available (flat trend represents a less than 5 per cent increase in the number of voltage variations over the period) or voltage quality improvement projects implemented as forecast	Increasing trend in the total number of voltage variations (steady state, 1 minute and 10 seconds) over the five year period, or part thereof where records are available (increasing trend represents a 5 per cent or more, but less than 50 per cent, increase in the number of voltage variations over the period) or more than 20 per cent but less than 50 per cent of cumulative forecast voltage quality improvement projects not implemented	Increasing trend in the total number of voltage variations (steady state, 1 minute and 10 seconds) over the five year period, or part thereof where records are available (increasing trend represents a 50 per cent or more increase in the number of voltage variations over the period) or 50 per cent or more of cumulative forecast voltage quality improvement projects not implemented
Planning	Decreasing or flat trend, over a 5 year period or part thereof, in the annual load at risk due to late completion of projects which were planned by the distributor to provide capacity to meet the expected maximum demand in winter or summer (flat trend represents a less than 5 per cent increase in the annual load at risk)	Increasing trend, over a 5 year period or part thereof, in the annual load at risk due to late completion of projects which were planned by the distributor to provide capacity to meet the expected maximum demand in winter or summer (increasing trend represents a 5 per cent or more, but less than 50 per cent, increase in the annual load at risk)	Increasing trend, over a 5 year period or part thereof, in the annual load at risk due to late completion of projects which were planned by the distributor to provide capacity to meet the expected maximum demand in winter or summer (increasing trend represents a 50 per cent or more increase in the annual load at risk)
Service orders	Based on the B2B report card completed by the distributors and retailers – to be developed after B2B report card developed	Based on the B2B report card completed by the distributors and retailers – to be developed after B2B report card developed	Based on the B2B report card completed by the distributors and retailers – to be developed after B2B report card developed
Complaints	Number of complaints referred to EWOV no greater than 1.5 times the average annual number of complaints referred during the period 2002-2004 and number of complaints referred to EWOV less than 0.20 per 1,000 customers	Number of complaints referred to EWOV greater than 1.5 times but no greater than 2 times the average annual number of complaints referred during the period 2002-2004 or number of complaints referred to EWOV equal to or greater than 0.20 per 1,000 customers and less than 0.30 per 1,000 customers	Number of complaints referred to EWOV greater than 2 times the average annual number of complaints referred during the period 2002-2004 or number of complaints referred to EWOV equal to or greater than 0.30 per 1,000 customers

Measure	Green light [a]	Orange light [a]	Red light [a]
Safety regulations	No directions issued under section 141 of Electricity Safety Act are outstanding for more than 3 months during the year	A direction issued under section 141 of Electricity Safety Act is outstanding for more than 3 months but no more than 9 months during the year	A direction issued under section 141 of Electricity Safety Act is outstanding for more than 9 months during the year
Bushfire mitigation plan	No work outstanding at the start of the bushfire season	One of the seven categories of work reported on is not completed at the start of the bushfire season	More than one of the seven categories of work reported on is not completed at the start of the bushfire season
Regulatory audits [b]	Score of more than 75 per cent for audit, based on level of non-compliance reported and the likely impact of that non-compliance	Score of more than 50 per cent, but 75 per cent or less, for audit, based on level of non-compliance reported and the likely impact of that non-compliance	Score of 50 per cent or less for audit, based on level of non-compliance reported and the likely impact of that non-compliance
Safety audits (if undertaken)	No significant areas of non-compliance as determined by Energy Safe Victoria	Of the areas audited, one significant area of non-compliance as determined by Energy Safe Victoria	Of the areas audited, more than one significant area of non-compliance as determined by Energy Safe Victoria
Environmental (EPA)	No infringement notices for environmental regulations during the year	One infringement notice for environmental regulations during the year	Two or more infringement notices for environmental regulations during the year
Excluded service charges	No occasions where excluded service charges are revised by the distributor following contact by the customer with the Commission	No more than five occasions where excluded service charges are revised by the distributor following contact by the customer with the Commission	More than five occasions where excluded service charges are revised by the distributor following contact by the customer with the Commission
Electrical Incidents relating to a distributor's distribution system	Number of incidents reported to ESV is less than 1.25 times the number of incidents reported in the previous year and number of incidents reported to ESV is less than 0.5 per 1,000 customers	Number of incidents reported to ESV is equal to or greater than 1.25 times but less than 1.5 times the number of incidents reported in the previous year or number of incidents reported to ESV is equal to or greater than 0.5 per 1,000 customers and less than 1.0 per 1,000 customers	Number of incidents reported to ESV is equal to or greater than 1.5 times the number of incidents reported in the previous year or number of incidents reported to ESV is equal to or greater than 1.0 per 1,000 customers
	Green light (only)		
Quality systems certification (AS9000 series	Distribution business and/or its related party (where that related party undertakes a significant proportion of the distribution business's obligations under its licence) certified with no major non compliances from most recent audit		

Measure	Green light [a]	Orange light [a]	Red light [a]
Environmental systems certification (AS 14000)	Distribution business and/or its related party (where that related party undertakes a significant proportion of the distribution business's obligations under its licence) certified with no major non compliances from most recent audit		

[a] The AER may use its discretion to improve a rating from orange to green or red to orange, but may not move a rating from green to orange or orange to red. The "health card" will include a comments column which will explain the reasons for an orange light or a red light, and where the rating has been improved at the discretion of the Commission, will provide the rationale for this improvement.

[b] Each compliance item is to be rated on a scale of 1 to 5 for compliance

Characteristics of the DNSPs

A.1.4 Jemena

Jemena supplies electricity to 305 000 customers (about 89 per cent residential) in a 950 km2 area of Melbourne's city and north-western suburbs, with Tullamarine airport at its approximate centre. Its network includes around 6 000 km of powerline (about 83 per cent through the urban area) on 91 000 poles—although around 23 per cent of the urban network and 34 per cent of the rural network is underground. Related companies include United Energy and one of three gas distribution networks in Victoria.

A.1.5 CitiPower

CitiPower Pty supplies just over 300 000 customers (about 83 per cent residential) in a 157 km² area of Melbourne's CBD, docklands and inner city. Its network includes 6 500 km of powerline on approximately 59 000 poles. About 17 per cent (by length) is classed as 'CBD'; nearly 90 per cent of CBD lines are underground. It has common ownership and a common management structure with Powercor.

A.1.6 Powercor

Powercor Australia Ltd supplies nearly 690 000 customers (85 per cent residential) in 146 000 km² of Victoria. Its network includes part of Melbourne's Docklands precinct, and extends from Williamstown, north to the Murray, west to the South Australian border and south to the coast. Powercor uses 83 000 km of powerline (85 per cent classified as 'rural') on approximately 485 000 poles, and about 9.5 per cent of its length runs underground.

A.1.7 SP AusNet

SPI Electricity Pty Ltd trades as SP AusNet. The business supplies 613 000 customers (88 per cent residential) in an 80 000 km² area. This extends from the outer-eastern suburbs of Melbourne, north and east to the New South Wales border (encompassing Seymour, Benalla, Wangaratta and Wodonga), south and east to the coast including many of the heavily treed areas of Victoria. SP AusNet's distribution network assets include 48 000 km of powerlines (89 per cent rural and 81 per cent above ground) and 384 000 poles. Its related companies also operate the electricity transmission network and one of three gas distribution networks in Victoria.

A.1.8 United Energy

United Energy Distribution Pty Ltd supplies 627 000 customers (90 per cent residential) in a 1 500 km² area from the south-eastern suburbs, southwards down the Nepean peninsula. Powerlines on the network are more than 13 000 km long (14 per cent rural, 81 per cent above ground) on 211 000 poles.

B Financial information tables

Table B.1 Aggregate financial information—2004 dollars Jemena (see appendix A)

Jemena									**Year ending 31 December**
Revenue, expenditure, customer contributions and asset value ($m)	**1996–2001 av'ge**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Forecast revenue	136.7	129.7	131.2	132.3	133.0	137.7	137.5	137.6	137.0
Actual revenue	143.5	128.7	134.0	138.9	146.3	143.3	155.0	150.7	152.7
Forecast O & M expenditure	47.6	48.4	47.1	47.9	47.7	54.3	55.2	56.6	56.5
Reported O & M expenditure	49.0	49.2	49.8	47.8	49.0	51.6	54.0	46.8	49.4
Adjusted O & M expenditure		44.5	50.0	48.4					
Forecast capital expenditure	33.6	46.8	50.5	50.7	56.8	55.2	48.4	50.2	86.4
Reported capital expenditure	34.1	28.1	30.9	32.1	36.8	49.1	67.1	53.6	114.1
Adjusted capital expenditure		34.6	38.9	38.1					
Forecast customer contributions	7.2	1.7	1.8	1.8	1.8	4.4	4.5	4.2	4.4
Actual customer contributions	8.2	6.6	7.0	4.6	4.9	7.4	9.2	9.8	8.2
Forecast average asset value	561.7	597.3	608.1	618.8	630.8	587.7	601.5	610.7	642.4
Reported average asset value	555.6	572.8	562.8	554.3	547.6	550.9	570.9	590.4	647.7
Adjusted average asset value		582.6	572.7	564.1					

Table B.2 Aggregate financial information—2004 dollars CitiPower

CitiPower									**Year ending 31 December**
Revenue, expenditure, customer contributions and asset value ($m)	**1996–2001 av'ge**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Forecast revenue	191.5	184.7	187.5	190.0	192.7	179.6	178.9	178.5	177.6
Actual revenue	194.3	184.3	187.5	199.9	199.9	194.5	196.1	190.1	195.5
Forecast O & M expenditure	69.8	55.3	55.4	56.1	56.7	37.8	39.3	39.7	47.3
Reported O & M expenditure	41.6	33.6	29.4	47.3	25.3	30.9	34.7	35.5	39.2
Adjusted O & M expenditure		87.6	101.1	103.5					
Forecast capital expenditure	58.4	72.7	77.9	72.1	61.2	103.0	105.9	101.4	119.2
Reported capital expenditure	59.3	65.5	62.3	66.9	71.7	83.3	66.8	75.9	91.6
Adjusted capital expenditure		139.2	149.6	161.9					
Forecast customer contributions	8.0	7.7	7.7	7.7	7.7	5.7	5.6	5.5	6.0
Actual customer contributions	5.6	8.1	8.9	10.1	11.7	7.4	12.3	26.3	23.0
Forecast average asset value	862.9	917.8	948.8	977.7	997.0	1009.9	1048.9	1085.7	1118.7
Reported average asset value	836.4	926.4	945.8	964.0	985.8	1006.7	1016.0	1020.2	1048.8
Adjusted average asset value		1599.4	1589.5	1588.8					

Table B.3 Aggregate financial information—2004 dollars Powercor

Powercor									**Year ending 31 December**
Revenue, expenditure, customer contributions and asset value ($m)	**1996–2001 av'ge**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Forecast revenue	378.4	368.5	373.4	379.1	383.6	353.5	354.4	355.9	357.0
Actual revenue	398.5	372.8	399.1	408.8	420.4	383.9	374.8	385.9	405.6
Forecast O & M expenditure	121.8	118.7	120.5	118.9	120.4	127.1	130.5	133.4	145.0
Reported O & M expenditure	114.3	90.4	100.0	110.2	120.3	120.6	107.0	115.7	124.7
Adjusted O & M expenditure		87.6	101.1	103.5					
Forecast capital expenditure	114.1	127.2	126.0	149.3	143.1	158.2	188.0	198.7	197.3
Reported capital expenditure	128.0	108.1	120.7	126.7	136.9	166.0	159.2	167.1	167.4
Adjusted capital expenditure		139.2	149.6	161.9					
Forecast customer contributions	27.5	15.9	16.2	16.8	17.6	25.9	26.1	26.0	26.0
Actual customer contributions	30.6	32.0	38.8	37.1	35.3	31.0	60.3	48.8	51.4
Forecast average asset value	1526.5	1598.1	1607.5	1628.0	1660.1	1654.5	1723.9	1809.4	1862.5
Reported average asset value	1501.3	1610.5	1605.9	1611.1	1627.4	1671.4	1728.1	1779.7	1823.7
Adjusted average asset value		1599.4	1589.5	1588.8					

Table B.4 Aggregate financial information—2004 dollars SP AusNet

SP AusNet									**Year ending 31 December**
Revenue, expenditure, customer contributions and asset value ($m)	**1996–2001 av'ge**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Forecast revenue	297.8	288.9	290.0	293.3	297.2	309.2	312.9	316.1	322.66
Actual revenue	306.0	289.6	308.9	300.1	311.4	297.9	318.7	329.0	318.59
Forecast O & M expenditure	107.2	102.8	106.4	105.5	105.3	123.3	126.2	131.0	141.38
Reported O & M expenditure	97.0	98.5	102.3	94.1	86.9	89.4	112.4	121.6	141.9
Adjusted O & M expenditure		90.1	86.1	93.4					
Forecast capital expenditure	87.8	120.9	106.7	97.5	110.6	139.8	130.4	148.6	188.88
Reported capital expenditure	78.6	57.2	79.7	100.8	162.9	121.0	128.2	185.6	237.305
Adjusted capital expenditure		79.2	108.1	128.4					
Forecast customer contributions	24.7	8.0	8.7	9.3	9.8	12.9	13.5	13.9	12.0
Actual customer contributions	19.5	23.0	29.9	27.6	19.6	24.3	18.8	17.8	22.0
Forecast average asset value	1214.5	1306.3	1343.3	1371.0	1402.5	1341.2	1400.1	1455.3	1518.4
Reported average asset value	1167.6	1229.1	1219.8	1235.5	1294.7	1364.4	1412.8	1484.9	1603.2
Adjusted average asset value		1225.7	1215.1	1230.1					

Table B.5 Aggregate financial information—2004 dollars United Energy

United Energy								**Year ending 31 December**
Revenue, expenditure, customer contributions and asset value ($m)	**1996–2001 av'ge**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Forecast revenue	268.0	265.6	267.4	268.6	270.7	267.0	266.6	265.9	263.7
Actual revenue	284.2	284.5	303.2	306.5	297.8	278.5	280.4	279.5	267.8
Forecast O & M expenditure	95.9	87.9	85.7	86.0	85.4	87.6	89.5	92.3	92.5
Reported O & M expenditure	94.6	78.4	84.7	85.6	82.9	85.6	81.6	83.9	88.9
Adjusted O & M expenditure		72.6	74.6	74.9					
Forecast capital expenditure	72.3	114.0	109.0	105.0	115.5	107.0	103.8	113.4	156.8
Reported capital expenditure	66.9	78.4	79.3	77.3	71.6	91.4	80.7	100.3	172.5
Adjusted capital expenditure		89.5	87.1	83.2					
Forecast customer contributions	18.3	1.6	1.3	1.1	1.1	4.2	4.2	3.9	3.8
Actual customer contributions	14.7	11.7	7.7	5.9	12.3	11.4	17.2	12.4	10.9
Forecast average asset value	1194.5	1255.8	1291.4	1316.4	1339.0	1229.2	1243.8	1257.5	1306.1
Reported average asset value	1177.6	1204.1	1206.2	1201.5	1187.2	1177.2	1170.8	1166.1	1204.1
Adjusted average asset value		1197.2	1198.9	1194.2					

Table B.6 Aggregate financial information—2004 dollars All DNSPs

All DNSPs							Year ending 31 December	
Revenue, expenditure, customer contributions and asset value ($m)	1996–2001 av'ge	2002	2003	2004	2005	2006	2007	2008	2009
Forecast revenue	1272.4	1237.5	1249.5	1263.4	1277.3	1246.9	1250.3	1254.0	1257.9
Actual revenue	1326.5	1259.8	1332.7	1354.1	1375.7	1298.2	1325.0	1335.2	1340.2
Forecast O & M expenditure	442.3	413.0	415.1	414.5	415.3	430.1	440.6	453.0	482.8
Reported O & M expenditure	396.4	350.1	366.2	385.0	364.4	378.1	389.7	403.5	444.0
Adjusted O & M expenditure	0.0	382.4	412.9	423.7	0.0	0.0	0.0	0.0	0.0
Forecast capital expenditure	366.2	481.5	470.1	474.6	487.3	563.2	576.4	612.3	748.6
Reported capital expenditure	366.8	337.3	373.0	403.8	479.9	510.8	502.0	582.4	782.8
Adjusted capital expenditure	0.0	481.7	533.3	573.5	0.0	0.0	0.0	0.0	0.0
Forecast customer contributions	85.8	34.8	35.7	36.7	38.0	53.1	53.8	53.5	52.2
Actual customer contributions	78.6	81.5	92.2	85.4	83.8	81.6	117.9	115.1	115.6
Forecast average asset value	5360.1	5675.3	5799.1	5911.8	6029.4	5822.6	6018.2	6218.6	6448.2
Reported average asset value	5238.5	5542.9	5540.4	5566.3	5642.7	5770.6	5898.5	6041.3	6327.5
Adjusted average asset value	0.0	6204.3	6165.7	6166.0	0.0	0.0	0.0	0.0	0.0

Table B.7 Forecast return on distribution assets, per cent

	1996–01 average	2002	2003	2004	2005	2006	2007	2008	2009
Jemena	10.35	7.47	7.43	7.01	6.80	7.96	7.16	6.54	5.16
CitiPower	10.65	9.38	9.16	8.90	8.87	7.61	7.02	6.55	5.95
Powercor	11.26	8.33	8.41	8.82	9.13	7.51	6.87	6.21	5.29
SP AusNet	11.37	8.32	7.99	8.42	8.50	8.51	7.57	6.67	5.47
United Energy	10.37	8.32	7.99	7.36	7.15	7.34	6.82	6.05	6.17

Table B.8 Average reported return on distribution assets, per cent

	1996–01 average	2002	2003	2004	2005	2006	2007	2008	2009
Jemena	11.74	7.47	8.04	9.04	10.01	10.01	10.81	10.66	8.58
CitiPower	13.97	11.59	11.93	10.96	12.88	9.80	9.40	8.53	8.88
Powercor	13.45	10.29	11.30	11.30	11.57	9.64	9.39	8.99	9.19
SP AusNet	13.39	9.24	10.68	10.81	11.72	10.03	8.89	8.04	5.02
United Energy	11.32	11.03	11.62	11.25	10.55	8.81	9.10	8.41	7.34

Table B.9 Energy distributed, difference between forecast and actual – per cent

	1996–01 average	2002	2003	2004	2005	2006	2007	2008	2009
Jemena	4.1	-4.6	-4.8	-5.4	-7.3	1.5	2.7	4.3	1.1
CitiPower	6.9	1.8	0.6	4.1	3.2	4.8	4.8	3.4	2.3
Powercor	4.6	2	-0.1	-0.4	-2.1	1.2	0.7	0.9	-1.1
SP AusNet	5.5	-0.2	8	4.6	4.8	0.3	-1.2	1.3	-2.7
United Energy	-2.2	1.8	3.6	4.1	3.6	2.7	2	-0.6	-0.4

Table B.10 Distribution revenue, difference between forecast and actual – per cent

	1996–01 average	2002	2003	2004	2005	2006	2007	2008	2009
Jemena	5.0	-0.79	2.12	5.01	9.97	4.12	12.74	9.6	11.5
CitiPower	1.4	-0.22	-0.01	5.20	3.70	8.32	9.62	6.5	10.1
Powercor	5.2	1.17	6.89	7.83	9.58	8.62	5.75	8.4	13.6
SP AusNet	2.7	0.22	6.51	2.30	4.77	-3.67	1.87	4.1	-1.3
United Energy	6.0	7.09	13.42	14.09	9.99	4.33	5.16	5.1	1.6

Table B.11 Operating & maintenance expenditure, difference between forecast and actual—per cent

	1996–01 average	2002	2003	2004	2005	2006	2007	2008	2009
Jemena	2.9	1.7	5.8	-0.2	2.8	-5.0	-2.1	-17.4	-12.7
CitiPower	-40.4	-39.2	-46.8	-15.7	-55.4	-18.1	-11.7	-10.6	-17.2
Powercor	-6.2	-23.8	-17.0	-7.4	0.0	-5.1	-18.0	-13.3	-14.0
SP AusNet	-9.6	-4.2	-3.8	-10.8	-17.5	-27.5	-10.9	-7.2	0.3
United Energy	-1.3	-10.7	-1.2	-0.5	-2.9	-2.2	-8.9	-9.1	-3.9

Table B.12 Capital expenditure, difference between forecast and actual—per cent

	1996–01 average	2002	2003	2004	2005	2006	2007	2008	2009
Jemena	14.9	-39.96	-38.76	-36.57	-35.29	-11.00	38.71	6.8	32.0
CitiPower	0.4	-9.84	-20.06	-7.17	17.12	-19.14	-36.90	-25.2	-23.2
Powercor	12.5	-15.00	-4.16	-15.15	-4.34	4.90	-15.32	-15.9	-15.2
SP AusNet	-9.7	-52.72	-25.36	3.36	47.28	-13.48	-1.69	24.9	25.6
United Energy	-1.8	-31.20	-27.20	-26.44	-38.01	-14.56	-22.22	-11.6	10.0

Table B.13 Customer contributions to capital expenditure, difference between forecast and actual—per cent

	1996–01 average	2002	2003	2004	2005	2006	2007	2008	2009
Jemena	32.3	290.39	296.88	155.48	164.47	67.59	105.47	131.4	87.5
CitiPower	-26.4	5.07	14.76	31.78	53.40	29.08	121.76	377.0	285.3
Powercor	14.9	101.80	140.00	120.65	100.62	19.98	131.15	88.0	97.9
SP AusNet	-1.1	188.50	242.82	197.19	99.64	88.93	39.38	28.5	83.0
United Energy	89.6	654.74	475.99	415.81	992.91	171.38	312.64	214.0	184.9

Table B.14 Network revenue per MWh distributed, 2004 dollar values

	1996–01 av'ge	2002	2003	2004	2005	2006	2007	2008	2009	2006–09 av'ge
Jemena	37.7	32.26	32.73	33.35	35.05	33.51	35.39	33.6	34.9	34.9
CitiPower	39.9	34.54	34.69	34.96	34.43	32.56	32.26	31.2	32.1	32.1
Powercor	47.9	39.76	42.39	42.35	43.18	37.83	36.39	36.7	38.7	38.7
SP AusNet	52	44.76	43.65	42.95	43.57	40.26	42.5	41.7	40.6	41.1
United Energy	43.1	40.02	41.19	40.76	39	35.38	35.17	35.4	33.4	33.4

Table B.15 Network revenue per customer, 2004 dollar values

	1996–01 av'ge	2002	2003	2004	2005	2006	2007	2008	2009	2006–09 av'ge
Jemena	576.1	483.71	491.38	497.58	511.24	488.23	517.15	503.6	500.5	500.5
CitiPower	785.9	696.65	694.59	720.34	698.52	663.55	659.12	630.6	642.6	642.8
Powercor	705.5	622.99	651.3	649.3	652.64	584.4	560.45	561.1	587	586.9
SP AusNet	613.2	534.1	556.79	531.36	542.72	511.05	538.14	546.6	514.8	521.3
United Energy	515.1	489.03	510.39	508.64	488.49	451.89	452.49	452.8	427	427.0

Table B.16 Asset value per MWh distributed, reported average asset value—2004 dollar values

	1996–01 av'ge	2002	2003	2004	2005	2006	2007	2008	2009	2006–09 av'ge
Jemena	145.7	143.62	137.51	133.08	131.21	128.76	130.37	131.5	143.8	148.1
CitiPower	171.5	173.61	175.01	168.59	169.81	168.49	167.13	167.3	170.4	172.1
Powercor	180.2	171.77	170.53	166.92	167.16	164.7	167.79	169.3	174.2	173.8
SP AusNet	197.9	190	172.38	176.83	181.16	184.43	188.37	188.3	205.5	206.9
United Energy	178.5	169.4	163.86	159.77	155.47	149.52	146.85	147.7	151	150.3

Table B.17 Electricity distributed, Gigawatt hours (GWh)

	1996–01 av'ge	2002	2003	2004	2005	2006	2007	2008	2009
Jemena	3,817	3,988	4,093	4,165	4,173	4,278	4,379	4,489	4,375
CitiPower	4,879	5,336	5,404	5,718	5,805	5,975	6,079	6,099	6,096
Powercor	8,338	9,376	9,417	9,652	9,736	10,148	10,299	10,510	10,490
SP AusNet	5,908	6,469	7,076	6,987	7,147	7,398	7,500	7,886	7,750
United Energy	6,611	7,108	7,361	7,520	7,636	7,873	7,973	7,896	8,013

Table B.18 Maintenance expenditure, as a percentage of asset value—per cent

	2003	2004	2005	2006	2007	2008	2009	Av'ge % change 2007–09
Jemena	2.33	2.39	2.52	3.23	2.55	2.0	1.6	1.5
CitiPower	1.11	1.71	1.32	1.15	1.27	1.3	1.6	1.6
Powercor	3.00	3.06	3.61	3.75	3.60	3.4	3.7	3.6
SP AusNet	2.95	3.04	2.68	2.54	2.57	3.1	3.3	3.2
United Energy	2.23	2.26	2.20	2.13	1.96	2.1	1.4	1.3

Table B.19 Capital expenditure, as a percentage of asset value—per cent

	2003	2004	2005	2006	2007	2008	2009	Av'ge % change 2007–09
Jemena	5.50	5.80	6.71	8.91	11.76	9.1	18.1	17.6
CitiPower	6.58	6.94	7.27	8.28	6.57	7.4	8.8	8.7
Powercor	7.52	7.86	8.41	9.93	9.21	9.4	9.6	9.2
SP AusNet	6.53	8.16	12.58	8.87	9.07	12.5	13.5	14.8
United Energy	6.58	6.43	6.03	7.76	6.90	8.6	14.3	14.3

C Performance information tables

Table C.1 Definition of interruptions [a]

Measure	Index	Description
Average minutes-off-supply per customer	System Average Interruption Duration Index (SAIDI)	The average total minutes that a customer could expect to be without electricity over a specific period. Total SAIDI comprises both planned and unplanned minutes-off-supply.
Average number of interruptions per customer	System Average Interruption Frequency Index (SAIFI)	The average number of occasions per year when each customer could expect to experience an unplanned interruption. SAIFI is calculated as the total number of customer interruptions divided by the total number of connected customers averaged over the year. Unless otherwise stated, SAIFI excludes momentary interruptions (less than one minute duration).
Average interruption duration (minutes per interruption)	Customer Average Interruption Duration Index (CAIDI)	The average time taken for supply to be restored to a customer when an unplanned interruption has occurred. CAIDI is calculated as the sum of the duration of each customer interruption (in minutes), divided by the total number of customer interruptions (SAIDI divided by SAIFI). Unless otherwise stated, CAIDI excludes momentary interruptions (less than one minute duration).
Average number of momentary interruptions per customer	Momentary Average Interruption Frequency Index (MAIFI)	The average total number of momentary interruptions (less than one minute duration) that a customer could expect to experience in a year. MAIFI is calculated as the total number of customer interruptions of less than one minute duration, divided by the total number of connected customers averaged over the year.

[a] Customer interruptions include those interruptions due to outages of the transmission system.

Table C.2 Definition of feeder categories

Feeder category	Description
CBD	A feeder supplying Melbourne CBD determined from zone substation coverage maps.
Urban	A feeder, which is not a CBD feeder, with a load density greater than 0.3 MVA/km
Short rural [a]	A feeder, which is not a CBD or urban feeder, with a total length less than 200 km.
Long rural	A feeder, which is not a CBD or urban feeder, with total length greater than 200 km.

[a] Short rural feeders include feeders in urban areas with low load densities.

Table C.3 Average customer numbers

	Residential Customers		Business Customers		Total Customers	
	2009	Increase from 2008 (%)	2009	Increase from 2008 (%)	2009	Increase from 2008 (%)
Jemena	272,413	1.3	32,602	-3.7	305,016	0.8
CitiPower	251,558	1.0	52,757	2.0	304,315	1.2
Powercor	584,746	1.7	106,223	1.6	690,969	1.7
SP AusNet	539,633	1.7	71,567	-0.1	611,200	1.5
United Energy	563,866	1.6	63,381	2.0	627,247	1.6
All DNSPs	2,212,216	1.6	326,531	0.8	2,538,747	1.5

Table C.4 Supply reliability by DNSP, actual results, no abnormal events excluded

All DNSPs	2003	2004	2005	2006	2007	2008	2009	Change: 2008 to 2009 (%)
Average Minutes off Supply per Customer (SAIDI)								
Planned	17.8	26.4	26.8	30	31.1	27.8	27.8	0
Unplanned	143.6	105.8	138.4	135.5	165.8	200.4	227.5	13
Total	161.4	132.3	165.2	165.4	196.9	228.3	255.3	12
Average Number of Interruptions per Customer (SAIFI)								
Planned	0.08	0.13	0.12	0.13	0.13	0.22	0.13	-41
Unplanned	2.1	1.75	1.68	1.81	2	1.57	2.4	53
Total	2.18	1.88	1.8	1.94	2.12	1.79	2.53	41
Average Interruption Duration (CAIDI)								
Planned	211.1	203.1	220	229	244.7	126.5	213.9	69
Unplanned	68.5	60.6	82.5	75	83	127.6	94.7	-26
Total	74	70.5	91.9	85.4	92.7	127.5	100.8	-21
Average Number of Momentary Interruptions per Customer (MAIFI)								
Whole Feeder	1.9	1.84	1.99	1.56	1.7	1.62	1.79	10
Part Feeder	1.24	1.42	1.04	0.8	0.96	1.04	1.01	-3
Number of outages								
Planned	6,579	6,663	7,333	8,653	8,583	9,494	10,543	11
Unplanned	18,389	17,001	19,020	18,541	19,185	19,374	21,732	12
Momentary	2,171	2,116	2,313	1,912	2,154	2,017	2,216	10

Jemena	2003	2004	2005	2006	2007	2008	2009	Change: 2008 to 2009 (%)
Average Minutes off Supply per Customer (SAIDI)								
Planned	6.2	6.7	6.7	7.7	9.5	10.3	9.7	-6
Unplanned	95.2	59.3	95	91	111.5	115.6	129.5	12
Total	101.4	66	101.7	98.8	121	125.9	139.2	11
Average Number of Interruptions per Customer (SAIFI)								
Planned	0.03	0.03	0.03	0.03	0.03	0.04	0.04	-15
Unplanned	1.65	0.98	1.51	1.37	1.82	1.29	2.01	56
Total	1.68	1.01	1.54	1.4	1.85	1.33	2.04	53
Average Interruption Duration (CAIDI)								
Planned	199.8	220.6	246.8	260.6	271.3	247.1	274.7	11
Unplanned	57.7	60.5	63	66.5	61.3	89.7	64.5	-28
Total	60.3	65.3	66.2	70.6	65.2	94.6	68.2	-28
Average Number of Momentary Interruptions per Customer (MAIFI)								
Whole Feeder	0.74	0.62	0.66	0.75	0.74	0.53	0.87	65
Part Feeder	0.21	0.17	0.16	0.24	0.22	0.17	0.14	-15
Number of outages								
Planned	345	282	397	498	437	470	463	-1
Unplanned	922	768	912	1,031	949	982	1,236	26
Momentary	93	104	100	114	102	106	113	7
Total	1,360	1,154	1,409	1,643	1,488	1,558	1,812	16

CitiPower	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**Change: 2008 to 2009 (%)**
Average Minutes off Supply per Customer (SAIDI)								
Planned	6.6	7.8	6.5	5.1	4.2	4.3	4.3	-1
Unplanned	23.8	21.4	41.5	27	88.1	44.7	62.7	40
Total	30.5	29.2	48	32.2	92.3	49	67	37
Average Number of Interruptions per Customer (SAIFI)								
Planned	0.02	0.03	0.02	0.02	0.02	0.02	0.02	1
Unplanned	0.5	0.48	0.51	0.55	0.86	0.53	0.99	86
Total	0.53	0.51	0.53	0.57	0.87	0.55	1	83
***Average Interruption Duration (CAIDI*)**								
Planned	301.1	289.9	289.3	247.9	255	245.4	240.1	-2
Unplanned	47.2	44.2	81.7	49.3	102.9	84.1	63.6	-24
Total	57.8	57.1	90.6	56.5	105.7	89.3	66.7	-25
Average Number of Momentary Interruptions per Customer (MAIFI)								
Whole Feeder	0.19	0.24	0.26	0.15	0.14	0.14	0.19	35
Part Feeder								
Number of outages								
Planned	219	216	259	261	205	216	299	38
Unplanned	538	522	545	675	837	617	1,019	65
Momentary	62	67	34	42	38	49	69	41
Total	819	805	838	978	1,080	882	1,387	57

Powercor	2003	2004	2005	2006	2007	2008	2009	Change: 2008 to 2009 (%)
Average Minutes off Supply per Customer (SAIDI)								
Planned	11.7	18.3	16.7	18.7	22.3	23.2	26.6	14
Unplanned	194.4	124.5	141.3	198.5	209.9	133.5	308.5	131
Total	206.1	142.8	158	217.2	232.2	156.7	335	114
Average Number of Interruptions per Customer (SAIFI)								
Planned	0.07	0.13	0.15	0.12	0.13	0.13	0.16	19
Unplanned	2.49	1.65	1.84	2.47	2.32	1.64	3.25	99
Total	2.56	1.78	1.99	2.59	2.46	1.77	3.4	93
Average Interruption Duration (CAIDI)								
Planned	166.9	141.5	111.2	160.6	165.7	176.8	170.6	-4
Unplanned	77.9	75.5	76.7	80.3	90.4	81.6	95	16
Total	80.4	80.3	79.3	83.9	94.5	88.7	98.5	11
Average Number of Momentary Interruptions per Customer (MAIFI)								
Whole Feeder	2.29	2.12	2.66	1.95	2.22	2.01	2.12	6
Part Feeder	1.35	1.75	1.83	1.25	1.45	1.26	1.05	-17
Number of outages								
Planned	2,352	3,004	3,197	3,817	3,282	3,264	2,933	-10
Unplanned	6,760	6,191	6,778	6,430	6,153	7,681	7,125	-7
Momentary	758	705	894	662	768	661	719	9
Total	9,870	9,900	10,869	10,909	10,203	11,606	10,777	-7

SP AusNet	2003	2004	2005	2006	2007	2008	2009	Change: 2008 to 2009 (%)
Average Minutes off Supply per Customer (SAIDI)								
Planned	36	62.9	71.1	83.6	77.4	64.3	53.4	-17
Unplanned	253.5	206.2	261	220.9	245.4	300.8	365.9	22
Total	289.5	269.1	332.1	304.4	322.8	365.1	419.3	15
Average Number of Interruptions per Customer (SAIFI)								
Planned	0.18	0.3	0.27	0.35	0.29	0.29	0.26	-8
Unplanned	3.66	3.71	2.73	2.77	2.82	2.36	3.11	32
Total	3.84	4.01	3	3.11	3.11	2.64	3.37	28
Average Interruption Duration (CAIDI)								
Planned	198.7	208.6	268.4	241.7	270.1	224	203.3	-9
Unplanned	69.3	55.6	95.6	79.8	87	127.7	117.8	-8
Total	75.4	67.1	110.9	97.8	103.8	138.2	124.4	-10
Average Number of Momentary Interruptions per Customer (MAIFI)								
Whole Feeder	3.6	3.74	3.54	3	3.26	3.34	3.57	7
Part Feeder	3.25	3.59	1.89	1.5	2.04	1.99	2.55	28
Number of outages								
Planned	1,966	2,066	2,407	3,089	3,398	4,534	5,497	21
Unplanned	8,462	8,056	9,170	8,441	8,843	7,899	9,351	18
Momentary	885	950	951	832	949	939	1,030	10
Total	11,313	11,072	12,528	12,362	13,190	13,372	15,878	19

United Energy	2003	2004	2005	2006	2007	2008	2009	Change: 2008 to 2009 (%)
Average Minutes off Supply per Customer (SAIDI)								
Planned	17.6	18.1	14.3	14.1	20.3	17.7	24.6	39
Unplanned	64.3	51.8	84.4	60.7	106.3	295.1	131.1	-56
Total	81.9	69.9	98.6	74.8	126.5	312.8	155.7	-50
Average Number of Interruptions per Customer (SAIFI)								
Planned	0.06	0.06	0.05	0.05	0.07	0.05	0.07	34
Unplanned	1.15	0.93	1.12	1	1.5	1.39	1.66	20
Total	1.21	0.99	1.17	1.04	1.57	1.44	1.74	20
Average Interruption Duration (CAIDI)								
Planned	284.6	291.1	303.4	310.9	305.6	323.8	335	3
Unplanned	56.1	55.9	75	60.8	70.8	212.6	78.9	-63
Total	67.8	70.8	84.2	71.7	80.7	216.8	89.7	-59
Average Number of Momentary Interruptions per Customer (MAIFI)								
Whole Feeder	1.24	1.04	1.32	0.86	0.88	0.8	0.91	14
Part Feeder	0.31	0.29	0.31	0.32	0.23	0.44	0.37	-16
Number of outages								
Planned	1,697	1095	1,073	988	1,261	1,010	1,351	34
Unplanned	1,707	1464	1,615	1,964	2,328	2,161	2,823	31
Momentary	373	290	334	262	278	258	255	-1
Total	3,777	2,849	3,022	3,214	3,867	3,429	4,429	29

Table C.5 Percentage of Customers in each minutes-off-supply range

	Year	0-1 hour	1–2 hours	2–5 hours	5–10 hours	More than 10 hours
Jemena	2009	23.15	23.13	46.21	7.51	0.00
	2008	38.82	22.68	31.94	6.01	0.57
	2007	31.62	23.52	40.38	4.49	0.00
	2006	45.12	22.12	27.97	4.79	0.00
	2005	46.82	26.67	19.17	5.13	2.21
	2004	60.57	21.92	17.37	0.14	0.00
	2003	52.30	14.54	27.13	6.03	0.00
	2002	52.04	22.86	24.89	0.21	0.00
CitiPower	2009	58.72	20.41	19.82	1.05	0.00
	2008	77.22	11.91	7.58	2.73	0.53
	2007	55.38	12.10	26.35	5.87	0.30
	2006	81.82	14.99	2.68	0.40	0.11
	2005	74.84	15.23	8.55	1.36	0.02
	2004	83.31	10.77	5.84	0.08	0.00
	2003	84.90	9.36	5.39	0.34	0.01
	2002	78.89	13.24	6.83	1.04	0.01
Powercor	2009	9.35	8.18	33.13	36.61	12.73
	2008	24.62	26.06	34.92	13.20	1.19
	2007	20.28	13.76	33.42	29.64	2.90
	2006	18.35	21.10	34.36	22.32	3.87
	2005	32.00	19.50	34.73	11.71	2.05
	2004	31.32	29.02	27.25	10.45	1.95
	2003	19.69	17.69	37.33	21.81	3.48
	2002	24.68	18.49	34.05	18.91	3.88
SP AusNet	2009	6.16	16.73	38.17	22.23	16.71
	2008	9.00	18.01	34.66	18.86	19.48
	2007	11.15	13.28	37.51	25.48	12.58
	2006	9.78	14.01	39.08	25.46	11.68
	2005	16.93	12.31	30.08	23.06	17.61
	2004	16.40	15.28	35.18	22.62	10.52
	2003	12.12	15.23	40.79	21.72	10.15
	2002	20.87	12.89	36.77	21.01	8.47
United Energy	2009	20.61	26.80	39.98	12.06	0.56
	2008	28.12	16.69	25.95	17.84	11.40
	2007	31.18	29.42	31.20	7.98	0.23
	2006	55.85	23.21	18.13	2.80	0.00

	2005	51.51	19.02	23.94	3.92	1.60
	2004	58.53	21.25	18.95	1.25	0.01
	2003	50.76	31.10	15.82	2.33	0.00
	2002	44.99	28.82	23.67	2.39	0.12
All DNSPs	2009	18.94	18.10	36.02	19.31	7.62
	2008	30.36	20.72	29.99	12.15	6.78
	2007	26.45	18.53	33.82	17.32	3.87
	2006	36.63	19.34	26.81	13.40	3.83
	2005	40.19	18.01	25.90	10.44	5.45
	2004	44.31	20.72	23.33	8.58	3.06
	2003	37.49	19.18	27.63	12.34	3.36
	2002	38.84	19.68	27.63	10.77	3.08

Table C.6 Supply Reliability by network type

		Average minutes-off-supply							Average number of sustained interruptions per customer							Average duration of sustained interruptions (minutes)						
Feeder category	**DNSP**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2003**	2004	2005	2006	2007	2008	2009
CBD	CitiPower	13.5	17.4	18.8	20.7	67.2	13.2	39.7	0.16	0.38	0.19	0.30	0.4	0.2	0.49	82.1	46.0	97.2	69.9	166.0	74.5	81.0
Urban	Jemena	90.3	63.7	78.3	92.0	111.5	120.6	131.6	1.34	0.97	1.27	1.34	1.6	1.2	1.89	67.5	65.4	61.5	68.6	69.7	98.9	69.5
	CitiPower	33.0	31.1	53.0	34.5	97.6	56.3	72.8	0.58	0.53	0.59	0.62	1.0	0.6	1.11	56.7	58.6	89.8	55.2	100.4	90.2	65.6
	Powercor	122.9	82.5	76.4	111.5	151.4	108.2	245.5	1.75	1.21	1.27	1.78	1.6	1.5	2.83	70.0	68.3	60.1	62.7	94.8	73.9	86.7
	SP AusNet	158.7	116.8	166.4	216.1	203.7	245.3	168.4	2.47	1.96	1.99	2.46	2.1	1.5	1.85	64.2	59.4	83.8	87.7	97.5	162.3	90.9
	United Energy	69.3	61.2	94.1	71.3	122.8	279.3	144.2	1.07	0.88	1.04	0.95	1.5	1.3	1.55	64.8	69.3	90.7	75.4	81.7	211.9	92.8
Short rural	Jemena	156.4	77.0	256.1	168.5	215.8	199.0	261.1	3.72	1.20	3.22	2.00	4.4	2.9	4.40	42.1	64.3	79.6	84.1	48.6	69.4	59.3
	Powercor	175.2	98.4	114.4	190.1	230.5	136.5	285.7	2.26	1.33	1.54	2.50	2.5	1.6	3.14	77.4	74.0	74.5	76.1	92.7	85.6	91.0
	SP AusNet	308.9	315.3	377.8	315.6	375.9	440.0	562.8	4.11	4.46	3.23	3.29	3.5	3.0	4.15	75.1	70.7	116.8	96.0	107.5	148.2	135.8
	United Energy	138.0	115.1	123.4	103.0	146.2	489.8	274.6	1.74	1.53	1.91	1.78	1.9	2.1	3.62	79.2	75.2	64.7	57.8	76.7	233.3	75.8
Long rural	Powercor	323.7	262.0	298.8	374.6	332.4	243.9	509.7	3.72	2.95	3.31	3.65	3.5	2.4	4.46	87.1	88.9	90.3	102.7	95.9	103.4	114.3
	SP AusNet	467.1	426.4	513.8	472.9	455.1	434.3	565.5	5.58	5.87	4.18	4.18	4.4	4.1	4.46	83.7	72.7	122.8	113.0	103.9	105.7	126.7

Table C.7 Quality of supply—Over-voltage events due to voltage surge, number of events [and number of customers affected]

	2003	2004	2005	2006	2007	2008	2009
Jemena	15 [249]	8 [429]	56 [104]	11 [225]	12 [136]	11 [69]	18 [246]
CitiPower [a]	8 [102]	5 [9]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
Powercor	23 [530]	44 [233]	2 [2]	1 [1]	3 [3]	0 [0]	0 [0]
SP AusNet	32 [133]	35 [95]	31 [115]	16 [89]	28 [86]	9 [27]	31 [86]
United Energy	56 [989]	39 [365]	40 [584]	46 [664]	35 [528]	51 [907]	46 [730]

[a] CitiPower's voltage-monitoring system has reported only over-voltage injection incidents

Table C.8 Quality of supply—Over-voltage events due to lightning , number of events [and number of customers affected]

	2003	2004	2005	2006	2007	2008	2009
Jemena [b]	na [na]	na [na]	na [na]	na [na]	na [na]	na [na]	0 [0]
CitiPower	43 [57]	12 [38]	0 [0]	0 [0]	0 [0]	0 [0]	0 [0]
Powercor b	na [na]	na [na]	0 [0]	6 [6]	6 [6]	0 [0]	0 [0]
SP AusNet	54 [182]	41 [115]	87 [102]	34 [164]	85 [111]	34 [61]	35 [68]
United Energy	3 [101]	1 [31]	1 [12]	1 [7]	6 [49]	2 [10]	1 [1]

[b] Jemena and Powercor have not reported complete data

Table C.9 Quality of supply—Over-voltage events due to poor voltage regulation, number of events [and number of customers affected]

	2003	2004	2005	2006	2007	2008	2009
Jemena	23 [23]	42 [2838]	31 [2025]	57 [4056]	102 [6173]	46 [3971]	29 [2684]
CitiPower	6 [6]	14 [14]	0 [0]	0 [0]	1 [1]	0 [0]	0 [1]
Powercor [c]	0 [0]	0 [0]	na [6]	0 [0]	11 [11]	9 [9]	0 [1]
SP AusNet	22 [26]	30 [33]	30 [30]	20 [24]	24 [25]	22 [70]	15 [20]
United Energy	0 [888]	0 [0]	1 [1]	0 [0]	0 [0]	0 [0]	0 [0]

[c] Powercor has not reported complete data

Table C.10 Guaranteed Service Level, payments for late appointments

	Appointments Made				Appointments not met on time			
	Number	Proportion of all customers (%)		Change in proportion: 2008 to 2009	Proportion of appointments made (%)		Change in proportion: 2008 to 2009	Amount paid ($)
	2009	2008	2009	(%)	2008	2009	(%)	2009
Jemena	7192	1.27	2.36	86	0.313	0.111	-64	320
CitiPower	8,904	3.86	2.93	-24	0.017	0.022	30	80
Powercor	13,011	1.71	1.88	10	0.009	0.015	79	80
SP AusNet	7,289	0.20	1.19	499	0.167	0.014	-92	20
United Energy	7,800	1.34	1.24	-7	0.350	0.782	123	1,220
All DNSPs	44,196	1.46	1.74	19	0.126	0.167	33	1,720

Table C.11 Guaranteed Service Level, payments for late new connections

	All new connections made				Connections not made by agreed date			
	Number	Proportion of all connections (%)		Change in proportion: 2008 to 2009	Proportion of connections made (%)		Change in proportion: 2008 to 2009	Amount paid ($)
	2009	2008	2009	(%)	2008	2009	(%)	2009
Jemena	6286	2.28	2.06	-10	0.8	0.89	12	7450
CitiPower	86,441	24.65	28.41	15	0.01	0	-57	600
Powercor	136,722	17.73	19.79	12	0.02	0.01	-65	2,800
SP AusNet	14896	2.24	2.44	9	1.74	2.58	49	38,350
United Energy	8,673	1.79	1.38	-23	0.08	0.12	42	1,400
All DNSPs	253,018	9.03	9.97	10	0.15	0.18	25	50,600

Table C.12 Guaranteed Service Level, payments for late streetlight repair

DNSP	All streetlights reported broken				Streetlights not fixed within 2 days			
	Average No	Proportion of all streetlights (%)		Change in proportion: 2008 to 2009	Proportion of lights reported (%)		Change in proportion: 2008 to 2009	Amount paid ($)
	2009	2008	2009	(%)	2008	2009	(%)	2009
Jemena	64848	5.10	4.91	-4%	46.393	31.45	-32	2780
CitiPower	52131	4.45	4.44	0%	26.104	22.70	-13	1080
Powercor	139624	3.66	3.54	-3%	3.758	9.82	161	2000
SP AusNet	119,616	5.03	5.00	-1%	na	22.18	na	110
United Energy	115499	7.82	3.96	-49%	15.79	39.49	150	340
All DNSPs	491719	5.26	4.27	-19%		24.51		6310

Table C.13 Required performance levels, minimum standard for repair of standard streetlight fittings

	All lights reported broken			Streetlights not fixed by required date (in 7 days)				
	Average No	Number out	Average days to repair	Number not fixed in 7 days		Proportion of lights reported (%)		Change in proportion: 2008 to 2009
	2009	2009	2009	2008	2009	2008	2009	(%)
Jemena	64848	3183	6.17	90	516	2.74	16.21	492
CitiPower	52131	2313	2.50	73	88	3.16	3.80	20
Powercor	139624	4939	1.75	74	209	1.50	4.23	183
SP AusNet	119616	5,979	1.81	11	32	0.19	0.54	178
United Energy	115499	4573	2.83	47	385	0.52	8.42	1512
All DNSPs	491719	20987	2.79	295	1230	1.17	5.86	402

Table C.14 Complaints, connection and augmentation—quality and reliability

	Connection and Augmentation				Quality and Reliability			
	Number	% of complaints to DNSP		Change in number: 2008 to 2009	Number	Complaints to DNSP (%)		Change in number: 2008 to 2009
	2009	2008	2009	(%)	2009	2008	2009	(%)
Jemena	120	18.79	16.22	48	263	51.28	35.54	19
CitiPower	14	38.89	31.82	0	13	8.33	29.55	333
Powercor	46	37.5	22.77	-33	47	21.74	23.27	18
SP AusNet	134	10.41	20.24	65	186	26.09	28.1	-8
United Energy	170	23.38	14.67	21	301	26.87	25.97	86
All DNSPs	484	19	17.24	25	810	30.95	28.86	29

Table C.15 Complaints, other complaints—total of all complaints

	Other complaints				Total of all complaints		
	Number	% of complaints to DNSP		Change in number: 2008 to 2009	Number		Change in number: 2008 to 2009
	2009	2008	2009	(%)	2008	2009	(%)
Jemena	357	29.93	48.24	177	431	740	72
Citipower	17	52.78	38.64	-11	36	44	22
Powercor	109	40.76	53.96	45	184	202	10
SP AusNet	342	63.5	51.66	-31	778	662	-15
United Energy	688	49.75	59.36	129	603	1,159	92
All DNSPs	1,513	50.05	53.9	49	2032	2,807	38

Table C.16 Annual number of complaints, total of all complaints recorded per 1000 customers

	2002	2003	2004	2005	2006	2007	2008	2009	Change: 2008 to 2009(%)
Jemena	0.96	0.71	1.34	1.73	1.55	1.47	1.42	2.43	70
CitiPower	0.44	0.23	0.1	0.08	0.18	0.15	0.12	0.14	21
Powercor	0.25	0.22	0.17	0.13	0.33	0.29	0.27	0.29	8
SP AusNet	1.29	1.96	2.86	1.94	2.23	1.78	1.29	1.08	-16
United Energy	1.13	0.87	1.15	0.83	0.98	0.97	0.98	1.85	89
All DNSPs	0.83	0.86	1.19	0.93	1.08	0.94	0.81	1.11	36

Table C.17 Energy and Water Ombudsman (EWOV) complaints in 2009, level 1-3 complaints received by EWOV for full investigation

	Connection & augmentation		Quality & reliability		Other	
	Number	Proportion per 1000 customers	Number	Proportion per 1000 customers	Number	Proportion per 1000 customers
Jemena	6	0.020	6	0.020	7	0.023
CitiPower	6	0.020	1	0.003	0	0.000
Powercor	13	0.019	27	0.039	11	0.016
SP AusNet	3	0.005	33	0.054	10	0.016
United Energy	10	0.016	41	0.065	13	0.021
All DNSPs	38	0.015	108	0.043	41	0.016

Table C.18 Three worst-performing CBD feeders, total duration and number of sustained outages per customers

DNSP	Feeder	Supply areas	Minutes-off-supply per customer	Total sustained outages
CitiPower	MG005	Montague	278.67	3.04
	WG022	Westgate	263.23	2.58
	MP030	McIlwraith Place	233.77	2.35

Table C.19 Three worst-performing urban feeders, total duration and number of sustained outages per customers

DNSP	Feeder	Supply areas	Minutes-off-supply per customer	Total sustained outages
Jemena	FW 13	Footscray West	502.49	4.48
Jemena	P 56	Preston	481.00	1.00
Jemena	CN 05	Coburg North	412.00	5.59
CitiPower	NC002	Northcote	352.04	5.31
CitiPower	FB002	Fisherman's Bend ('FB feeders')	303.00	3.00
CitiPower	MG001	Montague	265.25	3.15
Powercor	SSE012	Sunshine East	805.05	5.42
Powercor	BLT022	Brooklyn	664.67	5.01
Powercor	CRO022	Corio	6`13.35	3.06
SP AusNet	CF2	Clover Flat	604.23	8.07
SP AusNet	LDL11	Lilydale	587.90	1.73
SP AusNet	BRA14	Boronia	530.18	1.82
United Energy	SVW052	Springvale West	1096.14	1.88
United Energy	SVW041	Springvale West	995.77	2.18
United Energy	HT004	Heatherton	557.96	2.11

SP AusNet commented that:

LDL11 feeder was badly affected by the 25 August storm. One feeder fault during the storm contributed to 77 per cent of the total minutes off supply. Another 7 per cent was contributed by planned outages.

- CF2 feeder: 52 per cent of the minutes off supply were contributed due to a 66 kV fault on 20 July 2009.

- BRA14 feeder was also badly affected by the 25 August storm. One feeder fault during the storm contributed to 75 per cent of the total minutes-off-supply.

Table C.20 Three worst-performing short rural feeders, total duration and number of sustained outages per customers

DNSP	Feeder	Supply areas	Minutes-off-supply per customer	Total sustained outages
Jemena	SBY11	Sunbury	415.44	6.15
Jemena	SBY14	Sunbury	328.57	6.42
Jemena	COO11	Coburg North	268.99	5.74
Powercor	WPD021	Waurn Ponds	1004.50	8.00
Powercor	RCT015	Redcliffs Terminal	1001.38	3.19
Powercor	WPD014	Waurn Ponds	788.69	9.63
SP AusNet	MBY14	Mount Beauty	43696.50	1311.50
SP AusNet	KLK3	Kinglake	17398.61	4.31
SP AusNet	KLK1	Kinglake	10894.96	10.48
United Energy	MTN007	Mornington	657.30	4.16
United Energy	MTN003	Mornington	460.19	2.18
United Energy	DMA013	Dromana	458.72	7.27

SP AusNet commented that:

- MBY14 is an express feeder and use only during winter season to supply part of CF1 and CF2. A Feeder fault due to tree on 15 May contributed to 58 per cent of the total minutes off supply.

- KLK3 feeder was badly affected by February Bushfire, which contributed to 89 per cent of the total minutes off supply.

- KLK1 feeder was also badly affected by the February Bushfire, which contributed 85 per cent of the total minutes off supply.

Table C.21 Three worst-performing long rural feeders, total duration and number of sustained outages per customers

DNSP	Feeder	Supply areas	Minutes-off-supply per customer	Total sustained outages
Powercor	HSM001	Horsham	1779.79	10.44
Powercor	CDN002	Camperdown	1709.63	5.97
Powercor	PLD003	Portland	1515.57	6.14
SP AusNet	SMR5	Seymour	2155.70	4.48
SP AusNet	SMR3	Seymour	1670.05	4.77
SP AusNet	FTR12	Foster	1673.75	11.73

SP AusNet advised that:

- SMR5 feeder was badly affected by the February Bushfire, which contributed to 83 per cent of the total minutes off supply.
- SMR3 feeder was also badly affected by February Bushfire, which contributed to 89 per cent of the total minutes off supply.
- FTR12 feeder was affected by the 16 August storm. A feeder fault due to 3 bays HV conductor brought down by tree contributed to 13 per cent of the total minutes-off-supply. Another tree fault on 10 August contributed to 6 per cent of the total minutes-off-supply. This feeder mainly affected by tree related fault (37%) and weather related fault (43%).

Table C.22 Low-reliability distribution feeders, 2008–09, by DNSP—highlighting feeders that were classified as being of low reliability in prior years

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
Jemena urban									
2009	CN 05	Coburg North	15	3714	366	412	5	6	Pole fire mitigation program in 2010//114 sustained feeder outages: 1x lightning, 3x pole fire. 1 ACR sustained outage: vehicle into pole. Jan heat wave contributed 84 mins. Main contribution to planned SAIDI was due to new distribution substations installation & asset replacement
2009	ES 14	Essendon	5	1225	288	304	2	2	No plan. 1 sustained feeder outage due to vehicle into pole, sustained secondary damage. Jan heat wave contributed 113 mins. Load shed on 30/1 contributed 80 mins.
2009	FE 08	Footscray East	7	2038	305	309	4	4	Scheduled in pole fire mitigation program. 3 sustained feeder outages: 1x equipment failure, 2x pole fire. Load shed on 30/1 contributed 93 mins.
2009	FF 95	Fairfield	5	1651	288	298	2	2	2 sustained feeder outage due to tree. Jan heat wave contributed 45 mins.
2009	FW 05	Footscray West	9	1610	376	385	4	4	Pole fire mitigation program in 2010//112. sustained feeder outages: 1x cause not found and sustained secondary damage, 1x pole fire. Load shed on 30/1 contributed 126 mins.
2009	FW 08	Footscray West	10	2902	337	339	3	3	Pole fire mitigation program in 2010//112. sustained feeder outages: 1x equipment failure, 1x pole fire. Jan heat wave contributed 15 mins. Load shed on 30/1 contributed 97 mins.
2008	FW 08	Footscray West	10	2880	271	290	2	2	
2009	FW 13	Footscray West	6	462	493	502	4	4	Pole fire mitigation program in 2010/12. Sustained feeder outages: 1x equipment failure, 1x x-arm fire on top 66kV cct. Load shed on 30/1 contributed 119 mins.
2008	FW 13	Footscray West	6	456	317	330	1	1	
2009	FW 16	Footscray West	4	627	368	368	2	2	Scheduled in pole fire mitigation program. No sustained feeder outages. Load shed contributed 99 mins. 2 HV outages: 1x pole fire , 1x tree happened on high fault activities period due to pole fire and wind respectively.
2008	FW 16	Footscray West	4	620	423	423	0	0	
2009	P 56	Preston	2	1	0	481	0	1	No plan. Planned work to reposition poles in St Georges Rd median strip for longer turning lanes.
2009	SBY31	Sunbury	15	2084	293	315	4	4	No plan. 1 sustained feeder outage due to bird strike, sustained secondary damage. Jan heat wave contributed 27 mins. Load shed on 30/1 contributed 99 mins. Two transmission asset failure events at KTS contributed 71 mins.
2009	SBY33	Sunbury	10	1089	260	300	4	4	No plan. Jan heat wave contributed 15 mins. Load shed on 30/1 contributed 113 mins. Two transmission asset failure events at KTS contributed 70 mins.
2009	TH 21	Tottenham	9	155	233	283	4	4	No plan. 3 sustained feeder outages: 1x vehicle into pole, 1x wind & tree, 1x

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
									cause not found (windy). Load shed on 30/1 contributed 67 mins. Main contribution to planned SAIDI was due to new distribution substation installation & pole replacement where LV // was not sufficient - industrial area.
2009	TH 22	Tottenham	11	818	248	279	3	3	No plan. 1 sustained feeder outage - cause not found. Load shed on 30/1 contributed 105 mins. Main contribution to planned SAIDI was due to new distribution substation installation where LV // was not sufficient - industrial area
2009	YTS07	Yarraville Terminal Station	8	241	360	360	2	2	No plan. 1 sustained feeder outage: cat on YTS 22kV Bus. Jan heat wave contributed 251 mins.
CitiPower CBD									
2009	LQ011	Little Queen	2	60	102	126	1	1	None required, new transformer installed. Feeder trip due to transformer failure. Transformer replaced.
2009	LQ029	Little Queen	1	66	0	80	0	0	
2009	MG002	Montague	7	2	48	170	1	1	
2009	MG004	Montague	4	693	102	105	1	1	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	MG005	Montague	4	1215	279	279	3	3	None required faulty cable replaced. Threshold exceeded due to Load Shedding 30/1/2009 and two HV underground cable failures.
2009	MG015	Montague	5	120	138	138	1	1	None required Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	MP030	McIlwraith Place	10	1619	234	234	2	2	None required. Feeder trips due to two HV cable failures. Faulty cables replaced.
2009	SO002	South Melbourne	5	679	150	150	2	2	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	SO005	South Melbourne	3	1349	117	117	2	2	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	SO010	South Melbourne	3	938	82	82	2	2	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	SO013	South Melbourne	2	358	79	83	1	1	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	SO019	South Melbourne	1	520	129	129	2	2	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	SO020	South Melbourne	2	332	168	168	1	1	None required. Faulty cable replaced. Threshold exceeded due to Load Shedding 30/1/2009. Also extended outage in March due to LV Cable failure.
2009	SO022	South Melbourne	4	391	153	153	3	3	None required. Faulty cable replaced. Threshold exceeded due to Load Shedding 30/1/2009. Also Feeder trip in December due to HV Cable failure.
2009	SO023	South Melbourne	2	362	133	133	2	2	None required. Threshold exceeded due to Load Shedding 30/1/2009.

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
									Exemption granted.
2009	SO024	South Melbourne	4	208	108	108	1	1	None required. Faulty cable replaced. Threshold exceeded due to Load Shedding 30/1/2009. Also Feeder trip in May due to HV Cable failure.
2009	VM018	Victoria Market	3	178	66	72	1	1	
CitiPower Urban									
2009	FB002	Fisherman's Bend ('FB feeders')	3	1	303	303	3	3	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	NC002	Northcote	8	3159	352	352	5	5	None required. Damaged line replaced. Threshold exceeded due to Load Shedding 29/01/2009 & 30/1/2009. Also lightning strike on HV line in December
2008	NC002	Northcote	8	3167	335	339	3	3	
2009	PM001	Port Melbourne	2	44	177	417	2	3	None required. Threshold exceeded due to Load Shedding 30/1/2009. Also planned outage.
Powercor Urban									
2009	AL011	Altona	5	117	298	338	1	1	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	AL012	Altona	2	1054	556	569	5	5	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	BAN005	Ballarat North	10	1520	172	182	1	2	Feeder will be monitored and performance reviewed in 2010. MAIFI Threshold Exceeded due to multiple feeder recloses.
2009	BET002	Bendigo Terminal	21	4572	413	417	4	4	Feeder will be monitored and performance reviewed in 2010. Load re-configuration
2009	BLT016	Brooklyn	14	403	468	468	6	6	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	BLT022	Brooklyn	17	1168	656	665	5	5	None required. Threshold exceeded due to Heatwave 29/1/2009, Load Shedding 30/1/2009 & Storms 3/3/2009. Exemption granted.
2008	BLT022	Brooklyn	17	1142	273	275	2	2	
2009	BLT030	Brooklyn	12	2457	525	531	3	3	None required. Threshold exceeded due to Heatwave 29/1/2009, Load Shedding 30/1/2009 & Storms 3/3/2009. Exemption granted.
2009	CMN005	Castlemaine	19	936	460	460	6	6	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to two major outages, Storms 30/6/2009 and 22/11/2009.
2009	CRO014	Corio	1	3	80	271	1	2	None required. Threshold exceeded due to planned works on feeder.
2009	CRO022	Corio	22	3805	580	613	3	3	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Pole Fire 24/1/2009 and Vehicle Impact 30/11/2009.
2009	CRO023	Corio	4	280	382	382	3	3	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to two major outages, Pole Fire 3/2/2009 and Equipment Failure 31/10/2009.
2009	DDL014	Drysdale	23	3416	407	418	3	3	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
2009	EHK032	Eaglehawk	22	1774	345	374	5	5	Feeder will be monitored and performance reviewed in 2010. Load re-configuration
2009	GCY014	Geelong City	12	1527	510	512	4	4	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009 - Exemption granted and Pole Fires 1/3/2009.
2009	GCY023	Geelong City	20	3442	307	312	5	5	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009 - Exemption granted and Pole Fires 1/3/2009.
2009	GCY024	Geelong City	10	2192	423	471	5	5	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009 - Exemption granted and Pole Fires 3/2/2009.
2009	GL013	Geelong	8	1795	324	348	2	2	None required. Threshold exceeded due to Load Shedding 291/2009 & 30/1/2009. Exemption granted.
2008	GL013	Geelong	8	1795	223	270	1	1	
2009	GL015	Geelong	6	1177	380	385	4	4	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009 - Exemption granted. Two other outages, Pole Fire 1/3/2009 and Vehicle Impact 6/9/2009.
2009	GL021	Geelong	19	3797	420	465	3	3	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	GL022	Geelong	14	4413	369	414	2	2	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	GL023	Geelong	8	1139	446	521	2	2	None required. Threshold exceeded due to Load Shedding 30/1/2009 - Exemption granted. Other outages, Pole Fire 1/3/2009.
2009	GLE012	Geelong East	14	2198	306	306	2	2	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	LV001	Laverton	28	3732	419	427	5	5	None required. Threshold exceeded due to Load Shedding 29/1/2009 & 30/1/2009. Exemption granted.
2009	LV003	Laverton	8	114	297	363	4	4	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted. Multiple momentary feeder outages.
2009	LV006	Laverton	19	2161	313	313	3	3	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2008	LV006	Laverton	19	2159	504	526	4	4	
2009	LV008	Laverton	41	4638	527	528	7	7	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009 - Exemption granted. Other outages due to equipment failures.
2008	LV008	Laverton	42	4776	455	461	6	6	
2009	LV009	Laverton	17	3166	402	402	5	5	None required. Threshold exceeded due to Load Shedding 29/1/2009 & 30/1/2009. Exemption granted.

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
2009	LVN022	Laverton North	33	4476	320	329	5	5	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	MDA033	Mildura	15	1521	84	92	1	1	Feeder will be monitored and performance reviewed in 2010. MAIFI Threshold Exceeded due to multiple feeder recloses.
2009	MLN024	Melton	21	2608	309	317	5	5	None required Threshold exceeded due to Load Shedding 30/1/2009, 8/10/2009 & 9/11/2009. Exemption granted.
2009	SHL008	Swan Hill	20	2376	224	290	3	4	None required. Threshold exceeded due to Load Shedding 8/2/2009 & Storms 3/3/2009. Exemption granted.
2009	SSE011	Sunshine East	7	849	308	308	3	3	None required. Threshold exceeded due to Load Shedding 30/1/2009 & 8/10/2009. Exemption granted.
2009	SSE012	Sunshine East	17	2389	800	805	5	5	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009 & 8/10/2009. Exemption granted. Other outages due to Poles Fires & Weather.
2009	SSE013	Sunshine East	10	1872	338	344	4	4	None required. Threshold exceeded due to Load Shedding 30/1/209 & 8/10/2009. Exemption granted.
2009	SSE032	Sunshine East	12	2107	402	405	3	3	None required. Threshold exceeded due to Load Shedding 30/1/2009 & 8/10/2009. Exemption granted.
2009	SSE034	Sunshine East	14	2381	380	387	3	3	None required. Threshold exceeded due to Load Shedding 30/1/2009 & 8/10/2009. Exemption granted.
2009	STN012	Shepparton	23	3517	263	316	5	5	None required. Threshold exceeded due to Load Shedding 29/1/2009 & 8/10/2009. Exemption granted.
2009	SU002	Sunshine ('SU feeders')	34	4314	291	303	5	5	None required. Threshold exceeded due to Heatwave 29/1/2009, Load Shedding 30/1/2009 & 8/10/2009. Exemption granted.
2009	SU004	Sunshine ('SU feeders')	16	3003	404	412	5	5	None required. Threshold exceeded due to Heatwave 29/1/2009, Load Shedding 30/1/2009 & 8/10/2009. Exemption granted.
2009	SU008	Sunshine ('SU feeders')	43	6046	324	331	4	4	None required. Threshold exceeded due to Heatwave 29/1/2009, Load Shedding 30/1/2009 & 8/10/2009. Exemption granted.
2009	SU010	Sunshine ('SU feeders')	3	481	380	381	4	4	None required. Threshold exceeded due to Heatwave 29/1/2009, Load Shedding 30/1/2009 & 8/10/2009 and Storms 3/3/2009. Exemption granted.
2009	SU027	Sunshine ('SU feeders')	12	2494	416	418	4	4	None required. Threshold exceeded due to Heatwave 29/1/2009, Load Shedding 30/1/2009 & 8/10/2009 and Storms 3/3/2009. Exemption granted.
2009	WBE021	Werribee	9	2264	277	277	2	2	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	WBE024	Werribee	17	2867	588	591	4	4	None required. Threshold exceeded due to Heatwave 29/1/2009 & Load Shedding 30/1/2009. Exemption granted.
2009	WBE031	Werribee	29	4409	338	338	3	3	None required. Threshold exceeded due to Heatwave 30/1/2009, Load Shedding 30/1/2009 and Storms 8/2/2009. Exemption granted.
2009	WPD012	Waurn Ponds	22	3291	296	341	5	5	None required. Threshold exceeded due to Heatwave 30/1/2009, Load Shedding 30/1/2009 & GTS Bus Outage 26/2/2009. Exemption granted.

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
2009	WPD031	Waurn Ponds	16	3514	318	318	3	3	None required. Threshold exceeded due to Heatwave 29/1/2009, Load Shedding 30/1/2009 & GTS Bus Outage 26/2/2009. Exemption granted.
Powercor Short Rural									
2009	FNS022	Ford North Shore	156	1221	533	637	3	4	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to major outages from Pole Fires, Vehicle Impact & Lightning.
2009	RCT015	Redcliffs Terminal	13	21	594	1001	2	3	None required. Threshold exceeded due to planned works on feeder.
2009	WMN001	Wemen	170	234	148	675	1	2	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to major Planned outages
2008	WMN001	Woodend	167	165	37	1188	2	7	
2009	WPD014	Waurn Ponds	184	3470	776	789	9	10	None required. Threshold exceeded due to Heatwave 29/1/2009, Load Shedding 30/1/2009 & GTS Bus Outage 26/2/2009. Exemption granted.
2009	WPD021	Waurn Ponds	0	2	303	1005	6	8	None required. Threshold exceeded due to Load Shedding 30/1/2009 & GTS Bus Outage 26/2/2009. Exemption granted.
2009	WPD024	Waurn Ponds	107	4079	594	605	6	6	None required. Threshold exceeded due to Heatwave 29/1/2009, Load Shedding 30/1/2009 & GTS Bus Outage 26/2/2009. Exemption granted.
2009	WPD032	Waurn Ponds	108	2670	157	169	3	4	Feeder will be monitored and performance reviewed in 2010. MAIFI Threshold Exceeded due to multiple feeder and section recloses.
2008	WPD032	Waurn Ponds	103	2579	137	188	2	3	
Powercor Long Rural									
2009	CDN002	Camperdown	204	527	1461	1710	5	6	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to two major outages, Bushfires 7/2/2009 and Storms 12/9/2009.
2009	CDN004	Camperdown	382	807	822	859	7	8	Feeder will be monitored and performance reviewed in 2010. SAIDI Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted. MAIFI Threshold Exceeded due to multiple feeder and section recloses.
2009	CDN006	Camperdown	431	1029	1183	1191	5	6	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009 - Exemption granted and Storms 12/9/2009.
2009	CLC006	Colac	523	2653	1172	1193	10	10	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009, Storms 3/3/2009 - Exemption granted and Storms 12/9/2009.
2009	COB011	Cobden	259	739	1086	1235	7	7	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009 - Exemption granted and Weather 24/4/2009 and 3/8/2009.
2009	CTN006	Charlton	989	2094	801	859	5	6	None required. Threshold exceeded due to Load Shedding 8/2/2009 & Storms 3/3/2009. Exemption granted.
2009	ETSA001	Eaglehawk	18	296	928	967	7	8	None required. Threshold exceeded due to Storm 2/2/2009. Exemption granted.

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
2008	ETSA001	Electricity Trust SA	18	296	1028	1099	8	9	
2009	HSM001	Horsham	500	1657	1776	1780	10	10	Feeder will be monitored and performance reviewed in 2010. Major Outages due to Weather and Pole Fire.
2009	HSM004	Horsham	1070	2031	798	877	5	5	None required. Threshold exceeded due to Weather/Storms 8/2/2009 and 3/3/2009. Exemption granted.
2009	HTN001	Hamilton	307	836	835	863	3	3	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	HTN006	Hamilton	576	2487	944	1074	8	9	None required. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted.
2009	OYN001	Ouyen	887	996	1093	1104	6	7	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to major outages, Weather & Pole Fires.
2009	OYN003	Ouyen	400	408	892	1339	6	9	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to major Planned outages
2009	OYN005	Ouyen	1032	1422	829	857	5	7	None required. Threshold exceeded due to Storms 3/3/2009. Exemption granted.
2009	PLD003	Portland	452	1167	1105	1516	4	6	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to major outages from Pole Fires 3/2/2009.
2009	SHL001	Swan Hill	420	381	1049	1059	3	3	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 8/2/2009 - Exemption granted. Other outages due to Vehicle Impact 4/5/2009 and Weather 30/6/2009.
2009	STL005	Stawell	324	1137	1040	1042	3	3	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to major Storm 30/6/2009.
2009	TRG003	Terang	348	1681	818	872	5	5	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Weather related Vegetation Outages.
2009	TRG005	Terang	237	1060	841	1080	8	9	Feeder will be monitored and performance reviewed in 2010. Threshold exceeded due to Load Shedding 30/1/2009. Exemption granted. Weather 22/9/2009 and Planned Outages 12-14/10/2009.
2009	WND013	Woodend	606	3443	888	895	6	6	None required. Threshold exceeded due to Heatwave 30/1/2009, Load Shedding 30/1/2009, 8/10/2009, 9/11/2009 and Storms 3/3/2009. Exemption granted.
SP AusNet Urban									
2009	BRA14	Boronia	17	3977.5	522	530	2	2	BRA14 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	BRA32	Boronia	18	2230.5	48	66	1	1	BRA32 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
									automatically on unaffected sections after an outage. Construction was completed in 2009. SP AusNet is expecting improved reliability in future years.
2009	CF2	Clover Flat	22	320	548	604	8	8	SP AusNet will continue to monitor this feeder for reliability improvement opportunities
2008	CF2	Clover Flat	3	3	0	0	0	0	SP AusNet will continue to monitor this feeder for reliability improvement opportunities
2009	CLN21	Clyde North	27	3082	77	296	2	3	CLN21 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	CYN32	Croydon	21	3823.5	82	82	2	2	This feeder was reviewed in 2007/08. A distribution feeder automation (DFA) scheme was recently commissioned in August 2010. SP AusNet is expecting improved reliability in the future.
2009	EPG23	Epping	15	315	17	34	0	0	EPG23 will continue to be monitored for future reliability improvement opportunities.
2009	EPG34	Epping	21	3649	294	322	2	3	EPG34 is currently being reviewed for reliability improvement opportunities. Reviews are scheduled to be completed by Dec 2010.
2009	FGY31	Ferntree Gully	17	1170	285	294	2	2	Remote controlled feeder load transfers have been implemented. This will shorten outage times in future.
2008	FGY31	Ferntree Gully	16	1136.5	454	465	1	1	Remote controlled feeder load transfers have been implemented. This will shorten outage times in future.
2009	HPK21	Hampton Park	31	4946.5	259	287	4	4	This feeder was reviewed in 2007/08. Remote controlled feeder load transfers have been implemented. This will shorten outage times in future.
2009	LDL11	Lilydale	21	2378	548	588	2	2	LDL11 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009 SP AusNet is expecting improved reliability in future years.
2009	MOE23	Moe	10	1012.5	459	489	3	3	MOE23 is currently being reviewed for reliability improvement opportunities. Reviews are scheduled to be completed by Dec 2010.
2009	MWTS21	Morwell Open Cut	17	2657.5	120	198	2	3	MWTS21 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	NRN13	Narre Warren	14	2295.5	389	460	4	4	NRN13 is currently being reviewed for reliability improvement opportunities. Reviews are scheduled to be completed by Dec 2010.

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
2009	NRN15	Narre Warren	0	4	18	456	1	2	NRN15 will continue to be monitored for future reliability improvement opportunities.
2009	RWN33	Ringwood North	50	3855	371	377	2	3	RWN33 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009 SP AusNet is expecting improved reliability in future years.
2008	RWN33	Ringwood North	43	3874.5	479	529	3	4	Reliability improvement action includes implementing feeder automation along with additional switches and communication equipment upgrades in 2008/09.
2009	TGN22	Traralgon	12	1012.5	111	133	2	2	A new TGN feeder is currently being constructed. This will result in better customer distribution at TGN22, and improved reliability. A distribution feeder automation (DFA) scheme has also been proposed once construction is complete.
2009	TT12	Thomastown	9	300	411	448	4	4	TT12 will continue to be monitored for future reliability improvement opportunities.
2008	TT12	Thomastown	9	300	1858	1863	7	7	Feeder TT12 has 300 customers
2009	TT4	Thomastown	14	2386	248	357	1	1	TT4 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	WT13	Watsonia	25	3102	197	248	2	2	This feeder was reviewed in 2007/08. A key feeder review patrol is currently being carried out for animal proofing and vegetation clearing. SP AusNet continue to monitor WT13 for future reliability improvement opportunities
2009	WT15	Watsonia	8	1486	364	365	3	3	This feeder was reviewed in 2007/08. Remote controlled feeder load transfers have been implemented. This will shorten outage times in future.
2008	WT15	Watsonia	5	1471	951	966	2	2	Reliability improvement action includes implementing feeder automation along with additional switches and communication equipment upgrades in 2007/08.
2009	WT6	Watsonia	17	2793.5	149	150	1	1	This feeder was reviewed in 2007/08. Remote controlled feeder load transfers have been implemented. This will shorten outage times in future.
SP AusNet Short rural									
2009	BDL4	Bairnsdale	105	4125.5	78	175	3	3	BDL4 is currently being reviewed for reliability improvement opportunities. Reviews are scheduled to be completed by Dec 2010.
2009	BGE11	Belgrave	64	3734.5	778	787	14	14	BGE11 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
									automatically on unaffected sections after an outage. Construction was completed in 2009 SP AusNet is expecting improved reliability in future years.
2008	BGE11	Belgrave	73	3731.5	928	982	6	6	Remote controlled feeder load transfers have been implemented. This will shorten outage times in future.
2009	BGE12	Belgrave	105	2258	907	1077	6	6	BGE12 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009 SP AusNet is expecting improved reliability in future years.
2008	BGE12	Belgrave	104	2235	965	1109	7	7	Reliability improvement action includes implementing feeder automation along with additional switches and communication equipment upgrades in 2008/09.
2009	BGE22	Belgrave	94	2325	759	870	9	9	This feeder was reviewed in 2007/08. A distribution feeder automation (DFA) scheme was recently commissioned in August 2010. SP AusNet is expecting improved reliability in the future.
2008	BGE22	Belgrave	93	2313	1465	1536	7	7	Reliability improvement action includes implementing feeder automation along with additional switches and communication equipment upgrades in 2007/08
2009	BGE24	Belgrave	45	1538.5	1042	1051	8	8	BGE24 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2008	BGE24	Belgrave	45	1531.5	1360	1478	5	6	Feeder BGE24 has been analysed in 2009. A distribution feeder automation scheme (DFA) has been proposed allowing a transfer of load to an adjacent feeder during fault conditions. It is expected that the DFA scheme will be rolled out in the near future.
2009	BWN13	Berwick North	69	991	963	1340	11	12	BWN13 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	CF1	Clover Flat	25	353.5	592	659	4	5	SP AusNet will continue to monitor this feeder for reliability improvement opportunities
2009	CLN22	Clyde North	79	747	869	974	8	9	Distribution feeder automation (DFA) schemes were recently commissioned in August 2010. SP AusNet is expecting improved reliability in the future.
2009	CLN23	Clyde North	46	4389	592	620	6	7	CLN23 is currently being reviewed for reliability improvement opportunities. Reviews are scheduled to be completed by Dec 2010.

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
2009	CNR1	Cann River	11	162	1284	1385	6	7	CNR1 will continue to be monitored for future reliability improvement opportunities.
2008	CNR1	Cann River	11	161.5	760	796	8	17	SP AusNet continue to monitor this feeder for reliability improvement opportunities
2009	CNR2	Cann River	144	1128	2565	2669	11	11	SP-AusNet is currently exploring options for reliability improvements at CNR2
2008	CNR2	Cann River	144	1106	854	1023	11	12	Distribution feeder automation (DFA) schemes have been implemented. This will shorten outage times in future.
2009	CNR3	Cann River	80	70	1243	1249	6	6	CNR3 will continue to be monitored for future reliability improvement opportunities.
2008	CNR3	Cann River	80	69	762	899	8	9	SP AusNet continue to monitor this feeder for reliability improvement opportunities
2009	DRN11	Doreen	27	2170	98	166	3	3	DRN11 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	ELD01	Rubicon A	75	1001	1367	1404	5	5	ELD01 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009 SP AusNet is expecting improved reliability in future years.
2009	ELM12	Eltham	46	3456	574	639	3	4	ELM12 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	ELM13	Eltham	78	2900.5	380	465	6	6	This feeder was reviewed in 2007/08. A distribution feeder automation (DFA) scheme has been proposed for this feeder, and will be implemented once the necessary construction works are complete.
2008	ELM13	Eltham	78	3861	665	669	4	4	Distribution feeder automation (DFA) schemes have been planned for this feeder. This will shorten outage times in future.
2009	EPG32	Epping	203	3082.5	861	923	3	4	This feeder was reviewed in 2007/08. Remote controlled feeder load transfers have been implemented. This will shorten outage times in future.
2009	FGY13	Ferntree Gully	19	1576	797	811	10	10	FGY13 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009 SP AusNet is expecting improved reliability in future

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
									years.
2009	FTR22	Foster	126	1202.5	568	681	5	5	FTR22 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	KLK1	Kinglake	188	1350	10614	10895	9	10	This feeder was reviewed in 2007/08. A distribution feeder automation (DFA) scheme has been proposed for this feeder, and will be implemented once the necessary construction works are complete.
2008	KLK1	Kinglake	188	1447	399	666	5	6	Distribution feeder automation (DFA) schemes have been planned for this feeder. This will shorten outage times in future.
2009	KLK2	Kinglake	86	757.5	9521	9669	6	6	KLK2 will continue to be monitored for future reliability improvement opportunities.
2009	KLK3	Kinglake	60	138.5	17101	17399	3	4	KLK3 will continue to be monitored for future reliability improvement opportunities.
2008	KLK3	Kinglake	60	170	260	1752	3	8	SP AusNet continue to monitor this feeder for reliability improvement opportunities
2009	LDL13	Lilydale	135	3765.5	1594	1636	10	11	LDL13 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. We SP AusNet is expecting improved reliability in future years.
2008	LDL13	Lilydale	133	3752.5	1295	1393	6	7	Remote controlled feeder load transfers have been implemented. This will shorten outage times in future.
2009	LDL14	Lilydale	137	2333.5	901	919	5	6	LDL14 is currently being reviewed for reliability improvement opportunities. Reviews are scheduled to be completed by Dec 2010.
2009	LDL21	Lilydale	40	2298	763	802	9	9	This feeder was reviewed in 2007/08. A distribution feeder automation (DFA) scheme has been proposed for this feeder, and will be implemented once the necessary construction works are complete.
2008	LDL21	Lilydale	40	2294	814	828	3	3	Feeder LDL21 has been analysed in 2007 and remote control switches have been put in place to increase reliability on the feeder.
2009	LDL22	Lilydale	117	3075.5	644	665	3	3	LDL22 is currently being reviewed for reliability improvement opportunities. Reviews are scheduled to be completed by Dec 2010.
2009	LGA3	Leongatha	184	904	496	610	7	7	This feeder has now been renamed LGA12. It is currently being reviewed for reliability improvement opportunities. Reviews are scheduled to be completed by Dec 2010.
2008	LGA3	Leongatha	183	890.5	538	931	4	5	Feeder LGA3 has been analysed in 2007 and remote control switches have been put in place to increase reliability on the feeder.
2009	MBY14	Mount Beauty	9	2	43697	43697	1312	1312	Distribution feeder automation (DFA) schemes were recently commissioned in July 2010. SP AusNet is expecting improved reliability in the future.

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
2008	MBY14	Mount Beauty	9	2	173080	173080	313	313	Feeder MBY14 has 2 customers.
2009	MDG1	Mount Dandenong	12	772	953	980	12	12	This feeder was reviewed in 2007/08. A distribution feeder automation (DFA) scheme has been proposed for this feeder, and will be implemented once the necessary construction works are complete.
2008	MDG1	Mount Dandenong	12	767.5	555	1212	3	5	Distribution feeder automation (DFA) schemes have been planned for this feeder. This will shorten outage times in future.
2009	MDI1	Murrindindi	25	56.5	9332	9361	7	8	MDI1 will continue to be monitored for future reliability improvement opportunities.
2009	MOE21	Moe	186	677	772	1562	10	12	MOE21 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2008	MOE21	Moe	186	669	1050	1055	8	8	Feeder MOE21is to be included in the 2009/2010 feeder reviews
2009	MOE32	Moe	140	895	828	924	6	6	Distribution feeder automation (DFA) schemes have been proposed for this feeder, and will be implemented once the necessary construction works are complete.
2009	MVE01	Rubicon A	170	1121.5	8818	8953	10	11	MVE01 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009 SP AusNet is expecting improved reliability in future years.
2008	MVE01	Rubicon A	170	1351.5	1426	1432	10	10	Distribution feeder automation (DFA) schemes have been planned for this feeder. This will shorten outage times in future.
2009	MWTS24	Morwell Open Cut	56	729	795	840	4	4	MWTS24 will continue to be monitored for future reliability improvement opportunities.
2009	MWTS31	Morwell Open Cut	145	693	1378	1514	4	4	MWTS31 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2008	MWTS31	Morwell Terminal Station	126	685.5	355	626	4	5	SP AusNet will continue to monitor this feeder for reliability improvement opportunities
2009	MYT1	Myrtleford	53	344.5	664	714	5	5	MYT1 will continue to be monitored for future reliability improvement opportunities.
2008	MYT1	Myrtleford	53	346	485	871	4	6	SP AusNet will continue to monitor this feeder for reliability improvement opportunities
2009	NLA32	Newmerella	80	1449.5	1021	1064	5	5	NLA32 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
									proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	NLA34	Newmerella	137	1190	399	421	4	4	NLA34 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	PHI11	Phillip Island	31	1251.5	234	286	3	3	Distribution feeder automation (DFA) schemes were recently commissioned in Dec 2010. SP AusNet is expecting improved reliability in the future.
2009	PHI12	Phillip Island	71	3808.5	68	87	2	2	Distribution feeder automation (DFA) schemes were recently commissioned in Dec 2010. SP AusNet is expecting improved reliability in the future.
2009	PHI13	Phillip Island	27	3931	115	161	3	3	PHI13 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009. SP AusNet is expecting improved reliability in future years.
2008	PHI13	Phillip Island	35	4045	568	604	2	2	Distribution feeder automation (DFA) schemes have been implemented. This will shorten outage times in future.
2009	RWN31	Ringwood North	79	3310	697	906	3	4	RWN31 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	SFS1	Sassafras	20	1070.5	1765	1843	10	10	SFS1 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2008	SFS1	Sassafras	20	1069	1095	1239	6	7	Feeder SFS1 was reviewed in 2007 and several reliability improvement works were undertaken.
2009	TGN23	Traralgon	182	2272.5	1516	1552	4	4	TGN23 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	UWY1	Upwey	19	1066	1628	1643	10	10	UWY1 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
									well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009. SP AusNet is expecting improved reliability in future years.
2008	UWY1	Upwey	20	1065	1346	1420	3	3	Reliability improvement action includes implementing feeder automation along with additional switches and communication equipment upgrades in 2008/09.
2009	WGI23	Wonthaggi	133	2144.5	399	421	5	6	WGI23 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009. SP AusNet is expecting improved reliability in future years.
2008	WGI23	Wonthaggi	131	2099.5	149	668	1	3	Distribution feeder automation (DFA) schemes have been planned for this feeder. This will shorten outage times in future.
2009	WGL23	Warragul	167	2014.5	327	424	4	5	This feeder was reviewed in 2007/08. A distribution feeder automation (DFA) scheme has been proposed for this feeder, and will be implemented once the necessary construction works are complete.
2009	WYK11	Woori Yallock	195	3579.5	994	1091	6	7	WYK11 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	WYK12	Woori Yallock	106	2004.5	1360	1462	8	8	WYK12 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009. SP AusNet is expecting improved reliability in future years.
2009	WYK23	Woori Yallock	130	3467	1167	1278	6	7	WYK23 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009. SP AusNet is expecting improved reliability in future years.
2008	WYK23	Woori Yallock	129	3447.5	894	946	2	2	Reliability improvement action includes implementing feeder automation along with additional switches and communication equipment upgrades in 2008/09.
SP AusNet Long Rural									
2009	ALA01	Rubicon A	434	2483	792	824	4	4	ALA01 was recently reviewed for reliability improvement opportunities in

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
									early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	FTR12	Foster	465	1648.5	1518	1674	11	12	FTR12 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2008	FTR12	Foster	467	1620	927	972	6	6	Feeder FTR12 has been analysed in 2009. A distribution feeder automation scheme (DFA) has been proposed allowing a transfer of load to an adjacent feeder during fault conditions. It is expected that the DFA scheme will be rolled out in the near future.
2009	FTR23	Foster	419	3336.5	175	302	4	4	FTR23 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	LDL23	Lilydale	220	4360.5	1251	1272	7	7	LDL23 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009 SP AusNet is expecting improved reliability in future years.
2009	MWTS14	Morwell Open Cut	205	1240.5	1121	1196	7	7	MWTS14 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	MYT7	Myrtleford	335	2887	1158	1190	3	3	MYT7 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	NLA31	Newmerella	216	878.5	1384	1519	6	6	This feeder was reviewed in 2007/08. A distribution feeder automation (DFA) was recently commissioned in May 2010. SP AusNet is expecting improved reliability in the future.
2009	SLE31	Sale	472	4470	343	395	5	6	SLE31 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. We SP AusNet is

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
									expecting improved reliability in future years.
2009	SMR3	Seymour	229	1796.5	1626	1670	4	5	SMR3 was recently reviewed for reliability improvement opportunities in early 2010/11. A distribution feeder automation scheme (DFA) to restore customers automatically on unaffected sections after an outage has been proposed. SP AusNet is expecting improved reliability in future years.
2009	SMR5	Seymour	489	2112.5	2105	2156	4	4	SMR5 was recently reviewed for reliability improvement opportunities in 2008/09. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. Construction was completed in 2009. SP AusNet is expecting improved reliability in future years.
2009	WGI22	Wonthaggi	226	823.5	1004	1137	7	7	WGI22 was recently reviewed for reliability improvement opportunities in early 2010/11. Additional devices to improve reliability have been proposed, as well as distribution feeder automation schemes (DFA) to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	WGL12	Warragul	282	2310.5	827	928	8	8	WGL12 was recently reviewed for reliability improvement opportunities in 2009/10. Additional devices to improve reliability have been proposed, as well as distribution feeder automation (DFA) schemes to restore customers automatically on unaffected sections after an outage. SP AusNet is expecting improved reliability in future years.
2009	WGL24	Warragul	422	3007	1242	1287	7	8	WGL24 is currently being reviewed for reliability improvement opportunities. Reviews are scheduled to be completed by Dec 2010.
United Energy Urban									
2009	BR004	Beaumaris	4	1423	324	331	3	3	
2009	BR009	Beaumaris	6	1382	315	315	2	2	
2008	BR009	Beaumaris	6	1374	380	401	1	1	
2009	BR015	Beaumaris	4	1343	278	299	0	1	182 minutes due to excluded events
2008	BR015	Beaumaris	4	1552	320	330	0	0	
2009	BRA023	Boronia	0	15	372	372	1	1	
2009	BRA032	Boronia	3	265	90	271	1	2	181 minutes of planned works on this feeder
2008	BRA32	Boronia	3	264	548	548	0	0	
2009	BT014	Bentleigh	3	1138	295	295	1	1	63 minutes due to excluded events
2009	CM011	Cheltenham	2	26	312	397	3	3	
2009	CRM012	Carrum	22	6121	418	434	7	7	
2009	CRM022	Carrum	14	3967	393	459	7	7	
2009	DC006	Doncaster	12	2817	315	315	2	2	69 minutes due to excluded events
2008	DC006	Doncaster	12	2822	511	512	1	1	
2009	DN002	Dandenong	5	74	77	544	1	2	467 minutes of planned works on this feeder

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
2009	DN004	Dandenong	11	577	373	406	2	2	
2009	DN022	Dandenong	22	4347	162	202	1	1	
2009	DVY034	Dandenong Valley	30	670	66	340	1	2	273 minutes of planned works on this feeder
2009	EL006	Elsternwick	5	2112	271	278	1	1	96 minutes due to excluded events
2008	EL006	Elsternwick	5	2146	609	632	2	2	
2009	EW008	Elwood	3	1406	305	305	3	3	59 minutes due to excluded events
2009	FSH013	Frankston South	27	3158	298	323	4	4	
2009	FSH021	Frankston South	18	3185	106	130	2	2	
2009	FTN014	Frankston	8	1555	264	302	4	4	
2009	FTN024	Frankston	3	1947	247	399	5	5	152 minutes of planned works on this feeder
2009	FTN025	Frankston	18	3775	162	208	4	4	
2009	HT004	Heatherton	4	295	527	558	2	2	
2009	HT011	Heatherton	8	2237	332	352	1	1	271 minutes due to excluded events
2009	LD002	Lyndale	15	2843	270	287	2	2	57 minutes due to excluded events
2009	LWN032	Lyndale (LWN)	31	1958	359	359	4	4	
2009	M016	Mentone	8	1549	520	542	4	4	
2009	MC001	Mordialloc	8	1830	279	289	2	2	
2008	MC001	Mordialloc	8	1789	272	293	5	5	
2009	MC002	Mordialloc	13	3482	336	342	3	3	
2009	MGE011	Mulgrave	2	694	319	319	2	2	111 minutes due to excluded events
2009	MGE013	Mulgrave	13	892	304	415	3	3	188 minutes due to excluded events & 111 minutes of planned works on this feeder
2009	MGE023	Mulgrave	16	2851	271	310	4	4	62 minutes due to excluded events
2009	MR029	Moorabbin	0	920	293	317	2	2	290 minutes due to excluded events
2009	MTN006	Mornington	15	4116	253	272	1	1	
2009	NB013	North Brighton	4	1288	299	371	1	1	132 minutes due to excluded events & 72 minutes of planned works on this feeder
2008	NB013	North Brighton	6	1476	248	285	1	1	
2009	NP005	Noble Park	14	2135	321	340	4	4	
2008	NP005	Noble Park	14	2117	441	441	2	2	
2009	NP009	Noble Park	14	2968	424	441	4	4	
2009	NW022	Nunawading	13	2846	318	333	3	3	154 minutes due to excluded events
2009	NW031	Nunawading	11	3521	329	372	2	2	
2008	NW031	Nunawading	11	3515	505	507	3	3	
2009	OAK034	Oakleigh	4	1079	322	322	1	1	94 minutes due to excluded events
2009	OR005	Ormond	5	1598	296	302	3	3	60 minutes due to excluded events

Year	Feeder ID	Area	Length (km)	No. of customers on feeder	Unplanned minutes-off-supply	Total minutes-off-supply	No. of unplanned outage events	Total no. of outage events	Plan, if stated, and other comments by DNSPs
2009	RBD003	Rosebud	21	4083	243	283	3	3	
2009	RWT028	Ringwood Terminal	11	2329	253	291	2	2	
2009	SS022	Springvale South	8	1295	313	313	3	3	244 minutes due to excluded events
2009	SS023	Springvale South	19	3508	295	327	3	3	
2008	SS023	Springvale South	19	3504	312	313	0	0	
2009	SVW041	Springvale West	7	867	985	996	2	2	
2009	SVW052	Springvale West	1	16	815	1096	1	2	
United Energy Short Rural									
2009	DMA013	Dromana	136	2742	424	459	7	7	Feeder Reliability Improvement project to be completed in 2010
2009	MTN007	Mornington	33	2609	618	657	4	4	New ACR installation late in 2009 has improved the reliability of this feeder

D Supply areas (zone substations) reliability information, 2005–9

CitiPower

Figure D.1 CitiPower supply area map

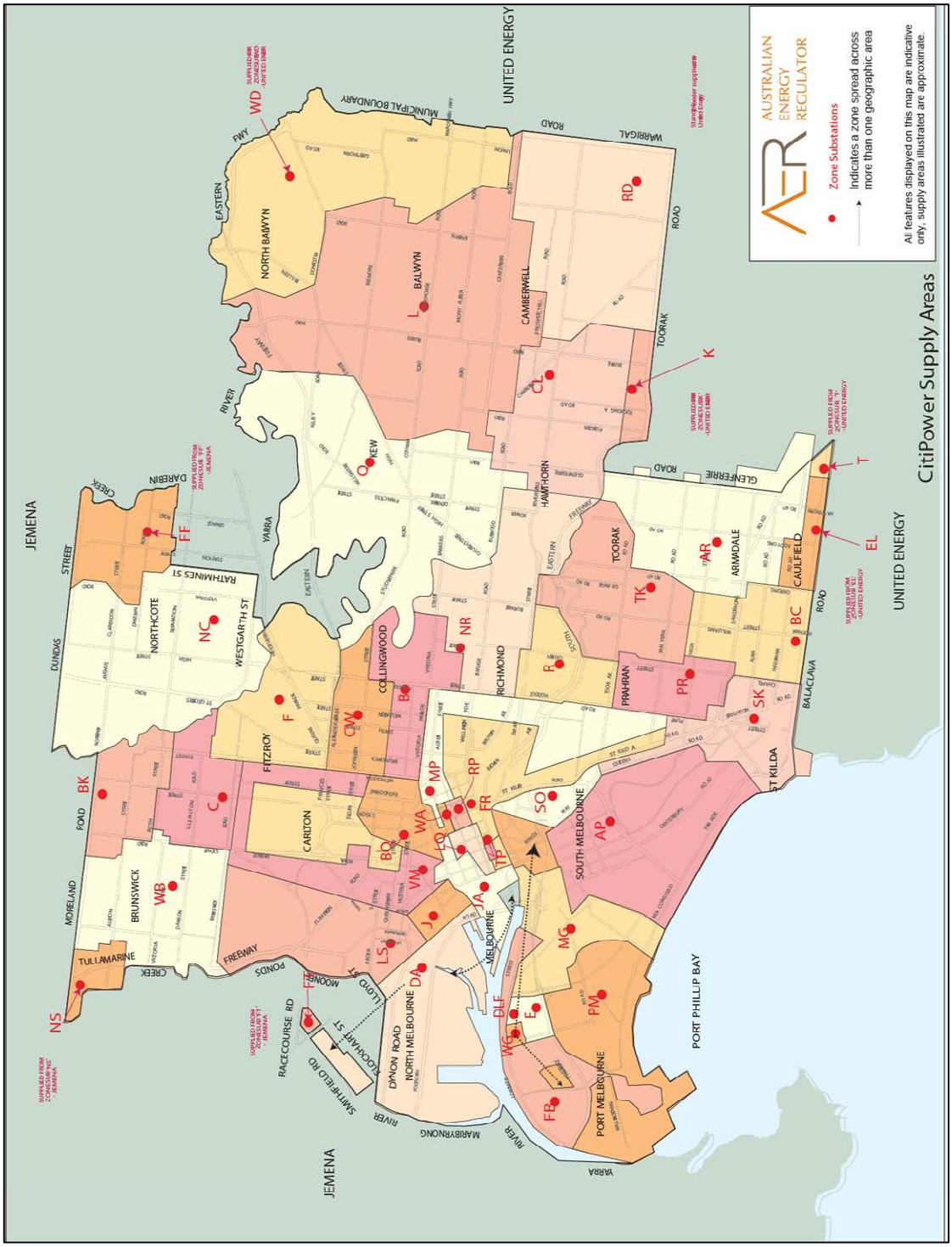


Table D.2 CitiPower substation abbreviations

AP	Albert Park	MG	Montague
AR	Armadale	MP	McIlwraith Place
B	Collingwood ('B feeders')	NC	Northcote
BC	Balaclava	NR	North Richmond
BK	Brunswick ('BK feeders')	NS	North Essendon
BQ	Bouverie/Queensberry St	PM	Port Melbourne
BTS-RUS	Fitzroy	PR	Prahran
BTS-VP	Collingwood	Q	Kew
BW	Burwood	R	Richmond
C	Brunswick ('C feeders')	RD	Riversdale
CL	Camberwell	RP	Russell Place
CW	Collingwood ('CW feeders')	RTS-BUR	North Richmond
DA	Dock Area	RTS-CIT	Richmond
DLF	Dockland ('DLF feeders')	RUS-VP	Collingwood ('CW feeders')
E	Fisherman's Bend ('E feeders')	SK	St Kilda
EL	Elsternwick	SM	South Melbourne, SM
F	Fitzroy	SM-CIT	South Melbourne, SM
FB	Fisherman's Bend ('FB feeders')	SO	South Melbourne
FF	Fairfield	T	Caulfield
FR	Flinders-Ramsden	TK	Toorak
FT	Flemington	TP	Tavistock Place
J	Spencer Street	VM	Victoria Market
JA	Little Bourke Street	WA	Waratah Place
K	Gardiner	WB	Brunswick ('WB feeders')
L	Balwyn	WD	West Doncaster
LQ	Little Queen	WG	Westgate
LS	Laurens Street	WMTS-NM	Laurens Street

Table D.3 CitiPower supply area performance

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
Albert Park	AP	2009	16683	129.3	137	1.8	1.8
		2008	16370	13	23.6	0.2	0.3
		2007	15473	17.4	20.7	0.4	0.4
		2006	14661	14.3	16.3	0.2	0.3
		2005	14374	19.2	25.2	0.4	0.5
Armadale	AR	2009	11964	67.6	75.2	1.1	1.1
		2008	12544	34.7	42.5	0.3	0.3
		2007	12528.5	82.5	88.6	0.7	0.8
		2006	12432	13.2	28.7	0.3	0.3
		2005	12297	8.3	18.8	0.2	0.2
Balaclava	BC	2009	11590	28.6	29.8	0.6	0.6
		2008	10829	2.7	7.4	0	0.1
		2007	10676.5	62.6	68.4	0.9	0.9
		2006	10744	32.1	39.4	1.5	1.5
		2005	10363	60.5	67.7	0.5	0.5
Balwyn	L	2009	14143	63.5	64.6	1.5	1.5
		2008	14086	95.2	100.6	0.7	0.7
		2007	14329	56.9	59.5	1	1
		2006	14604	26.3	28.8	0.5	0.5
		2005	14901	87.9	92.4	1.2	1.2
Bouverie/Queensberry St	BQ	2009	7383	2.1	15.8	0.1	0.2
		2008	7423	8.4	8.5	0.1	0.1
		2007	7382	75.3	77	0.3	0.3
		2006	7395	16	38.2	0.2	0.3
		2005	7651	6.2	6.9	0.1	0.1
Brunswick ('BK feeders')	BK	2009	6542	21.6	27.1	0.3	0.4
		2008	6536.5	24.1	24.7	0.4	0.4
		2007	6498.5	28.5	30	0.4	0.4
		2006	6419	11.9	21.6	0.3	0.3
		2005	6339	68.6	73	1	1
Brunswick ('C feeders')	C	2009	5072	4.6	11.4	0.1	0.1
		2008	4983	26.4	27.8	0.3	0.3
		2007	4932	17.2	21.3	0.3	0.3
		2006	4874	2.6	5.9	0	0.1
		2005	4802	115.6	123.2	0.8	0.8
Brunswick ('WB feeders')	WB	2009	11175	158.6	161.2	1.8	1.8
		2008	12752	47.7	48	0.6	0.6
		2007	11023	230	230.8	1.3	1.3
		2006	10855	118.6	121.6	1.6	1.6
		2005	10752	19.4	31.1	0.4	0.5
Burwood	BW	2009	0	0	0	0	0
		2008	0	0	0	0	0
		2007	0	0	0	0	0
		2006	0	0	0	0	0
		2005	0	0	0	0	0
Camberwell	CL	2009	11250	15.7	18.3	0.2	0.2
		2008	11331.5	41.6	45.1	0.4	0.4
		2007	11205	197.1	200.8	1.4	1.4
		2006	11031	14.3	24.9	0.3	0.3
		2005	10990	52.6	67.7	0.7	0.7
Caulfield	T	2009	467	9.9	9.9	0.9	0.9
		2008	267.5	0.1	0.1	0	0
		2007	70.5	1.1	1.1	0	0
		2006	70	1.7	1.7	0	0
		2005	72	1.8	35.5	0	0.2
Collingwood ('B feeders')	B	2009	5862	18.3	32.7	0.3	0.3
		2008	5010	3.5	4	0	0.1

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2007	5007	10.2	13.8	0.3	0.3
		2006	4986	6.4	7.5	0.2	0.2
		2005	4430	29.9	30.5	0.7	0.7
Collingwood ('CW feeders')	CW	2009	9686	4.5	7	0.1	0.1
		2008	9573.5	22.8	29.2	0.4	0.4
		2007	9477.5	14.6	16.7	0.2	0.2
		2006	9419	17	17.8	0.4	0.4
		2005	9559	7.9	9.1	0.2	0.2
Dock Area	DA	2009	3263	116.4	117.4	1.4	1.4
		2008	3309.5	8.2	11.2	0.2	0.2
		2007	3239	225.5	225.7	2.1	2.1
		2006	3113	2.6	5.5	0	0.1
		2005	2762	13.2	13.3	0.2	0.2
Dockland ('DLF feeders')	DLF	2009	25	0	0	0	1.6
		2008	3.5	0	0	0	0
		2007	1	0	0	0	0
Elsternwick	EL	2009	1030	48.3	49.6	1	1
		2008	1161	15.9	49.6	0.3	0.4
		2007	1327.5	4.5	6	0.1	0.1
		2006	1304	64.4	64.4	1.1	1.1
		2005	1248	39.3	43.2	1	1.1
Fairfield	FF	2009	3069	74.5	78.8	1.4	1.5
		2008	3043	19.4	20.8	0.2	0.2
		2007	3029	107.8	108.4	0.9	0.9
		2006	3014	6.7	8.2	0.1	0.1
		2005	2994	47.9	50.5	0.8	0.8
Fisherman's Bend ('E feeders')	E	2009	43	165.8	165.8	2.2	2.2
		2008	20.5	0	0	0	0
		2007	11	229.1	240.9	0.9	1
		2006	8	0	0	0	0
		2005	6	0	30	0	0.2
Fisherman's Bend ('FB feeders')	FB	2009	265	123.6	123.6	1	1
		2008	239	8.7	54	0.2	0.3
		2007	214.5	239.1	251.2	1.1	1.1
		2006	207	10.7	10.7	0.3	0.3
		2005	192	6	53.8	0.1	0.3
Fitzroy	F	2009	7952	24.2	24.2	0.4	0.4
		2008	7939	9	9.4	0.2	0.2
		2007	7834.5	19.2	27.6	0.3	0.3
		2006	7696	28.8	28.9	0.5	0.5
		2005	7716	34.6	35.6	0.3	0.3
Flemington	FT	2009	404	61.8	67.3	2.7	3.2
		2008	403	414.6	414.6	1.5	1.5
		2007	403	184.4	186.1	2	2
		2006	403	100.1	100.1	1.5	1.5
		2005	405	129.5	129.5	1.5	1.5
Flinders-Ramsden	FR	2009	4669	0.8	2.7	0	0
		2008	4605.5	11.5	15	0.2	0.2
		2007	4602.5	8.1	14.1	0.2	0.2
		2006	4433	4.2	10.6	0	0.1
		2005	4196	39.1	39.4	0.4	0.4
Gardiner	K	2009	1137	119.7	120.1	1.8	1.8
		2008	1126	115.8	122.5	0.7	0.7
		2007	1118.5	137.1	140.7	1	1
		2006	1131	7.6	7.6	0.2	0.2
		2005	1151	36.3	49.2	1.2	1.2
Kew	Q	2009	13845	52.7	56.7	1	1

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2008	13797.5	70.8	73	1.4	1.4
		2007	14365.5	36	44.4	1.5	1.5
		2006	13336	33	35.5	0.8	0.8
		2005	13249	81.6	86.5	0.6	0.7
Laurens Street	LS	2009	4890	24.5	29.6	0.3	0.3
		2008	4885.5	37.2	37.5	0.7	0.7
		2007	4814.5	5	10.1	0.1	0.1
		2006	4738	35.1	35.9	0.3	0.3
		2005	4598	15	33.7	0.3	0.4
Little Bourke Street	JA	2009	6497	4.5	5.1	0.2	0.2
		2008	5506	4	7.7	0	0.1
		2007	4936.5	9.2	10.3	0.1	0.1
		2006	4527	1.6	1.9	0	0
		2005	4315	2	3.4	0	0.1
Little Queen	LQ	2009	4855	1.7	8.6	0.1	0.1
		2008	4936.5	0.2	0.6	0	0
		2007	5085.5	0.7	0.7	0	0
		2006	5034	12.8	17.1	0.2	0.2
		2005	4649	1.1	1.7	0	0
McIlwraith Place	MP	2009	9542	58	62.1	0.6	0.6
		2008	9356	2.9	5.4	0.1	0.1
		2007	9444.5	17.6	18.5	0.5	0.5
		2006	9401	12.1	14.9	0.4	0.4
		2005	9001	30.9	32	0.2	0.2
Montague	MG	2009	6919	165.1	170.9	2.1	2.2
		2008	6823	9.3	21.9	0.5	0.5
		2007	6418	11.1	17.7	0.3	0.3
		2006	5905	64.2	68.3	0.9	0.9
		2005	6004	11.2	21.2	0.3	0.4
North Essendon	NS	2009	1511	37.2	37.2	0.6	0.6
		2008	1518.5	5.6	5.6	0.1	0.1
		2007	1499	63.4	63.4	1	1
		2006	1470	13.5	13.5	0.5	0.5
		2005	1456	0.5	3.4	0	0
North Richmond	NR	2009	13558	73.1	75	2.1	2.1
		2008	14246.5	33.9	42.5	0.6	0.6
		2007	14244	17.7	22.3	0.4	0.4
		2006	14036	23.2	26.1	0.5	0.6
		2005	13792	66.5	80.7	0.6	0.6
Northcote	NC	2009	17367	207.6	209.1	2.7	2.7
		2008	17275.5	95.7	99.1	1.1	1.1
		2007	17210	307.5	309.4	2.6	2.6
		2006	17121	79.9	82.8	1	1
		2005	16999	43.9	44	0.7	0.7
Port Melbourne	PM	2009	2951	187.2	199.2	2.9	2.9
		2008	2924.5	15.8	20.5	0.4	0.4
		2007	2861	274.5	278.5	1.4	1.4
		2006	2723	2.8	26.5	0.1	0.1
		2005	2549	24.3	24.3	0.6	0.6
Prahran	PR	2009	7920	50	55.1	0.9	0.9
		2008	8010	98.4	99.9	1.2	1.2
		2007	7149	167.8	176.1	1	1
		2006	6424	3.6	5.1	0.1	0.1
		2005	6194	26.5	37.1	0.3	0.3
Richmond	R	2009	6750	49.8	54	1	1
		2008	6433.5	3.2	10.6	0.1	0.1
		2007	6199.5	209.6	215.6	1	1.1
		2006	6220	45.8	55.5	0.9	1

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2005	6136	5.7	12	0.1	0.1
Riversdale	RD	2009	12387	63.1	66.3	1	1
		2008	12271	155.8	163.5	1	1.1
		2007	11787.5	52.6	53.1	0.7	0.7
		2006	11368	26.4	31	0.4	0.5
		2005	11517	116.8	122.3	1.2	1.2
Russell Place	RP	2009	978	0.6	0.6	0	0
		2008	963	0.4	0.4	0	0
		2007	949	1	1	0	0
		2006	963	0.7	0.7	0	0
		2005	976	0.8	0.8	0	0
South Melbourne	SO	2009	6189	115.8	116.1	1.8	1.8
		2008	6145.5	15.8	16.1	0.2	0.2
		2006	6322	0.4	1.8	0	0
		2005	6242	20.1	20.4	0.5	0.5
South Melbourne ('SO/SM feeders')	SO	2007	9175	206.8	207.2	1.1	1.1
South Melbourne, SM	SM	2006	2773	25.7	35.9	0.9	0.9
		2005	2025	0.2	0.2	0	0
Spencer Street	J	2009	1393	7.7	9.1	0.1	0.1
		2008	1425	1.7	13.8	0	0.1
		2007	1430.5	2.8	3	0	0
		2006	1315	0.7	2.8	0	0
		2005	1158	0.3	49	0	0.1
St Kilda	SK	2009	12252	1.5	4.4	0.1	0.1
		2008	12623.5	75	78.7	1.3	1.4
		2007	13686.5	50.3	55.1	0.9	0.9
		2006	13315	11.6	15.6	0.3	0.3
		2005	13234	10.6	17.2	0.3	0.4
Tavistock Place	TP	2009	631	0.7	11.7	0	0
		2008	655	0.4	0.8	0	0
		2007	659.5	0.3	0.3	0	0
		2006	664	7.8	7.8	0.1	0.1
		2005	673	5.8	5.8	0.1	0.1
Toorak	TK	2009	13640	27.2	30.4	0.4	0.4
		2008	12799	25.9	29.3	0.2	0.3
		2007	12871	14.5	27.4	1.3	1.3
		2006	12446	36.6	47.8	1.6	1.6
		2005	12309	52.4	59.7	0.7	0.7
Victoria Market	VM	2009	10731	12.6	23.2	0.1	0.2
		2008	10532	5.6	9.5	0.1	0.1
		2007	10450	264.9	269.4	1	1
		2006	9646	14.3	18.6	0.1	0.2
		2005	9130	14.8	26.3	0.1	0.1
Waratah Place	WA	2009	5763	0.7	3.9	0	0.1
		2008	5723.5	3.3	3.8	0.1	0.1
		2007	5715.5	6.3	6.3	0.1	0.1
		2006	5696	16.7	19.7	0.3	0.4
		2005	5238	1.9	2.9	0	0
West Doncaster	WD	2009	8934	101.1	102.1	2.1	2.1
		2008	8924	184.1	188	1.7	1.7
		2007	9034	53	54.6	0.8	0.8
		2006	9016	16.1	21.3	0.7	0.7
		2005	9117	93.8	108.2	0.8	0.8
Westgate	WG	2009	1721	71.4	110.6	0.7	0.9
		2008	1181	14.6	16.4	0.3	0.3
		2007	1011	35.4	117.3	0.2	0.5
		2006	124	3.4	5.2	0	0

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2005	130	0.9	100.2	0	0.3

Jemena

Figure D.2 Jemena supply area map

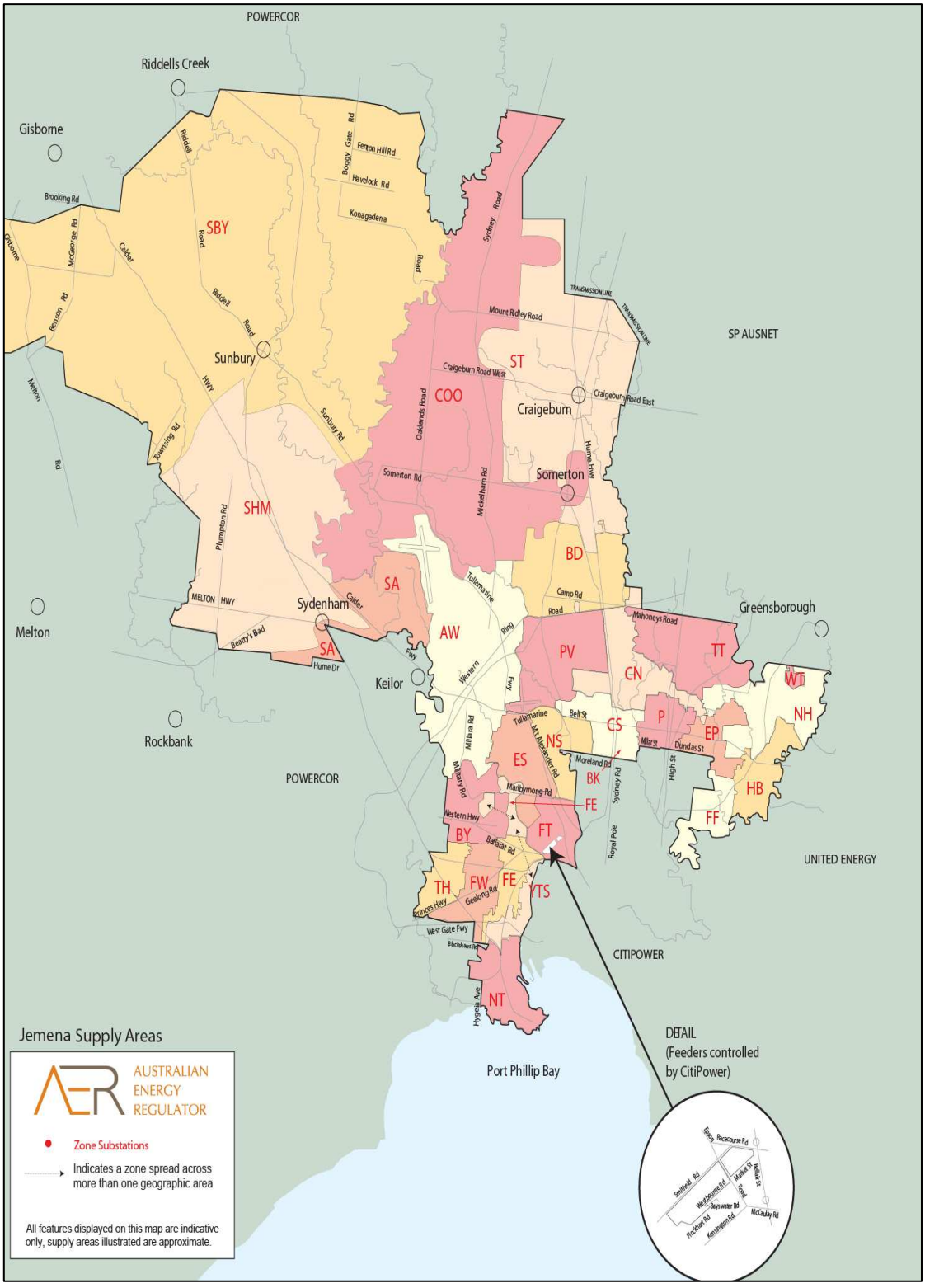


Table D.4 Jemena substation abbreviations

AW	Airport West	NH	North Heidelberg
BD	Broadmeadows	NS	North Essendon
BK	Brunswick ('BK feeders')	NT	Newport
BY	Braybrook	P	Preston
CN	Coburg North	PV	Pascoe Vale
CS	Coburg South	SA	St Albans
EP	East Preston	SBY	Sunbury
ES	Essendon	ST	Somerton
FE	Footscray East	TH	Tottenham
FF	Fairfield	TT	Thomastown
FT	Flemington	WT	Watsonia
FW	Footscray West	YTS	Yarraville Terminal Station
HB	Heidelberg		

Table D.5 Jemena supply area performance

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
Airport West	AW	2009	25822	117.7	123.6	3	3
		2008	24768	40.7	57.1	0.7	0.7
		2007	23799	138.8	153.2	2.3	2.4
		2006	22826	130.4	134.9	1.8	1.8
		2005	23047	82.8	92.5	1.1	1.2
Braybrook	BY	2009	10877	110.2	111.3	1.5	1.5
		2008	8549	149.6	154.5	1.2	1.2
		2007	8862	43.5	56.8	0.9	0.9
		2006	8130	105.4	110.7	1.6	1.6
		2005	8626	30.8	34	0.7	0.7
Broadmeadows	BD	2009	19302	82.9	85.1	1.5	1.5
		2008	16150	48.5	54.3	0.6	0.6
		2007	19206	198.1	202.3	2.6	2.6
		2006	18576	159.4	163.2	2.5	2.5
		2005	18241	42.6	43.6	1.1	1.1
Brunswick ('BK feeders')	BK	2008	0	0	0	0	0
		2007	0	0	0	0	0
		2006	2	0	0	0	0
		2005	2	0	0	0	0
Coolaroo	COO	2009	9084.0	126.6	144.3	2.4	2.5
		2008	10009	73.9	79.6	0.5	0.5
Coburg North	CN	2009	19415.0	141.6	157.7	2.2	2.2
		2008	21108	176.4	182.8	2.2	2.2
		2007	20014	80.7	83.9	1.1	1.2
		2006	18847	127.5	129.3	2	2
		2005	18715	84.7	85.6	2.4	2.4
Coburg South	CS	2009	16751	61.5	65	1	1
		2008	16606	148.2	163.9	2.1	2.2
		2007	17046	90.4	97.9	1.2	1.2
		2006	16352	189.5	193.5	2.5	2.5
		2005	15499	55.6	64	1.3	1.4
East Preston	EP	2009	4808	90.6	91.9	0.8	0.8
		2008	6918	63.6	82.4	0.8	1.1
		2007	6767	57.7	60	0.9	0.9
		2006	6450	39.7	46.5	1.4	1.4
		2005	6376	20.8	25.5	0.5	0.5
Essendon	ES	2009	13714	158.2	162.9	1.7	1.8
		2008	13596	17.1	25.4	0.2	0.2
		2007	14265	48.1	55.9	0.7	0.7
		2006	15470	39.8	42.6	0.5	0.5
		2005	13284	18.7	22.6	0.3	0.3
Fairfield	FF	2009	6879	119.3	127.6	1.5	1.5
		2008	6492	152.9	153.3	0.7	0.7
		2007	7360	55	64.5	0.9	0.9
		2006	7402	74.6	89.3	0.9	1
		2005	7132	26	41.5	0.4	0.4
Flemington	FT	2009	13827	177.6	186.7	2.2	2.2
		2008	14699	76.3	79.9	0.7	0.7
		2007	13836	206.6	210.5	2.9	2.9
		2006	15675	98.3	102.3	1.7	1.7
		2005	15439	105.2	112.5	1.4	1.4
Footscray East	FE	2009	13548	162.1	169.3	2.2	2.2
		2008	13070	70.9	75.5	0.4	0.4
		2007	13542	146.1	149.5	2	2
		2006	11682	23	26.5	0.4	0.4
		2005	12098	29.8	33.4	1.4	1.4

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
Footscray West	FW	2009	11936	256.5	262	2.5	2.5
		2008	11779	222.5	232.1	1.8	1.8
		2007	12061	260.2	284	3	3
		2006	13222	35.4	36.3	0.6	0.6
		2005	11508	77.5	80.6	1.6	1.7
Heidelberg	HB	2009	7973	91.4	132.9	0.9	1.1
		2008	7969	233.2	239.2	1.6	1.6
		2007	8012	48.2	49.7	0.5	0.5
		2006	7217	66.7	71.8	0.9	0.9
		2005	7183	119.5	122.5	1.4	1.4
Newport	NT	2009	13868	187.6	189.8	2.2	2.2
		2008	14046	172.6	173.9	1.2	1.2
		2007	11892	85.9	90.4	1.3	1.3
		2006	11868	91.5	99.4	1.3	1.4
		2005	11659	267.7	274.1	3.3	3.4
North Essendon	NS	2009	10141	80.5	81.2	1.2	1.2
		2008	10039	32.2	54.1	0.2	0.2
		2007	10728	56.2	61.1	1.1	1.1
		2006	10312	71	88.8	1.1	1.2
		2005	10833	28.4	32.9	0.3	0.3
North Heidelberg	NH	2009	19905	126.9	136.3	1.6	1.6
		2008	19940	227.2	232	2.9	2.9
		2007	17785	96	100.2	1.5	1.5
		2006	17106	92.5	103.5	1.1	1.2
		2005	17919	114.7	119.1	1.5	1.5
Pascoe Vale	PV	2009	16454	40.6	47.9	0.6	0.7
		2008	16159	31.2	37.8	0.5	0.5
		2007	17241	72.5	76.3	1.7	1.7
		2006	16990	47.4	51.7	0.4	0.4
		2005	15368	40.2	41.2	0.7	0.7
Preston	P	2009	10228	52.9	98.8	0.6	0.8
		2008	9491	138.7	145.6	0.4	0.4
		2007	9885	32.3	39.6	0.4	0.4
		2006	9291	48.3	54	0.7	0.8
		2005	9149	44.7	46.7	0.5	0.5
Somerton	ST	2009	14983	85.5	93.4	1.6	1.6
		2008	14461	182	225	2.3	2.5
		2007	19802	188.9	219.3	4	4
		2006	17287	51.7	77.8	1.4	1.5
		2005	18974	136.9	148	1.4	1.4
St Albans	SA	2009	2037	41.8	70.9	1.3	1.4
		2008	5212	96.3	101.2	1.7	1.7
		2007	8158	46.9	65.9	1.2	1.3
		2006	7772	26.3	34.8	2.4	2.5
		2005	8765	146.3	163.3	3.7	3.8
Sydenham	SHM	2009	11714.0	214.4	227.0	4.7	4.8
		2008	9478	19.7	24.2	0.2	0.2
Sunbury	SBY	2009	13969.0	304.5	324.8	5.2	5.2
		2008	18843	100.9	121	2.3	2.4
		2007	18819	134.7	143	3.5	3.6
		2006	18280	137.3	159.3	1.3	1.4
		2005	18196	261.2	280.9	3.1	3.2
Thomastown	TT	2009	14170	90.5	93.5	1.7	1.7
		2008	14040	161.7	165.9	2.5	2.5
		2007	14396	33.3	35.1	0.4	0.4
		2006	16886	90.7	92.5	1.2	1.2
		2005	16284	120.1	125.7	2.2	2.2
Tottenham	TH	2009	1100	237.7	268.9	2.9	3.1

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2008	1070	50.1	64.3	0.6	0.7
		2007	1126	16	19.6	0.2	0.2
		2006	1041	105.6	107.3	1.7	1.8
		2005	1070	82.7	93.8	1	1.1
Watsonia	WT	2009	137	61.1	62.3	2	2
		2008	134	405.5	405.5	1.6	1.6
		2007	132	48.4	52.7	0.6	0.7
		2006	128	182.5	182.5	5	5
		2005	490	16.3	16.3	0.3	0.3
Yarraville Terminal Station	YTS	2009	5245	77.5	78.2	1.2	1.2
		2008	5140	178.9	184.9	1.1	1.1
		2007	5229	139.9	187.3	2	2.1
		2006	5066	59.9	70	0.6	0.7
		2005	5155	45.2	50.4	0.7	0.8

Powercor

Figure D.3 Powercor supply area map

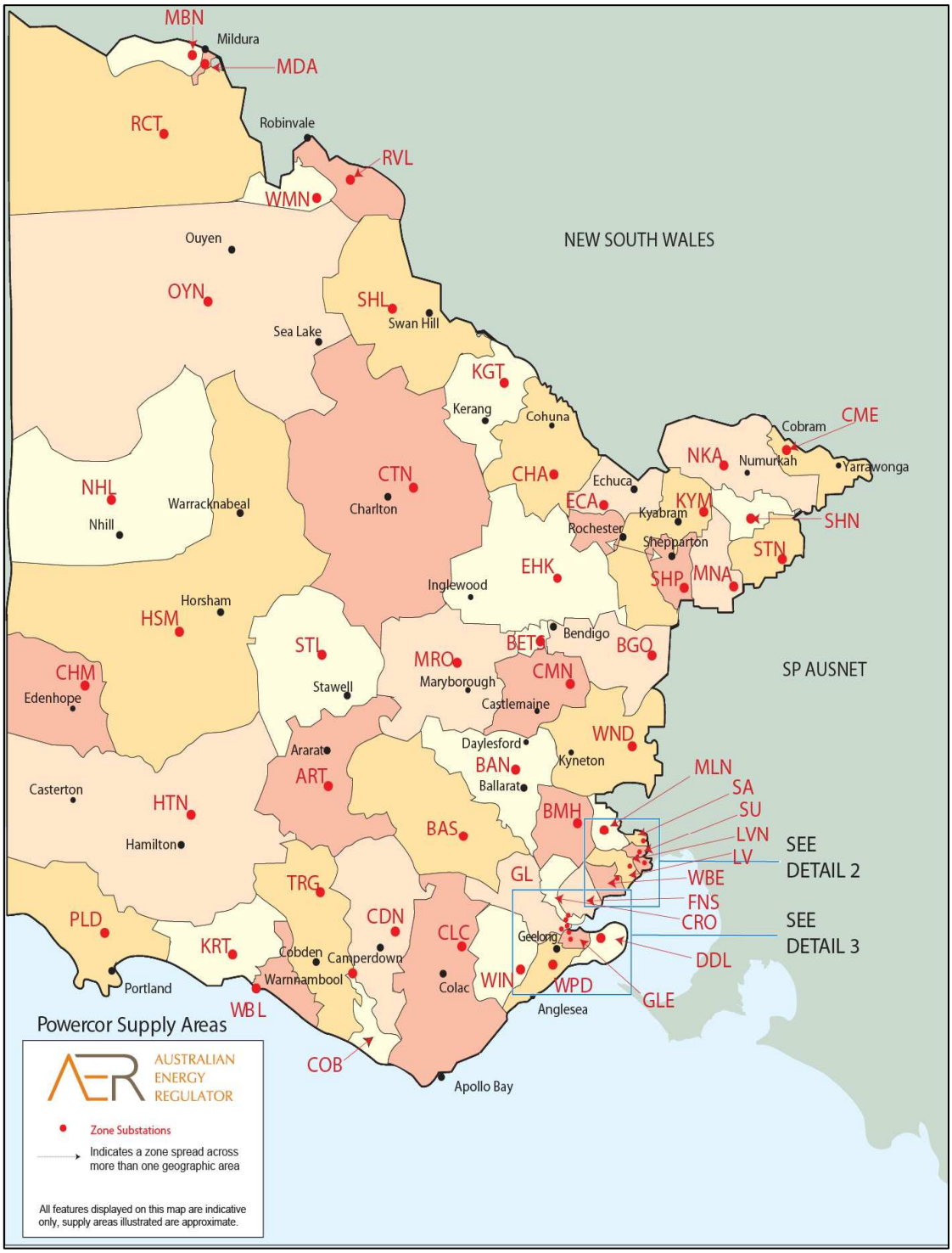
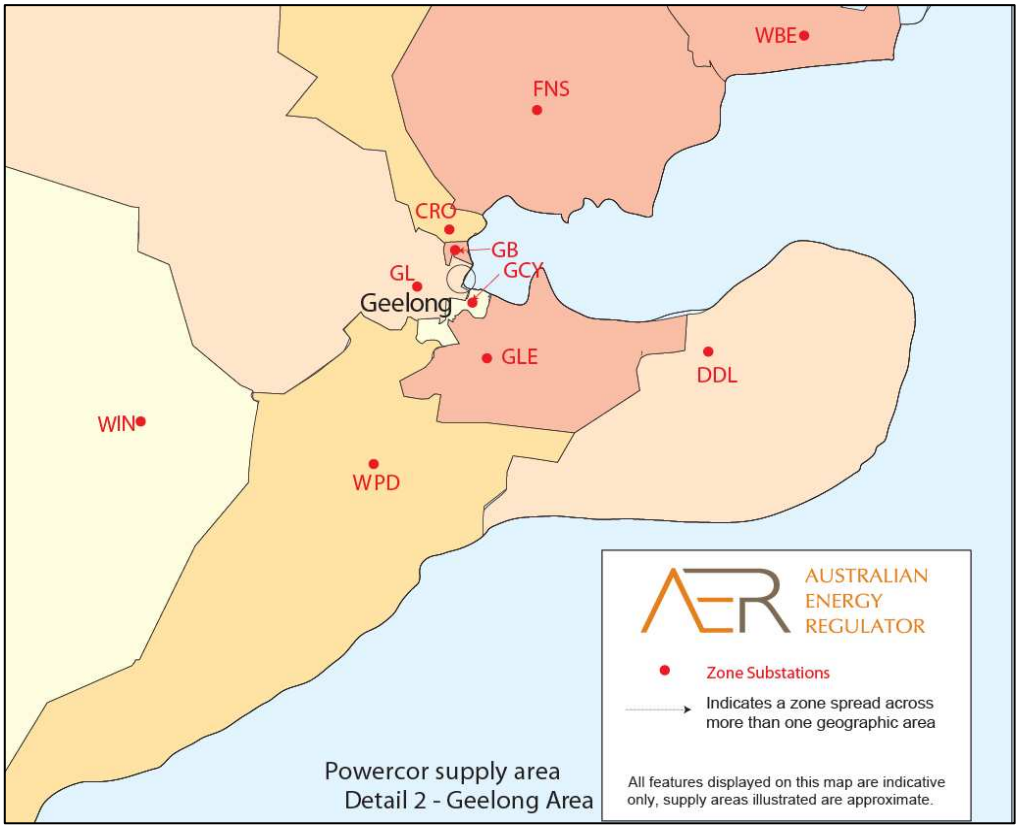


Figure D.4 Powercor supply area maps



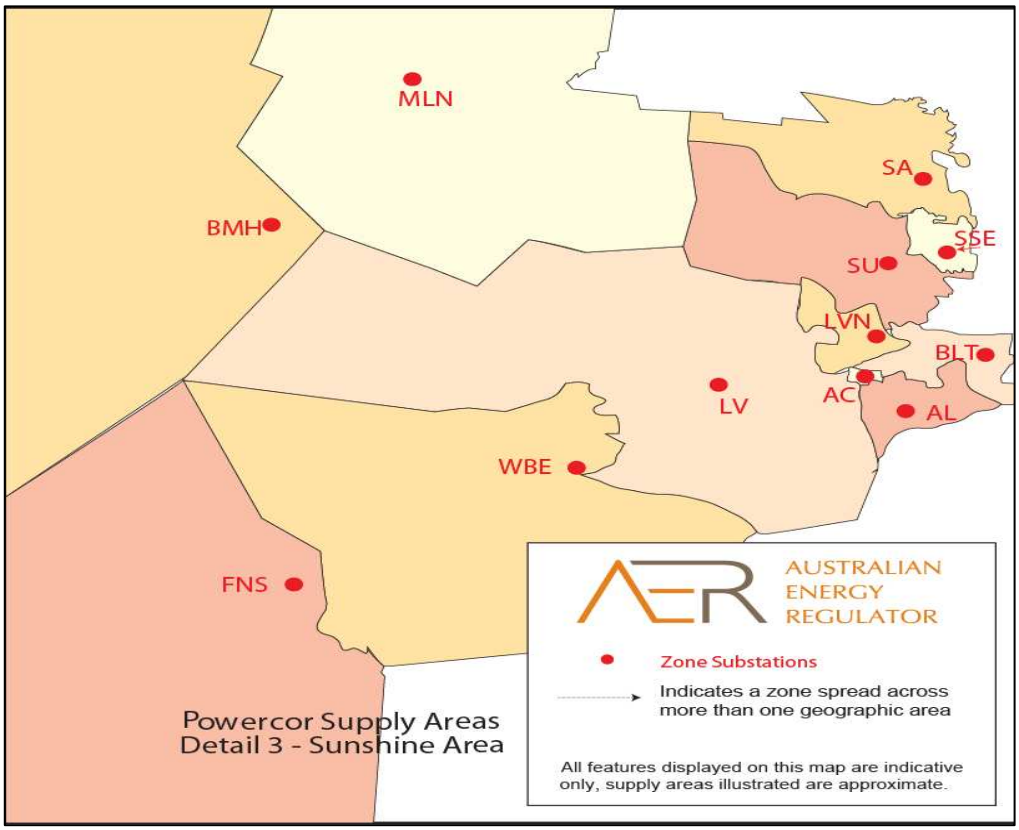


Table D.6 Powercor substation abbreviations

AC	Altona Chemicals	KRT	Koroit
AL	Altona	KYM	Kyabram
ART	Ararat	LV	Laverton
BAN	Ballarat North	LVN	Laverton North
BAS	Ballarat South	MBN	Merbein
BET	Bendigo Terminal	MDA	Mildura
BGO	Bendigo	MLN	Melton
BLT	Brooklyn	MNA	Mooroopna
BMH	Bacchus Marsh	MRO	Maryborough
CDN	Camperdown	NHL	Nhill
CHA	Cohuna	NKA	Numurka
CHM	Charam	OYN	Ouyen
CLC	Colac	PLD	Portland
CME	Cobram East	RCT	Redcliffs Terminal
CMN	Castlemaine	RVL	Robinvale
COB	Cobden	SA	St Albans
CRO	Corio	SHL	Swan Hill
CTN	Charlton	SHN	Shepparton North
DDL	Drysdale	SHP	Stanhope
DLF	Dockland ('DLF feeders')	SSE	Sunshine East
ECA	Echuca	STL	Stawell
EHK	Eaglehawk	STN	Shepparton
ETSA	Electricity Trust SA	SU	Sunshine ('SU feeders')
FNS	Ford North Shore	TRG	Terang
GB	Geelong B	WBE	Werribee
GCY	Geelong City	WBL	Warrnambool
GL	Geelong	WIN	Winchelsea
GLE	Geelong East	WMN	Wemen
HSM	Horsham	WND	Woodend
HTN	Hamilton	WPD	Waurn Ponds
KGT	Kerang Terminal Station		

Table D.7 Powercor supply area performance

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
Altona	AL	2009	6258	204.8	209.8	1.6	1.6
		2008	6242	40.7	47.5	0.7	0.7
		2007	6230	91.6	115.1	0.9	1
		2006	6173	65.9	73.2	1.3	1.3
		2005	6132	96.5	98.7	1.1	1.1
Altona Chemicals	AC	2009	14	111.9	236.4	0.9	1.4
		2008	12	164.3	164.3	0.3	0.3
		2007	10	0	0	0	0
		2006	10	11.4	11.4	0.1	0.1
		2005	9	0	0	0	0
Ararat	ART	2009	6400	157.9	180.9	1.1	1.2
		2008	6321	140.2	172.7	0.7	0.9
		2007	6296	62.1	122.3	1.5	1.8
		2006	6282	475.2	502.8	4	4.2
		2005	6262	81.7	100.7	0.7	0.9
Bacchus Marsh	BMH	2009	9254	359.9	420	4	4.4
		2008	8251	154.2	159.9	1.1	1.1
		2007	8939	275.5	288.4	3.1	3.2
		2006	8728	149.6	177.1	1.7	2
		2005	8500	238.6	255.8	2.4	2.5
Ballarat North	BAN	2009	32368	181.9	192.9	2.1	2.3
		2008	32037	108.5	132.3	1.4	1.5
		2007	31559	156	167.5	2.3	2.4
		2006	31000	182.3	187.6	5	5
		2005	30563	228.4	236.5	2.5	2.5
Ballarat South	BAS	2009	29438	206.4	247.7	1.9	2.1
		2008	28568	121.8	132.1	1.4	1.5
		2007	28182	85.9	98.6	1.8	1.8
		2006	27684	149.7	162.7	2.9	3
		2005	27118	122.7	138.5	1.5	1.7
Bendigo	BGO	2009	15707	217.8	230.7	3.8	3.9
		2008	17889	68.8	83.1	1	1.1
		2007	15920	306.9	364	2.7	3.3
		2006	16829	209.5	230.4	1	1.1
		2005	17617	128.3	144.3	1.6	1.7
Bendigo Terminal	BET	2009	17018	191.6	210.4	1.8	1.8
		2008	11370	54.4	70.7	0.7	0.8
		2007	15817	283	302.6	3.4	3.5
		2006	16848	328.4	338.3	3.3	3.5
		2005	12272	157.6	173.8	2.2	2.3
Brooklyn	BLT	2009	6539	401.8	408.1	2.7	2.8
		2008	5836	130.7	137.9	1.8	1.9
		2007	6130	234.9	243.3	2.1	2.1
		2006	6063	146.2	160.5	1.8	1.9
		2005	6000	182	184.6	1.8	1.8
Camperdown	CDN	2009	5727	498.2	528.6	3.3	3.6
		2008	8159	267.4	307.8	1.7	1.9
		2007	5711	405.7	436.8	3.4	3.5
		2006	5714	267.2	290.6	3.3	3.4
		2005	5686	173.7	180.7	2.5	2.6
Castlemaine	CMN	2009	9403	188.6	196.7	3.6	3.7
		2008	9619	100.3	124.4	1.2	1.3
		2007	9714	433.3	467.2	4.7	4.9
		2006	9614	373.3	402.3	1.9	2.1
		2005	9521	99.1	133.2	1.4	1.7
Charam	CHM	2009	1592	505.6	546.2	2.8	3.1
		2008	1235	201.9	216.2	1	2

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2007	1594	597.6	679.6	2	2.6
		2006	1599	729.2	736	6.5	6.6
		2005	1607	188.9	191.3	2	3
Charlton	CTN	2009	8102	539.2	575.2	4.5	4.9
		2008	6495	126.1	157.9	1.2	1.5
		2007	8157	498.5	504.1	5	5.1
		2006	8186	609.1	617.5	5.8	5.9
		2005	8198	517	570.9	4.7	8.6
Cobden	COB	2009	775	1035.4	1178.1	6.6	7
		2008	3234	112.3	365	1	1
		2007	781	406.5	424.2	4.7	4.7
		2006	782	380.5	394.1	3.7	3.8
		2005	779	405.5	441.3	4.3	4.3
Cobram East	CME	2009	8077	309.6	331.4	3.9	4
		2008	11496	264	318.8	4	4.3
		2007	7838	70.5	86.7	1.3	1.4
		2006	7683	64	88.2	1.9	2.2
		2005	7493	125.4	138.9	1.8	1.9
Cohuna	CHA	2009	4383	420.5	503.7	3.2	3.7
		2008	3090	182.6	221.9	2.4	3
		2007	4285	134.5	181.1	1	1.2
		2006	4159	130.9	137.5	0.9	0.9
		2005	4138	183.7	236.1	2	2.8
Colac	CLC	2009	15956	370.2	427.7	5.3	5.5
		2008	13504	204.7	229.9	1.5	1.8
		2007	15739	131.6	178.9	1.8	2
		2006	15550	175.9	217	3	3.3
		2005	15338	390.4	426.3	6.1	6.2
Corio	CRO	2009	10119	339.9	357	2.1	2.1
		2008	9001	44.7	60.5	0.2	0.3
		2007	10062	192.8	226.9	0.8	0.9
		2006	10106	200.8	215.1	1.2	1.2
		2005	10059	75.8	78.9	0.4	0.4
Dockland ('DLF feeders')	DLF	2009	776	0	0	0	1
		2008	5940	83.5	122.3	1.1	1.2
		2007	769	0.2	0.2	0	0
		2006	765	0.4	0.4	0	0
		2005	746	1.6	1.6	0	0
Drysdale	DDL	2009	24615	328.9	350.5	3.4	3.4
		2008	20924	133.4	164.5	1.6	1.8
		2007	23637	309.5	338.1	2.8	2.9
		2006	23314	105.7	130.2	1.2	1.3
		2005	23035	131.1	156.5	1.4	1.5
Eaglehawk	EHK	2009	17105	301.5	327.5	4.8	5.3
		2008	16645	63.1	78.2	0.7	0.7
		2007	16648	311.9	335.5	4.5	4.6
		2006	16410	330.4	353.1	2.1	2.3
		2005	16790	177	204.8	1.8	1.9
Echuca	ECA	2009	8771	168.5	182.8	2.4	2.5
		2008	6475	35.2	55.3	0.3	0.3
		2007	8632	34.6	46.7	0.4	0.6
		2006	8484	162.6	181.4	3.7	3.8
		2005	8302	146.7	163.8	2.8	2.9
Electricity Trust SA	ETSA	2009	355	779	811	6.1	5.7
		2008	3583	89.2	951	0.7	0.8
		2007	353	893.1	901.9	5.2	5.3
		2006	349	1221	1227.8	2.8	2.9
		2005	344	573.8	598.5	2.6	3.6

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
Ford North Shore	FNS	2009	9391	297.4	338.3	2.4	2.7
		2008	9075	161	191.2	1.7	1.8
		2007	9144	248.3	350.5	2.8	3.4
		2006	9003	136.7	148.8	1.8	1.9
		2005	8927	90.2	101	0.4	0.5
Geelong	GL	2009	23253	436.4	489.3	3.3	3.6
		2008	22658	82.4	112.9	0.8	0.9
		2007	22769	252	283.3	2.2	2.3
		2006	22773	130.9	149	1.3	1.4
		2005	22772	167.2	185.1	2	2.1
Geelong B	GB	2009	1011	159.1	260.2	1.2	1.5
		2008	713	83	88.1	0.8	0.8
		2007	995	143.2	174.1	1.3	1.4
		2006	632	70	311.4	1.4	2.6
		2005	276	3.8	20.5	0	0.1
Geelong City	GCY	2009	9147	343.7	359.3	4.1	4.2
		2008	4034	19	73	0.2	0.4
		2007	8485	171	189.2	1.5	1.6
		2006	8461	56.9	75	0.8	0.8
		2005	7626	37.5	43.8	0.5	0.5
Geelong East	GLE	2009	17877	403.2	409	2.9	2.9
		2008	19770	196.4	233.8	1.7	1.9
		2007	17359	370.4	387.3	2.9	2.9
		2006	17133	87.1	111.4	1.7	1.8
		2005	16827	61.3	70.5	0.9	0.9
Hamilton	HTN	2009	13597	468.9	540	3.7	4
		2008	13493	148.8	169.8	1.4	1.6
		2007	13434	266.3	275	3.1	3.1
		2006	13406	542.4	561.3	4.5	4.6
		2005	13335	197.3	208.9	2.5	2.5
Horsham	HSM	2009	16950	424	450.6	2.9	3
		2008	14941	129.1	146.7	1.6	1.7
		2007	17137	124.9	138.1	1.2	1.2
		2006	17012	225.6	246.7	2.1	2.2
		2005	17667	140.1	160.3	1.3	1.5
Kerang Terminal Station	KGT	2009	4126	83.7	140.2	0.9	1.2
		2008	7591	190.4	208.6	2	2.1
		2007	4142	163.1	207.8	0.9	1.2
		2006	4138	323.8	367.3	2.2	2.3
		2005	4126	124.3	140.5	1.9	1.9
Koroit	KRT	2009	7229	428.9	473.6	3.7	3.9
		2008	7700	197.6	210.7	2.7	2.7
		2007	7283	334.2	342.4	4.1	4.2
		2006	7414	452.8	466	5.2	5.3
		2005	7305	116.2	132.5	2.5	2.6
Kyabram	KYM	2009	7391	345.1	375.5	3.7	3.8
		2008	6538	237.4	295.6	2.6	2.8
		2007	7443	194.2	226.5	2.3	2.4
		2006	7496	212.7	273.4	5	5.2
		2005	7408	149.7	173.5	1.9	2.1
Laverton	LV	2009	30810	319.4	330.6	3.9	3.9
		2008	26181	241.1	252.5	3.5	3.5
		2007	28900	109.6	116.5	1.5	1.5
		2006	29115	97.8	109.6	2	2.1
		2005	29128	102.5	109.4	3.1	3.2
Laverton North	LVN	2009	5271	272.2	281	4.2	4.2
		2008	10894	141.7	146.9	1.5	1.5
		2007	4989	22.4	29.9	0.1	0.1

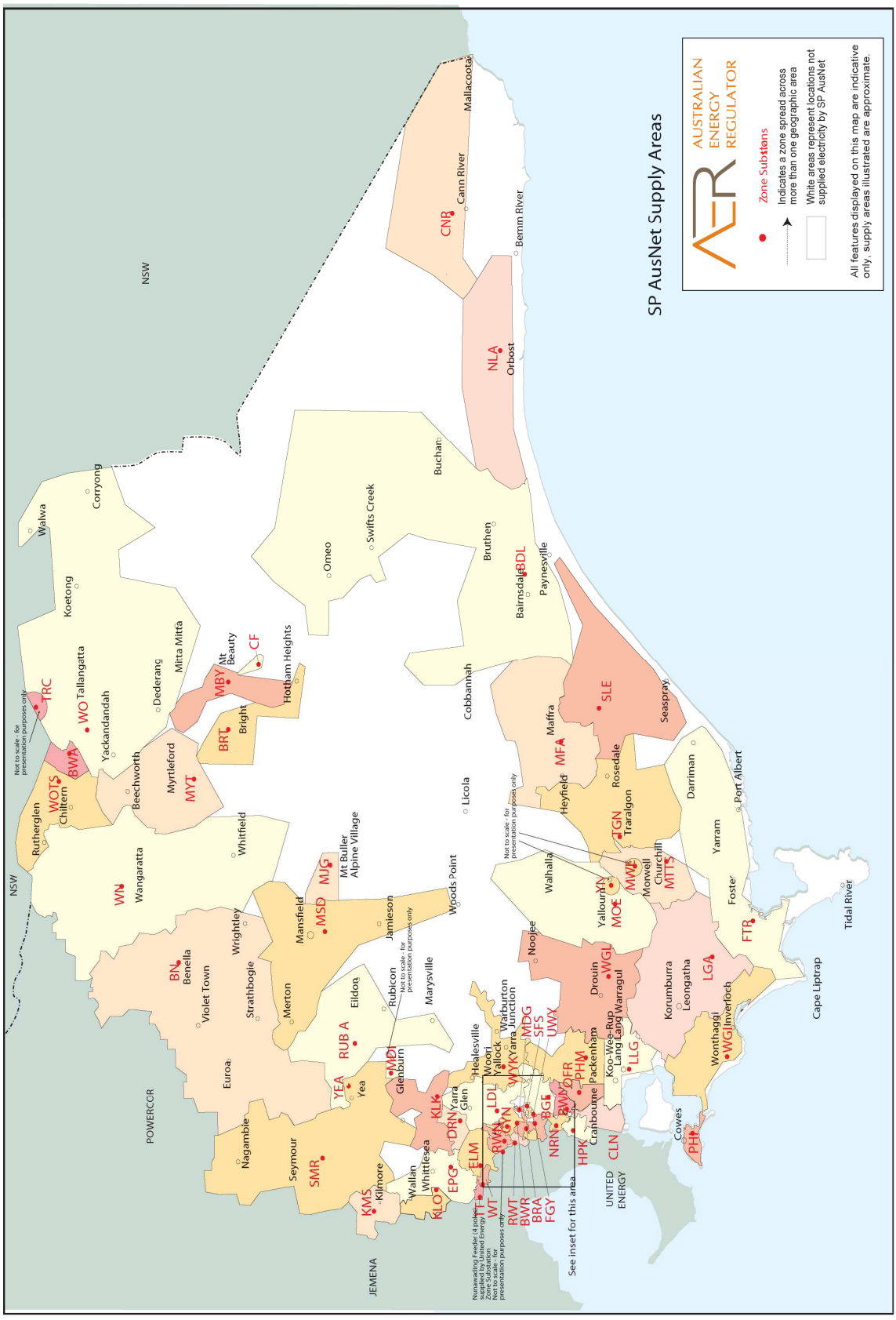
Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2006	2782	47.3	50.8	0.4	0.4
		2005	528	438.3	467.8	1.9	2
Maryborough	MRO	2009	9576	285.9	302.1	4.7	4.8
		2008	7804	197.8	234.8	2	2.5
		2007	9148	515.6	523.9	4.8	5
		2006	9105	387.2	399.5	1.6	1.7
		2005	9033	130.8	143.5	2.1	2.2
Melton	MLN	2009	17982	334.9	353.7	4.8	4.8
		2008	15669	81	89	1.1	1.2
		2007	16645	108.4	125.8	1.5	1.5
		2006	16062	44.3	57.8	0.4	0.4
		2005	15377	63.4	73.4	0.7	0.7
Merbein	MBN	2009	7170	136.7	162.7	1	1.1
		2008	4031	133.4	172.6	1.8	2
		2007	6919	107.8	135.1	0.8	1
		2006	6580	174	200.7	2.8	2.9
		2005	6234	257.7	285	2.4	2.6
Mildura	MDA	2009	12515	35.1	66.1	0.5	0.6
		2008	11558	70.5	83.6	0.7	0.8
		2007	12408	51.7	60.9	0.6	0.7
		2006	12413	199.5	226.4	3.2	3.4
		2005	12322	40.9	79.3	1.6	1.8
Mooroopna	MNA	2009	8634	290.4	317.5	3.5	3.6
		2008	11404	85.4	108.4	1	1.1
		2007	8067	91.9	112.5	0.9	1
		2006	8006	66.8	96.2	0.8	1
		2005	7912	128.3	156.7	1.9	2.1
Nhill	NHL	2009	4507	472.4	481.1	4.1	4.2
		2008	5639	89.6	101.3	0.9	1
		2007	4567	256.6	292.3	2.5	3.7
		2006	4590	585.7	607.4	4.5	5.1
		2005	4598	286.5	300.9	5.3	5.4
Numurka	NKA	2009	7965	317.5	332	3.4	3.5
		2008	7815	288.2	324.6	2.1	2.3
		2007	7930	322	352.7	2.8	3
		2006	7874	105.9	142.4	1.5	1.6
		2005	7784	322.1	351.6	2.7	2.9
Ouyen	OYN	2009	3464	778.9	849.6	4.9	6.3
		2008	5682	120.5	131.7	1.4	1.5
		2007	3506	461.5	473.1	4.1	4.2
		2006	3535	461.1	471.2	7.2	8.3
		2005	3559	194.1	226.2	4.1	4.2
Portland	PLD	2009	8985	393.3	459.9	2.8	3.1
		2008	5535	176.3	196.9	2	2.5
		2007	8903	255.5	312.8	2.8	3.2
		2006	8795	315.1	322.6	1.7	1.8
		2005	8690	165.7	180	1.9	2.1
Redcliffs Terminal	RCT	2009	6087	415.6	527	2.3	2.6
		2008	8633	137.8	162.6	1.6	1.7
		2007	6029	359.2	386.3	2.4	2.5
		2006	6003	174.2	204.3	1.4	1.7
		2005	5978	271.2	321.7	2.1	2.4
Robinvale	RVL	2009	2116	45.9	55.2	0.9	0.9
		2008	3755	140	202.2	0.7	1.1
		2007	2413	332.2	366.7	4.1	4.4
		2006	2384	89.5	186.6	3.5	3.9
		2005	2352	97.1	191.1	3.8	4.1
Shepparton	STN	2009	10820	216.7	243.2	3.3	3.5

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2008	13675	115	135.3	1.5	1.6
		2007	10846	96.8	114	1.4	1.4
		2006	10618	52.4	78.3	0.9	1
		2005	10404	154.2	183.3	2.3	2.4
Shepparton North	SHN	2009	9793	112.5	127.9	2.3	2.3
		2008	11947	113.1	147.6	1.8	2
		2007	9651	62.7	80.1	0.8	0.9
		2006	9532	66.9	85.4	0.7	0.8
		2005	9423	63.2	69.1	1.7	1.8
St Albans	SA	2009	34987	107.7	115.2	1.7	1.7
		2008	31571	87.3	118.4	1.3	1.4
		2007	33146	131.2	136.7	1.6	1.7
		2006	32763	65.9	76.5	2.1	2.2
		2005	35943	70.3	74.3	1.4	1.4
Stanhope	SHP	2009	5076	231.6	280	3.4	3.6
		2008	4798	36.5	43.3	0.5	0.6
		2007	5151	97.9	125.3	0.8	0.9
		2006	4904	253.8	275.2	3.3	3.5
		2005	4881	316.5	336.7	2.6	3
Stawell	STL	2009	6340	343.8	376.6	2.4	2.5
		2008	7733	49.8	56.7	0.3	0.4
		2007	6044	186.5	208	2.1	2.2
		2006	6024	440.1	463.6	2	2.1
		2005	5996	179.6	192.8	1	1.1
Sunshine ('SU feeders')	SU	2009	27314	333.7	341.3	4.5	4.5
		2008	22943	95.2	116.5	1.1	1.2
		2007	29239	259.7	265.8	3	3.1
		2006	27411	107.4	113.3	1.9	1.9
		2005	25628	50.6	56.8	0.7	0.7
Sunshine East	SSE	2009	10952	436.5	440.4	3.6	3.6
		2008	5239	94.7	100	1.2	1.3
		2007	6713	116.5	128.5	0.9	0.9
		2006	6670	45.3	46.5	0.3	0.3
		2005	6593	29.5	32.5	0.6	0.6
Swan Hill	SHL	2009	9294	312.4	390.5	3.3	3.6
		2008	7268	90.7	103.5	0.9	1
		2007	9225	121.7	170.4	2	2.3
		2006	9144	213.6	254	0.8	1
		2005	9072	69.1	91.1	0.7	0.8
Terang	TRG	2009	6787	498.9	563.2	4	4.4
		2008	11103	78.2	82.7	1.2	1.2
		2007	6769	306.4	344.7	3	3.2
		2006	6777	529.5	545.3	6	6.1
		2005	6734	340.8	387.3	2.6	2.9
Warrnambool	WBL	2009	15449	219.5	256.4	2.4	2.6
		2008	23725	94.5	111.6	2.2	2.2
		2007	14833	111.9	137.2	1.9	2.1
		2006	14335	381.7	388.6	3.7	3.8
		2005	14146	77.7	88.6	0.9	1
Waurn Ponds	WPD	2009	28066	409.8	424.7	5.5	5.6
		2008	38340	204.7	247.3	3.3	3.5
		2007	27438	379	417.5	4.5	4.7
		2006	27714	225.5	247.3	3.7	3.8
		2005	27687	93.5	100.7	1.4	1.4
Wemen	WMN	2009	234	147.7	674.7	0.7	2.5
		2008	2190	111.5	112	4.1	4.1
		2007	230	346	705.7	2.9	6
		2006	232	726.2	781.9	7.6	7.7

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2005	242	588.3	620.9	8.1	8.3
Werribee	WBE	2009	30200	273.2	284.1	2.4	2.5
		2008	15843	179.7	199.1	1.9	2
		2007	28203	96.2	105	1.6	1.7
		2006	24430	116.5	130.4	2.7	2.7
		2005	23927	17.9	23	0.3	0.3
Winchelsea	WIN	2009	3072	460.8	498.2	2.8	3.3
		2008	6509	275.7	279.6	5.8	5.8
		2007	3021	295	313.5	2.4	2.4
		2006	2996	256.1	276.2	2.3	2.5
		2005	2944	133	171.6	1.4	1.6
Woodend	WND	2009	20283	578.7	598.3	5.8	5.8
		2008	13972	194.8	227.9	2.1	2.3
		2007	19669	283	294.8	3.1	3.4
		2006	19360	161.3	179.1	2.3	2.3
		2005	18989	178.5	198.7	2.2	2.4

SP AusNet

Figure D.5 SP AusNet supply area map



SP AusNet supply area map

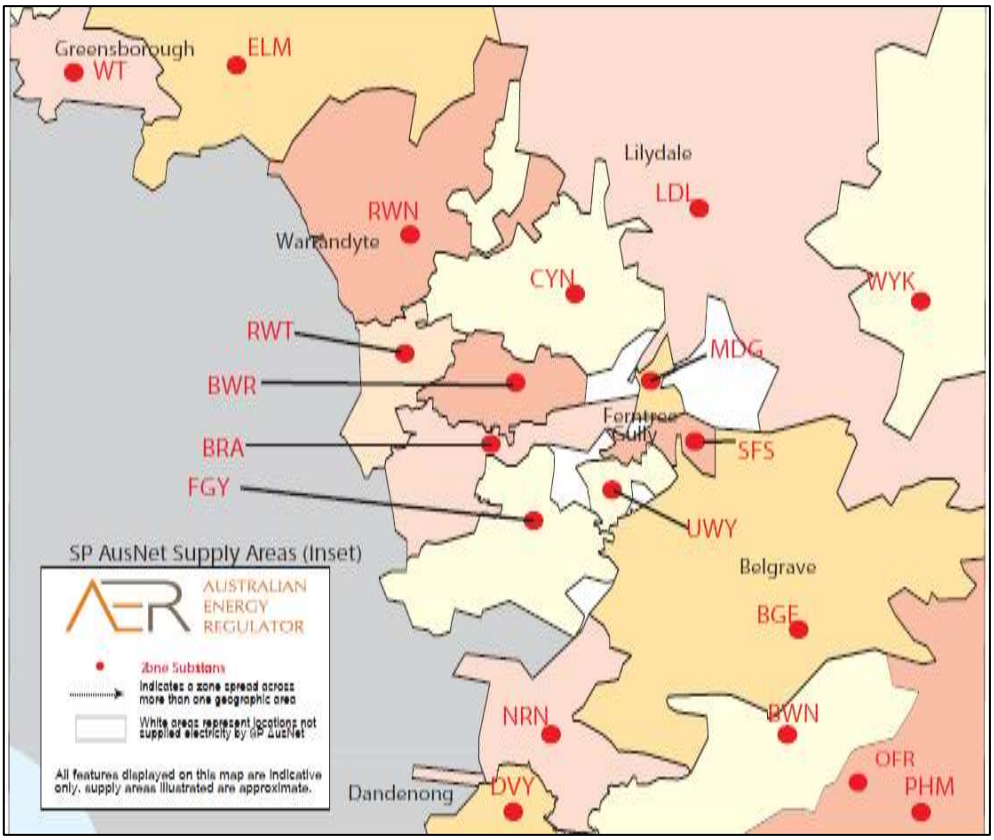


Table D.8 SP AusNet substation abbreviations

SP AusNet

ALA	Rubicon A	MJG	Merrijig
BDL	Bairnsdale	MOE	Moe
BGE	Belgrave	MSD	Mansfield
BN	Benalla	MVE	Rubicon A
BRA	Boronia	MWE	Morwell Open Cut
BRT	Bright	MWTS	Morwell Terminal Station
BWA	Barnawatha	MYT	Myrtleford
BWN	Berwick North	NLA	Newmerella
BWR	Bayswater	NRN	Narre Warren
CF	Clover Flat	NW	Nunawading
CLN	Clyde North	OFR	Officer
CNR	Cann River	PHI	Phillip Island
CYN	Croydon	PHM	Pakenham
DRN	Doreen	RUBA	Rubicon A
DVY	Dandenong Valley	RWN	Ringwood North
ELD	Rubicon A	RWT	Ringwood Terminal
ELM	Eltham	SFS	Sassafras
EPG	Epping	SLE	Sale
FGY	Ferntree Gully	SMR	Seymour
FTR	Foster	TGN	Traralgon
HGS	Hastings	TRC	Wodonga-Tumut
HPK	Hampton Park	TT	Thomastown
KLK	Kinglake	UWY	Upwey
KMS	Kilmore South	WGI	Wonthaggi
KLO	Kalkallo	WGL	Warragul
LDL	Lilydale	WN	Wangaratta
LGA	Leongatha	WO	Wodonga
LLG	Lang Lang	WOTS	Wodonga Terminal Station
MBY	Mount Beauty	WT	Watsonia
MDG	Mount Dandenong	WYK	Woori Yallock
MDI	Murrindindi	YEA	Yea
MFA	Maffra	YN	Yallourn Open Cut
		YPS	Yallourn Power Station

Table D.9 SP AusNet supply area performance

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
Bairnsdale	BDL	2009	20504.5	164.5	229	3.7	4.1
		2008	20149.5	138.4	303.5	1.9	2.6
		2007	19914.5	281.8	353	2.6	2.8
		2005	19731	97.2	167.2	1.5	1.9
		2006	19608	70.2	349.2	1.1	2
Barnawatha	BWA	2009	1771	112.2	122.1	2.1	2.2
		2008	1758.5	49.1	101.1	1.2	1.9
		2007	1745	224.4	274.9	4.3	4.4
		2005	886	320.1	910.7	4.1	5.5
		2006	1739.5	117.5	207.5	2.8	3.2
Bayswater	BWR	2009	15306	86.1	97.8	1.5	1.6
		2008	14830	105.3	176.9	1.5	1.7
		2007	15290	147.2	204	1.9	2.1
		2005	15107	145.6	155.6	2.7	2.7
		2006	15099.5	370.1	398	3.7	3.8
Belgrave	BGE	2009	11845.5	769.5	829.1	8.6	8.8
		2008	11802.5	989.2	1066.2	5.3	5.7
		2007	11189.5	1039.8	1218	8.4	9
		2005	12006	600.6	718.4	5.4	5.7
		2006	11369.5	534.4	636.3	7.3	7.8
Benalla	BN	2009	11651.5	261.8	288.8	2.3	2.5
		2008	11575.5	76.1	118.3	0.9	1.1
		2007	11511	203.3	257	1.4	1.6
		2005	11632	316.6	381.2	2.4	2.6
		2006	11419.5	221	312.6	2.2	2.6
Berwick North	BWN	2009	8238.5	319.5	425.6	4	4.4
		2008	10318	187.7	234.7	1.5	1.7
		2007	10352	178.8	210.5	1.6	1.8
		2005	10761	116.2	170.1	2.9	3.2
		2006	10619	92.4	135.2	1.5	1.7
Boronia	BRA	2009	21494.5	213.8	223.4	1.8	1.9
		2008	21152	109	135.5	0.7	0.8
		2007	21895.5	130	161.9	1	1.2
		2005	20671	137.3	175.7	1.4	1.5
		2006	20903	140.6	191.1	1.5	1.7
Bright	BRT	2009	3905	227.2	299.5	3.2	3.7
		2008	3849.5	240.1	246.3	3.2	3.2
		2007	3816	97.3	115.7	1.7	1.9
		2005	3613	668.2	762.8	3.5	3.9
		2006	3744	55.3	128.5	0.9	1.1
Cann River	CNR	2009	1360	2344.4	2442.8	9.8	10.1
		2008	1336.5	838	989.5	10.6	12.1
		2007	1333.5	978.8	1012	9.3	9.4
		2005	1372	569.6	757.7	5	5.9
		2006	1334	1309.2	1309.3	8.1	8.1
Clover Flat	CF	2009	673.5	571.2	633.1	6.1	6.2
		2008	626	1.4	6	0	0
		2007	605.5	95.7	122.3	2.9	3
		2005	596	435.5	469.4	2.9	3
		2006	599	334.8	353.3	2.9	3
Clyde North	CLN	2009	22476.5	227.6	306.8	3.2	3.6
		2008	20510.5	167.1	250.8	0.9	1.2
		2007	18327	113.6	135	1.7	1.8
		2005	6628	113.5	224.4	2.3	2.6
		2006	14457	114.6	155.3	2.9	3.5
Croydon	CYN	2009	26224	141.4	146.9	2.1	2.1
		2008	26272	257.1	315.9	2.2	2.4

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2007	25923.5	192.8	257	2.6	2.8
		2005	30707	223.1	257.5	3.4	3.5
		2006	27593.5	192.3	261.8	2.6	2.9
Dandenong Valley	DVY	2009	0	0	0	0	0
		2008	0	0	0	0	0
		2007	0	0	0	0	0
		2005	7	0	0	0	0
		2006	2.5	0	0	0	0
Doreen	DRN	2009	11393.5	190.7	273.9	2.9	3.2
		2008	4582.5	1300.4	1352.1	2.5	2.7
		2007	3614.5	205.9	288.9	4.2	4.6
		2006	1613.5	36.3	37.3	4.1	4.2
Eltham	ELM	2009	28457	268.3	317.5	2.8	3
		2008	28015.5	387.7	431.1	2.2	2.4
		2007	27188.5	230.4	325.9	2.4	2.6
		2005	27185	378.4	418.2	3.4	3.6
		2006	26957.5	184.9	249.5	1.7	1.9
Epping	EPG	2009	29891.5	255.4	300	2.4	2.7
		2008	32799	233.9	268.7	3.4	3.5
		2007	31044.5	167.4	247.4	1.7	1.9
		2005	31629	329.4	361.7	3.4	3.6
		2006	30740	168.1	222.3	2.3	2.5
Ferntree Gully	FGY	2009	21822	212.4	253.7	2.8	3
		2008	21810.5	343	374.9	1.6	1.7
		2007	20426	162.5	180.4	1.9	2
		2005	19260	64.8	82.1	2.2	2.3
		2006	19732	104.6	137.7	2.1	2.2
Foster	FTR	2009	8521.5	559.3	660.3	6.7	7.2
		2008	8442	672.4	772.4	5.4	6.1
		2007	8344.5	506	655.2	6.2	6.9
		2005	8463	454.8	727.9	6.8	7.7
		2006	8297.5	248	429	3.2	4
Hampton Park	HPK	2009	29905.5	102.8	140.7	1.8	1.9
		2008	29717.5	45.5	105.2	0.8	1
		2007	30358.5	126	138.3	2.3	2.3
		2005	37746	84	100.7	1.2	1.3
		2006	32570	64.2	91.9	0.8	1
Kilmore South	KMS	2009	3149.5	169.3	203.6	2.4	2.5
		2008	3078.5	77.8	113.7	3.4	3.6
		2007	2991.5	140.2	199	4.3	4.5
		2005	2843	548.5	630.6	3.9	4.1
		2006	2911.5	334.4	408.9	6.5	7.1
Kinglake	KLK	2009	2246	10645.1	10882.4	7.7	8.7
		2008	2435.5	336.9	626.9	4.6	5.6
		2007	2421.5	1487.4	1655.7	11.6	12.2
		2005	2403	1166	1247	6.9	7.1
		2006	2397	1177	1278	7.8	8.2
Lang Lang	LLG	2009	5448.5	306.2	427.1	4.3	5
		2008	5302.5	741.5	848	3.7	4.6
		2007	2610.5	36.8	195.7	0.4	1.1
Leongatha	LGA	2009	10823.5	275.8	456.6	4.4	5.2
		2008	10704.5	476.1	657.4	6.7	7.5
		2007	11069.5	247.3	382.3	3.4	3.9
		2005	11563	299.6	371.8	4.9	5.2
		2006	11424	326.8	594.8	6.1	7
Lilydale	LDL	2009	25117.5	768.8	794.9	5	5.1
		2008	24819.5	359.9	418.8	2.6	2.9
		2007	23812.5	228.1	323.6	1.8	2.1

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2005	21162	376.8	424.5	3.6	3.7
		2006	21938.5	179.4	258.3	2.6	2.9
Maffra	MFA	2009	7859	153.6	256.6	1.8	2.4
		2008	7788	153	355.1	1.8	2.6
		2007	7708	184.3	333	2	2.5
		2005	7687	253	501.5	3.4	4.3
		2006	7602.5	208.5	343	2.1	2.6
Mansfield	MSD	2009	5632.5	223.8	288.1	1.3	1.6
		2008	5567	89.6	149.6	0.7	1.1
		2007	5502.5	481.9	622.4	5	5.5
		2005	5380	838.6	935.1	2	2.4
		2006	5397.5	491.7	598	1.2	1.6
Merrijig	MJG	2009	1254	54.3	73	0.3	0.4
		2008	1238.5	246.7	254.5	1.5	1.5
		2007	1213	315.4	361	4.2	4.7
		2005	1184	1701.6	2107.2	8.2	9.2
		2006	1178.5	642.9	716.4	5.2	5.4
Moe	MOE	2009	14030.5	376.8	484.2	3.6	4.1
		2008	13873.5	214.5	272.1	3.3	3.6
		2007	13786	165.8	201.5	1.3	1.5
		2005	13977	117.9	157.2	0.9	1.1
		2006	13658	247.2	287.3	2.9	3.1
Morwell Open Cut	MWE	2009	12291.5	381.9	463.1	3.5	3.9
		2008	35	1253.4	3288.1	4	5.3
		2007	33.5	198.1	301.9	1.8	2.8
		2005	31	221.7	224.8	2.6	2.8
		2006	30.5	71.7	80	0.7	1.4
Morwell Terminal Station	MWTS	2008	12214	117.4	178.7	1.4	1.7
		2007	12120.5	227.4	315.8	2.4	2.6
		2005	12339	131.1	178.5	0.7	1
		2006	11961	297.8	351.4	1.9	2.2
Mount Beauty	MBY	2009	1984	273.8	348.7	5.1	5.5
		2008	1976.5	288.2	326	1.1	1.3
		2007	1966.5	303.3	375.8	3.1	3.4
		2005	2052	139.3	157.4	1.3	1.4
		2006	1919	687.3	1452.9	2.4	4
Mount Dandenong	MDG	2009	772	952.6	980	11.5	11.6
		2008	767.5	555.1	1212.4	3.1	5.4
		2007	763	2347.2	2762.7	6.4	7.9
		2005	777	704.8	705.5	6.2	6.2
		2006	762	873.2	1092.4	3.9	4.4
Murrindindi	MDI	2009	56.5	9331.9	9360.8	6.5	7.7
		2008	60.5	121.8	289.2	3	5.5
		2007	63	699.5	1031.5	5.1	6.1
		2005	64	1380.4	1380.4	3.2	3.2
		2006	62.5	935.7	1238.9	5.7	6.7
Myrtleford	MYT	2009	5592	749.4	783.3	2.6	2.7
		2008	5554	232.7	295.3	3.2	3.5
		2007	5538.5	82.2	113	2.6	2.7
		2005	5663	540.5	571.3	4	4.2
		2006	5509	81.8	113	0.9	1.1
Narre Warren	NRN	2009	11040.5	162.3	203	2.4	2.6
		2008	10995	68.8	88.7	0.1	0.2
		2007	10357	116.6	132.9	1.6	1.7
		2005	9469	115.3	144.1	0.8	1
		2006	9685.5	58.5	103.2	0.8	1.1
Newmerella	NLA	2009	3518	901.2	960.3	5.1	5.3

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2008	3483.5	274.9	390.1	2.6	3.6
		2007	3455.5	169.8	193.9	2.6	2.6
		2005	3452	537	694.6	5.6	6.1
		2006	3408.5	498.5	582.1	3.3	3.6
Pakenham	PHM	2009	13605	302.8	401	3.8	4.2
		2008	15553	647.2	710.5	2.7	3
		2007	15946	252.5	349.6	2.5	2.8
		2005	17217	263.2	370.1	3.2	3.6
		2006	16435.5	357.1	416	4.2	4.4
Phillip Island	PHI	2009	8991	111.5	147.1	2.6	2.7
		2008	8778	302.9	368.9	1.4	2
		2007	8433	318.2	457.8	3.5	3.9
		2005	8043	208.1	322.6	3	3.5
		2006	8067	260.8	431	4.4	5.1
Ringwood North	RWN	2009	18873.5	282.5	342.4	2.5	2.7
		2008	18894	447.5	470.7	2.3	2.4
		2007	19207	303	422.2	5.3	5.7
		2005	16615	263.1	313.1	3.1	3.3
		2006	17852	196.5	269.5	2.5	2.8
Ringwood Terminal	RWT	2009	15342.5	99.1	101.5	1.4	1.4
		2008	15214	171.5	190.9	1.9	1.9
		2007	15121.5	140.6	223.9	2.1	2.4
		2005	16022	234.3	257.8	2.4	2.5
		2006	15762.5	304.5	370.1	3.1	3.3
Rubican A	RUBA	2005	4774	739.9	767.5	5.2	5.3
Rubicon A	ALA	2009	2483.0	792.3	823.8	3.5	3.7
		2008	2457.5	810.3	829.4	7.3	7.5
		2006	2400.5	238	272.5	3.5	3.7
Rubicon A	ELD	2009	1001.0	1367.1	1404.1	4.8	5.0
		2008	995.5	442.2	457.1	5.1	5.2
		2007	0	0	0	0	0
		2006	984	942.7	961.1	4.5	4.6
Rubicon A	MVE	2009	1121.500	8817.865	8953.329	9.757	11.020
		2008	1351.5	1425.7	1432.4	9.9	9.9
		2007	0	0	0	0	0
		2006	1331.5	208.2	225.3	4.1	4.2
Rubicon A (ALA, ELD, MVE)	RUB-A	2007	4746	820.9	835.6	9.5	9.5
Sale	SLE	2009	11563	291.7	333.3	3.7	3.9
		2008	11407.5	77.9	160.7	1.3	1.7
		2007	11231.5	579.4	779.6	4.7	5.3
		2005	11233	139.3	300.4	2.2	2.9
		2006	11083.5	356.3	435.5	2.7	3
Sassafras	SFS	2009	1070.5	1765.2	1843.2	9.9	10.3
		2008	1069	1094.9	1239.5	6	7
		2007	1070.5	821.2	875.2	5.9	6.2
		2005	1095	1299.3	1477.9	3.6	4.2
		2006	1067.5	858.5	1045.5	8.7	9.3
Seymour	SMR	2009	10772	882.3	937.1	4.4	4.7
		2008	10760	336.6	381.2	4.9	5
		2007	10740	190.1	296.6	5.2	5.5
		2005	10886	320.2	366.7	2.8	2.9
		2006	10671	263.3	455.3	4	4.6
Thomastown	TT	2009	12603.5	159.1	190.9	1.3	1.5
		2008	13710	314.3	356.2	2.2	2.4
		2007	13979.5	200.7	245.8	2	2.2
		2005	14056	124.8	134.6	1.3	1.4
		2006	13850	191.6	277.3	2.5	2.9

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
Traralgon	TGN	2009	15735.5	442.1	510.5	3.1	3.4
		2008	15466.5	140	195.3	1.7	1.9
		2007	15170.5	254.7	312.8	4.4	4.6
		2005	14939	212.5	253.7	1.8	2
		2006	14733.5	126.7	179.8	1.3	1.5
Upwey	UWY	2009	1066	1627.6	1643.1	10.4	10.5
		2008	1065	1346	1420.2	3.1	3.3
		2007	1062.5	1101.3	1293.9	7.2	7.8
		2005	1070	1014.9	1015.6	7.7	7.7
		2006	1062	218.8	240.2	2	2.1
Wangaratta	WN	2009	16286	111.1	163.5	1.2	1.4
		2008	16135	59.3	166.5	1.2	1.6
		2007	15973.5	135.1	208.6	2	2.2
		2005	16002	202.4	284.9	1.8	2.1
		2006	15803.5	180.4	284	2.6	3
Warragul	WGL	2009	18277	523	601.3	5.7	6.2
		2008	17838.5	400.2	453.5	5.8	6.2
		2007	17403.5	273.7	328.4	5.6	5.9
		2005	16855	207.1	350.7	3.1	3.5
		2006	16974	347.3	442	4.7	5
Watsonia	WT	2009	21122	136.5	151.6	1.2	1.3
		2008	20794	406.6	434.3	1.1	1.2
		2007	21211	40.8	71.9	0.4	0.5
		2005	20760	171.3	202.9	1.2	1.3
		2006	21153.5	163.4	196	3.7	3.9
Wodonga	WO	2009	12661.0	97.9	113.3	1.9	2.0
		2008	12459	68.3	96.5	1.6	1.7
		2007	12313.5	43.7	60.7	0.7	1
		2005	13164	203.6	288.4	2.2	2.5
		2006	12196	109.7	118.9	3	3.1
Wodonga	WOTS	2009	9009.0	340.3	376.3	4.4	4.6
		2008	8904	251.9	287.3	2.8	2.9
		2007	8778	131	179.4	2.1	2.3
		2005	8765	432.6	511.9	3.4	4
		2006	8653	207.3	238.7	2.4	2.6
Wodonga-Tumut	TRC	2009	231.5	188.8	230.5	3	7.2
		2008	231	216.8	361	2.1	5.7
		2007	230	628.8	630.1	7.9	8.9
		2005	243	628.8	777.4	5.1	7.9
		2006	228	278	392.7	4	5.4
Wonthaggi	WGI	2009	17225.5	226.2	313.4	2.6	3
		2008	16895.5	706.2	861.4	3.1	3.8
		2007	17067	338.8	627.7	3.2	4.2
		2005	17197	88.2	442.4	2.2	3.2
		2006	17165.5	261	447.6	4.3	5.1
Woori Yallock	WYK	2009	12295.5	955.1	1046.6	5.9	6.4
		2008	12182.5	464.6	500.7	2.1	2.3
		2007	12791	625.2	708.9	5.4	5.8
		2005	13269	645.5	704.3	5.3	5.5
		2006	13379.5	294	389	3.3	3.7
Yallourn Open Cut	YN	2009	22.5	0	0	0	0
		2008	22	602.1	723.9	2	2.3
		2007	19.5	0	0	0	0
		2005	21	174.5	195	0.6	1.3
		2006	17.5	261.8	261.8	1.8	1.8
Yallourn Power Station	YPS	2005	0	0	0	0	0

United Energy

Figure D.6 United Energy supply area map

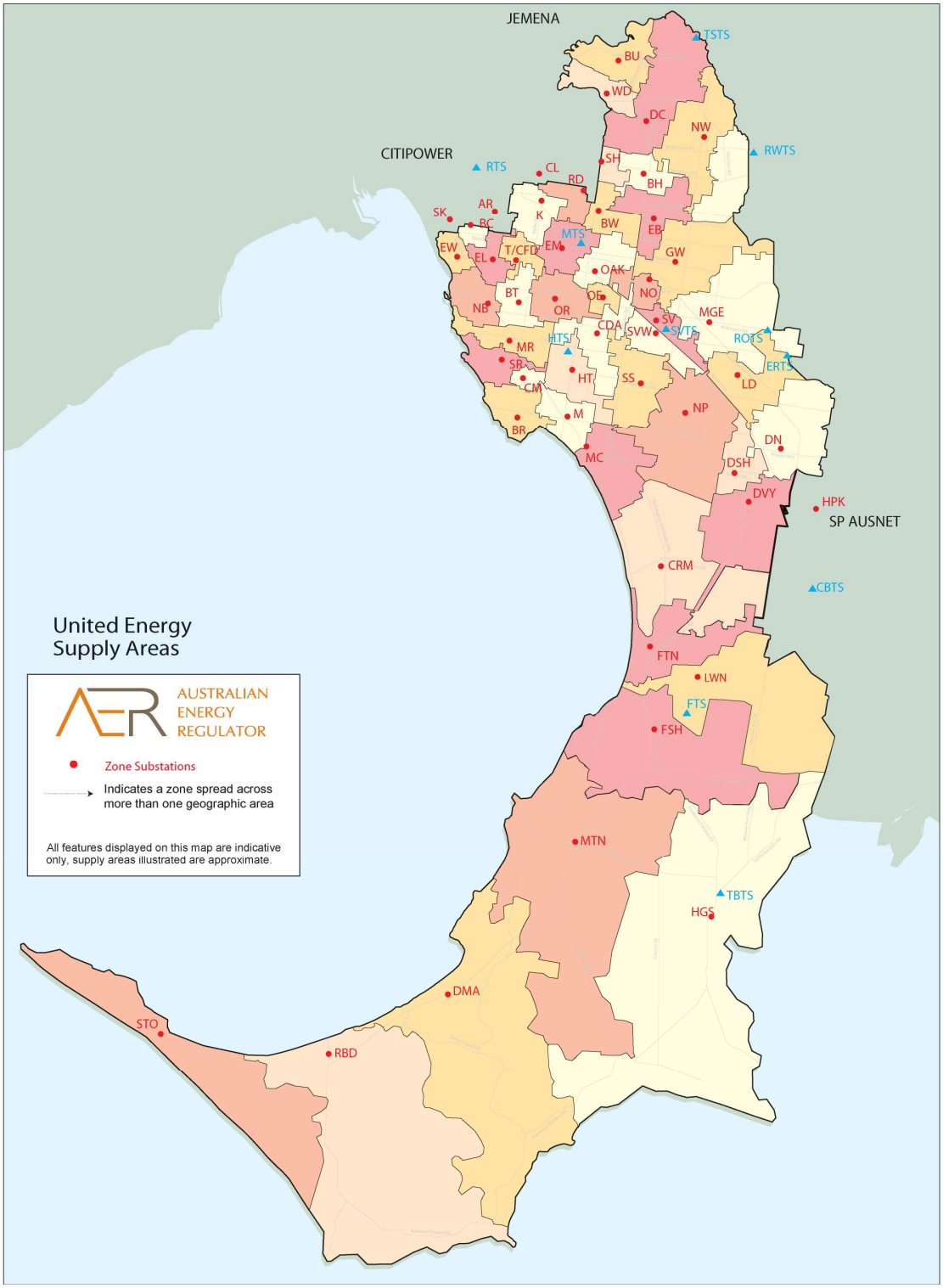


Table D.10 United Energy substation abbreviations

AR	Armadale	K	Gardiner
BC	Balaclava	LD	Lyndale
BH	Box Hill	LWN	Langwarrin
BR	Beaumaris	LWS	Lyndale (LWS)
BRA	Boronia	M	Mentone
BT	Bentleigh	MC	Mordialloc
BU	Bulleen	MGE	Mulgrave
BW	Burwood	MR	Moorabbin
CDA	Clarinda	MTN	Mornington
CFD	Caulfield T/CFD	NB	North Brighton
CM	Cheltenham	NO	Notting Hill
CRM	Carrum	NP	Noble Park
DC	Doncaster	NW	Nunawading
DMA	Dromana	OAK	Oakleigh
DN	Dandenong	OE	Oakleigh East
DSH	Dandenong South	OR	Ormond
DVY	Dandenong Valley	RBD	Rosebud
EB	East Burwood	RD	Riversdale
EL	Elsternwick	RWT	Ringwood Terminal
EM	East Malvern	SH	Surrey Hills
EW	Elwood	SK	St Kilda
FGY	Ferntree Gully	SR	Sandringham
FSH	Frankston South	SS	Springvale South
FTN	Frankston	STO	Sorrento
GW	Glen Waverley	SV	Springvale
HGS	Hastings	SVW	Springvale West
HT	Heatherton	T	Caulfield T/CFD
		WD	West Doncaster

Table D.11 United Energy supply area performance

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
Armadale	AR	2009	1075	10.1	10.1	0.1	0.1
		2008	1042	42.7	145	0.1	0.3
		2007	1010.5	15	38.9	0.3	0.3
		2005	1011	3	3	0	0
		2006	1018	0.4	0.6	0	0
Balaclava	BC	2009	3186	78	80.4	0.6	0.6
		2008	3121	7.1	15.8	0.1	0.1
		2007	3103.5	23	56.4	0.2	0.3
		2005	2993	2.1	2.1	0	0
		2006	3130	73.9	84.3	1.9	1.9
Beaumaris	BR	2009	9265	183.6	192.1	1.7	1.7
		2008	9175	402.3	426.3	1.2	1.3
		2007	9162.5	192.1	218.5	2.3	2.4
		2005	9213	148.4	152.5	0.9	0.9
		2006	9213	78.3	84.2	1	1
Bentleigh	BT	2009	10907	107.1	124.8	0.7	0.8
		2008	11316	35	70	0.4	0.5
		2007	11743	99.2	174	1.8	2
		2005	14333	31.5	32.4	0.4	0.4
		2006	13050	32.8	39.2	0.5	0.5
Boronia	BRA	2009	280	104.8	276.8	1	1.8
		2008	279	519.2	519.2	0.1	0.1
		2007	293	38.5	38.5	1	1
		2005	307	117.2	117.2	1	1
		2006	307	17.5	17.5	0.2	0.2
Box Hill	BH	2009	10401	76.1	82.9	1.1	1.2
		2008	10061	270.1	279.5	1.8	1.8
		2007	9984.5	158.4	163.3	2.3	2.3
		2005	9501	89	114.2	1.5	1.6
		2006	9958	143.1	153.8	1.2	1.3
Bulleen	BU	2009	10762	36.9	51.2	0.9	1
		2008	10757	533.6	549.2	1	1.1
		2007	10766.5	57.8	72.3	0.9	0.9
		2005	10605	75.9	108.7	1	1.1
		2006	10717	45.3	59.2	0.6	0.7
Burwood	BW	2009	8639	112.7	123.8	1.4	1.5
		2008	8588	209.7	223.8	0.9	1
		2007	8463.5	103.4	109.3	1.4	1.4
		2005	8585	26.6	35.9	0.7	0.8
		2006	8423	46.6	63.1	0.7	0.8
Carrum	CRM	2009	21680	260.4	299.3	4.6	4.7
		2008	20910	181	202.9	1.3	1.4
		2007	20195.5	102.2	123.6	1.3	1.4
		2005	21944	155.3	198.4	3.3	3.4
		2006	21080	22.2	29.1	0.3	0.3
Caulfield T/CFD	CFD	2009	14099	102.5	131.1	1	1
		2008	9349	147.3	161.1	0.9	0.9
		2007	0	0	0	0	0
Caulfield T/CFD	T	2008	2661	112.8	113.3	0.2	0.2
		2007	11014.5	18.4	40.6	0.2	0.3
		2006	10240	23.3	38.1	0.3	0.4
Caulfield	T	2005	8818	25.4	26.5	0.4	0.4
Cheltenham	CM	2009	2907	71.2	78.7	0.5	0.5
		2008	2875	146.7	158.7	1.2	1.2
		2007	2857	227.7	250.3	2.9	3
		2005	2804	106.4	111.2	2.8	2.8
		2006	2839	36.3	63.8	0.9	1

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
Clarinda	CDA	2009	11009	109	138.7	1.3	1.4
		2008	10951	199.5	206.4	2.1	2.1
		2007	10914.5	215.5	236.9	5.3	5.3
		2005	10717	8.7	15.7	0.1	0.1
		2006	10870	104.2	110.9	2.3	2.4
Dandenong	DN	2009	18331	133.7	154.4	1.1	1.2
		2008	18062	115.3	133	0.8	0.9
		2007	17422	169.4	194.1	1.7	1.8
		2005	17201	23.9	28.8	0.3	0.3
		2006	16991	31.7	35.4	0.3	0.3
Dandenong South	DSH	2009	4169	26.4	47	0.2	0.2
		2008	4006	8.1	31.2	0.1	0.2
		2007	4181.5	250	255.4	1.7	1.7
		2005	4257	30.8	38.8	0.6	0.6
		2006	4433	27.3	31.3	0.7	0.7
Dandenong Valley	DVY	2009	5143	67.9	121.1	0.8	0.9
		2008	5874	555.9	569.4	1.6	1.6
		2007	5980	82.6	104.6	1.6	1.7
		2005	5696	12.4	67.8	0.1	0.3
		2006	5928	43.7	75.3	0.2	0.3
Doncaster	DC	2009	27984	122.8	163.4	1.2	1.4
		2008	27964	767.2	784	2.3	2.4
		2007	28013	31.1	42.8	0.5	0.5
		2005	28426	43	52.7	0.4	0.5
		2006	28315	89.7	101.7	1.2	1.3
Dromana	DMA	2009	14421	216.4	241.9	3.7	3.8
		2008	14108	1015.3	1036.1	4.3	4.4
		2007	13434.5	148.8	193.3	2.7	2.8
		2006	6409	45	111	0.7	0.9
East Burwood	EB	2009	17681	67.7	81.6	0.8	0.8
		2008	15863	330.5	346.9	0.9	0.9
		2007	15021	40.6	63.9	0.3	0.4
		2005	15415	126.4	134.2	0.5	0.6
		2006	14825	64.1	69.6	1.3	1.3
East Malvern	EM	2009	13280	83.2	109.4	1.3	1.3
		2008	13635	797.9	816.9	0.7	0.8
		2007	13884	73.3	85.2	1.4	1.4
		2005	13988	34.3	40.3	0.5	0.5
		2006	13934	30.5	39.7	0.8	0.8
Elsternwick	EL	2009	9396	174.3	195.8	1.1	1.1
		2008	9583	153.3	167	0.6	0.7
		2007	9878.5	73.8	89.7	1	1
		2005	9935	28.5	30.1	0.4	0.4
		2006	10002	31.9	35.4	0.3	0.3
Elwood	EW	2009	14756	108.7	128.5	1.4	1.5
		2008	14292	71.8	83.4	1	1.1
		2007	14031	117.5	120.6	1.6	1.6
		2005	13796	84	100.2	0.9	0.9
		2006	13935	47.6	70.1	0.7	0.8
Ferntree Gully	FGY	2009	188	23.4	23.4	0.2	0.2
		2008	189	1	1	0	0
		2007	161.5	1	1	0	0
		2005	190	8.8	8.8	1.1	1.1
		2006	114	121.4	121.4	3.6	3.6
Frankston	FTN	2009	19723	160.9	206.2	3.8	4
		2008	22192	305.3	317.2	2.4	2.5
		2007	21913	89.2	97.3	1.1	1.2
		2005	17992	78.6	99.8	0.6	0.7

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2006	20416	82.4	90.4	1.3	1.3
Frankston South	FSH	2009	27375	118.6	148.1	1.6	1.7
		2008	32054	781.4	804.4	2.7	2.8
		2007	32593	73.6	104	1.2	1.3
		2005	34178	102.1	118	2.2	2.3
		2006	32755	95.1	122.5	1.7	1.8
Gardiner	K	2009	12893	73.4	89.3	0.4	0.4
		2008	13086	502.3	540.8	1.3	1.4
		2007	12790.5	229.6	244.3	2.6	2.7
		2005	12687	63.6	73.2	0.6	0.7
		2006	12738	27.8	48.7	0.3	0.4
Glen Waverley	GW	2009	19881	82.6	103.3	1.2	1.3
		2008	20651	281.3	293.7	1.1	1.2
		2007	21737	214.4	235.9	1.9	2
		2005	21638	48.4	60.2	0.9	0.9
		2006	21756	33.4	39.8	0.6	0.6
Hastings	HGS	2009	16491	152.1	211	2.2	2.4
		2008	15865	247.9	263.6	1.4	1.5
		2007	15102.5	114.5	166.5	2	2.2
		2005	13985	111.3	137.8	1.5	1.6
		2006	15166	84.4	124.6	1.5	1.6
Heatherton	HT	2009	8020	164.1	177.1	1.4	1.4
		2008	7876	81.1	87.8	1	1.1
		2007	7757.5	137.2	164.3	3.5	3.6
		2005	7643	132.8	144.8	2.3	2.3
		2006	7756	68.4	99.7	1.3	1.4
Lyndale	LD	2009	15994	98.7	119.4	0.8	0.9
		2008	15802	130.1	160.8	1.3	1.4
		2007	14892.5	173.7	195.4	2.7	2.7
		2005	13299	52.4	65.1	1.2	1.2
		2006	14000	33.8	43.7	0.7	0.8
Langwarrin	LWN	2009	7570	97.5	104.7	2.5	2.5
Mentone	M	2009	13554	169.3	181.8	1.4	1.5
		2008	13519	116	127.3	0.9	0.9
		2007	14105.5	142.4	156.8	1.8	1.8
		2005	14624	55.2	65.1	0.5	0.6
		2006	14624	31.1	48.1	0.4	0.4
Moorabbin	MR	2009	12692	52.5	63.6	0.5	0.5
		2008	13218	107.2	133.1	0.6	0.7
		2007	13707	96	106.6	1.1	1.1
		2005	13908	58.8	65	0.7	0.8
		2006	13978	62.5	70.6	0.8	0.8
Mordialloc	MC	2009	13630	188.2	205.7	1.5	1.6
		2008	13435	253.7	274.7	3.1	3.1
		2007	13072.5	219.3	237.6	2.4	2.5
		2005	12104	235.9	246.1	2.1	2.2
		2006	12355	143.5	150.9	1.7	1.7
Mornington	MTN	2009	19234	253.9	290.6	2.5	2.6
		2008	18651	134.2	161.8	1	1.1
		2007	18918.5	55	72.2	1.2	1.3
		2005	19984	54.6	79.1	0.9	1
		2006	19869	65.4	82.6	1.2	1.3
Mulgrave	MGE	2009	17986.0	156.3	194.0	2.3	2.4
		2008	17929.0	61.6	75.5	0.2	0.3
		2007	18835.5	71.2	106.6	1.7	1.9
		2005	19357.0	64.0	79.3	1.2	1.2
		2006	19812.0	58.9	74.0	1.5	1.5
Noble Park	NP	2009	26988.0	126.9	145.0	1.3	1.4

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2008	26916.0	185.1	208.0	1.9	2.0
		2007	26526.0	78.1	86.8	1.3	1.3
		2005	25608.0	44.0	49.2	0.9	0.9
		2006	26223.0	67.8	84.5	0.9	0.9
Narre Warren North	NRN	2009	2.0	0.0	0.0	0.0	0.0
		2008	1.0	0.0	0.0	0.0	0.0
North Brighton	NB	2009	13876.0	78.7	98.6	0.4	0.5
		2008	13894.0	100.1	130.4	1.0	1.1
		2007	13555.5	25.1	41.9	0.4	0.4
		2005	13657	66	74.8	0.8	0.8
		2006	13520	46.4	58.4	0.5	0.6
Notting Hill	NO	2009	4401	36.8	47.5	0.1	0.1
		2008	4325	223.8	228	0.2	0.2
		2007	4257.5	139.1	143	1.7	1.7
		2005	3993	40.8	63.2	0.3	0.3
		2006	4153	26.3	45.3	0.8	0.9
Nunawading	NW	2009	22164	194.9	213.7	2.6	2.7
		2008	22045	478.3	482.4	2.5	2.5
		2007	21761.5	174.7	184.1	2.4	2.4
		2005	16836	222.3	233.9	1.9	1.9
		2006	19214	103.4	107.4	1.6	1.6
Oakleigh	OAK	2009	11110	102.5	141.8	1.2	1.3
		2008	10783	243.5	258	0.2	0.3
		2007	10493	39.4	49.5	0.7	0.7
		2005	9429	56.7	66.4	1.1	1.1
		2006	10446	13.3	25.8	0.1	0.1
Oakleigh East	OE	2009	3371	43.8	84.4	0.6	0.7
		2008	3397	71.7	89	0.3	0.3
		2007	3416	186.6	189.3	1	1
		2005	4245	27.6	32.5	0.2	0.2
		2006	3338	47.4	52.7	0.5	0.5
Ormond	OR	2009	15495	97.9	114.3	0.9	0.9
		2008	15502	133.4	141.9	0.6	0.6
		2007	16836	82.3	92.7	1.4	1.4
		2005	16213	97.2	106.1	1	1.1
		2006	15975	19.8	24.7	0.2	0.2
Ringwood Terminal	RWT	2009	12651	147.7	168.1	1.9	2
		2008	13210	133.3	140.3	2.2	2.3
		2007	13819.5	27.2	65	0.7	0.9
		2005	16474	180.6	194.8	2	2
		2006	15194	128.7	159.9	1.8	1.9
Riversdale	RD	2009	3060	68.5	87.1	0.7	0.8
		2008	3038	126.6	150.6	0.1	0.1
		2007	3039.5	56.5	57.2	0.2	0.2
		2005	3049	24.8	33.8	0.7	0.7
		2006	3042	81	83.2	1.3	1.3
Rosebud	RBD	2009	17269	168.7	202.1	2.7	2.8
		2008	17726	109.4	135.9	1.5	1.6
		2007	17034.5	164.9	188.1	1.9	1.9
		2005	27417	116.2	154	2.5	2.6
		2006	21784	55.3	66.6	2.2	2.3
Sandringham	SR	2009	11885	62.5	79.6	0.7	0.7
		2008	11573	276.3	287.8	0.8	0.8
		2007	11580	78.5	102	0.9	1
		2005	11392	120.3	124.4	1.3	1.4
		2006	11489	52.2	59.9	1.6	1.6
Sorrento	STO	2009	17065	198.5	235.7	4.1	4.2
		2008	16562	106.1	135.2	0.9	1

Zone substation location	Zone code	Year	Customers	Average unplanned minutes-off-supply	Average total minutes-off-supply	Average number of unplanned sustained interruptions	Average number of total sustained interruptions
		2007	17053	82.6	109.9	1.1	1.2
		2005	17457	61.2	84.6	1	1
		2006	17429	74.5	103.7	1	1
Springvale	SV	2009	5830	108.3	111.7	0.9	0.9
		2008	5720	65.7	70.8	0.3	0.3
		2007	8192.5	124.5	149	1.8	1.8
		2005	10571	77.4	83.7	1	1
		2006	10750	52.1	62.3	0.8	0.9
Springvale South	SS	2009	11258	158.6	180.5	2.1	2.2
		2008	11241	115	122.8	0.3	0.4
		2007	11192.5	57.8	64.6	0.7	0.7
		2005	11171	54.3	60.8	0.3	0.4
		2006	11188	123.7	129.1	1.4	1.4
Springvale West	SVW	2009	5397	221.7	234.5	0.9	0.9
		2008	5228	47.3	56.9	0.4	0.4
		2007	2546.5	88.4	89.3	0.9	0.9
St Kilda	SK	2009	255	1.9	5.5	0	0
		2008	256	143.5	168.3	2.1	2.2
		2007	303.5	151.9	188.8	2.9	2.9
		2005	330	0.5	0.5	0	0
		2006	351	1.3	1.3	0	0
Surrey Hills	SH	2009	4189	18.8	22.7	0.5	0.5
		2008	4434	516.4	535	1	1
		2007	4644	66.1	83.1	0.9	0.9
		2005	4782	284	297	1.1	1.2
		2006	4738	9	11.7	0.1	0.1
West Doncaster	WD	2009	6910	72.8	72.9	0.4	0.4
		2008	6771	599.3	604	0.8	0.9
		2007	6595.5	8.2	30.4	0.1	0.2
		2005	6563	258.6	262.2	1.5	1.5
		2006	6568	34.2	41.2	0.4	0.5

E Supply area reliability maps

This section provides, for each DNSP:

- a chart representing the average total minutes-off-supply experienced by customers in each of the DNSP's zone substation supply areas
- one or more maps of the DNSP's supply areas, shaded to show the relative reliability of supply.

CitiPower

Figure E.1 CitiPower minutes-off-supply, average total minutes-off-supply per customer, 2009

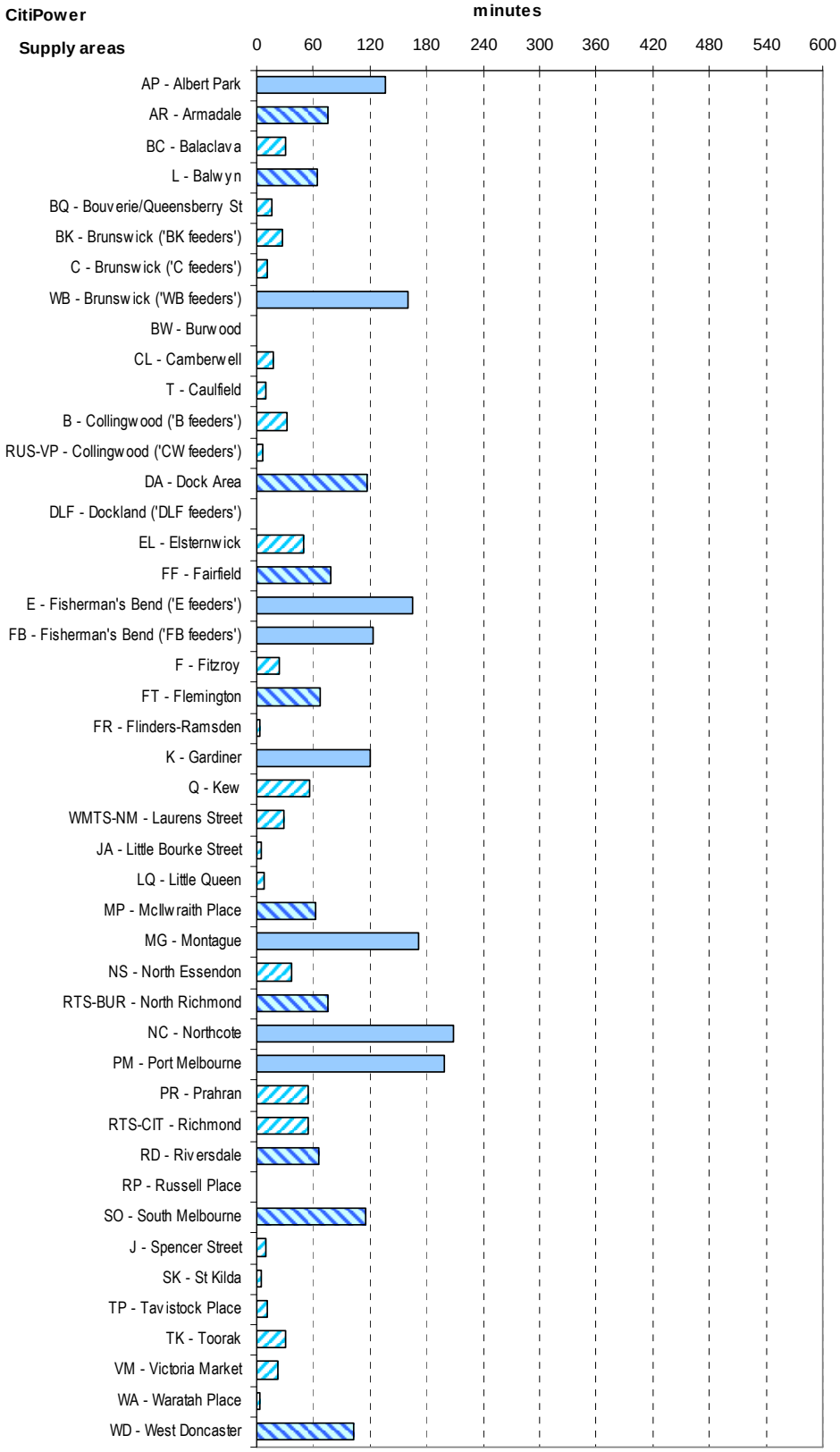
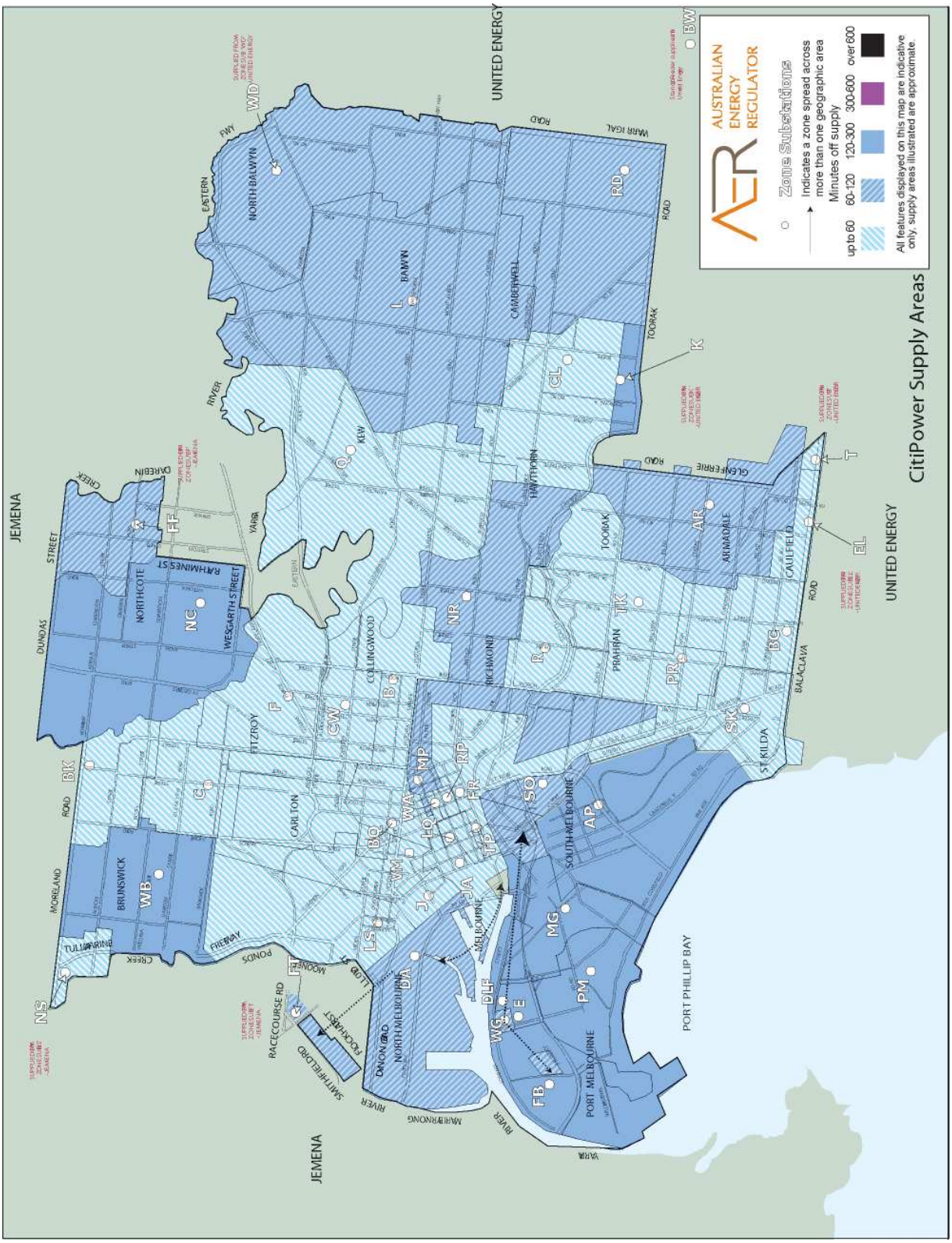


Figure E.2 CitiPower reliability map



Jemena

Figure E.3 Jemena minutes-off-supply, Figure A.1 average total minutes-off-supply per customer, 2009

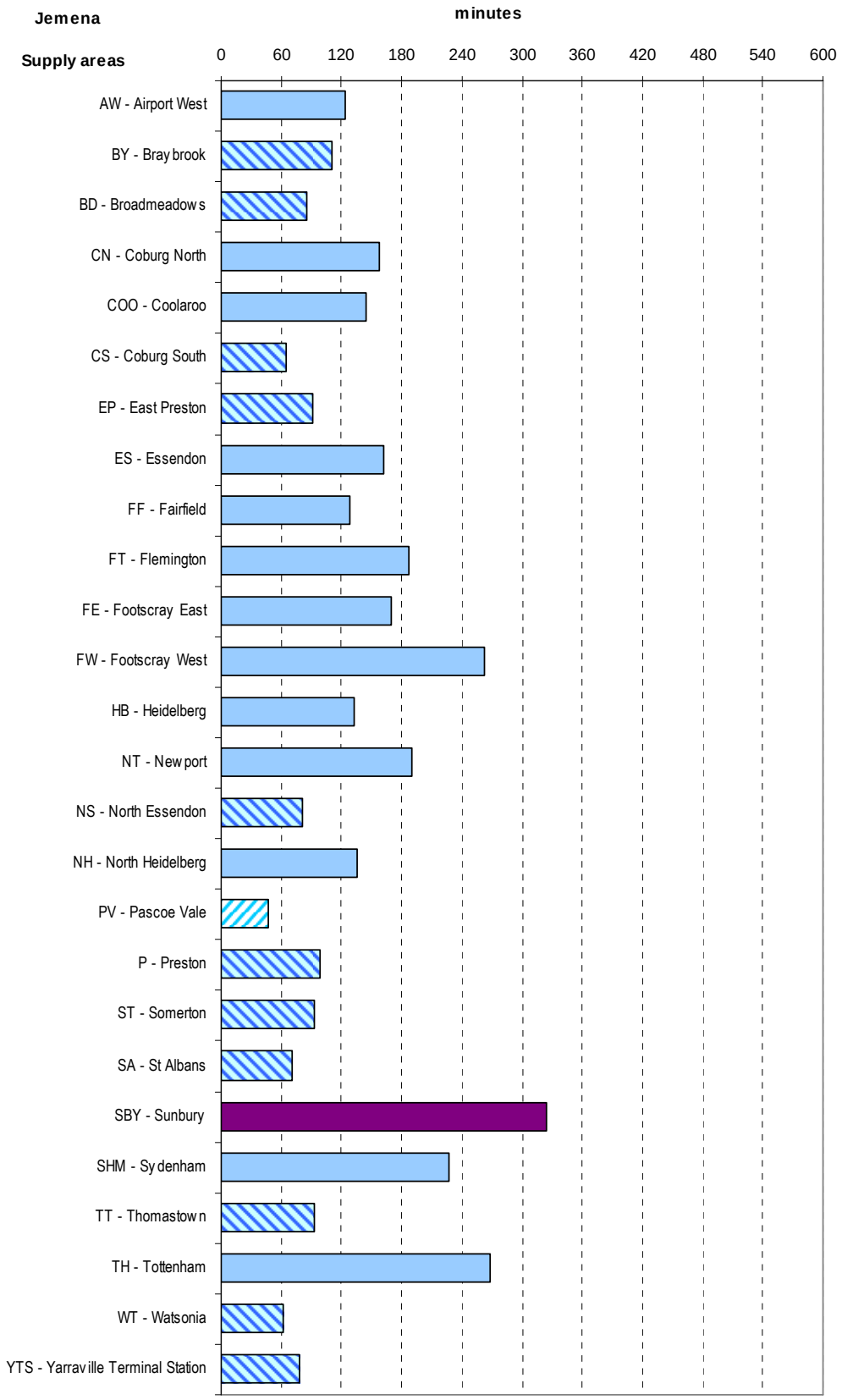
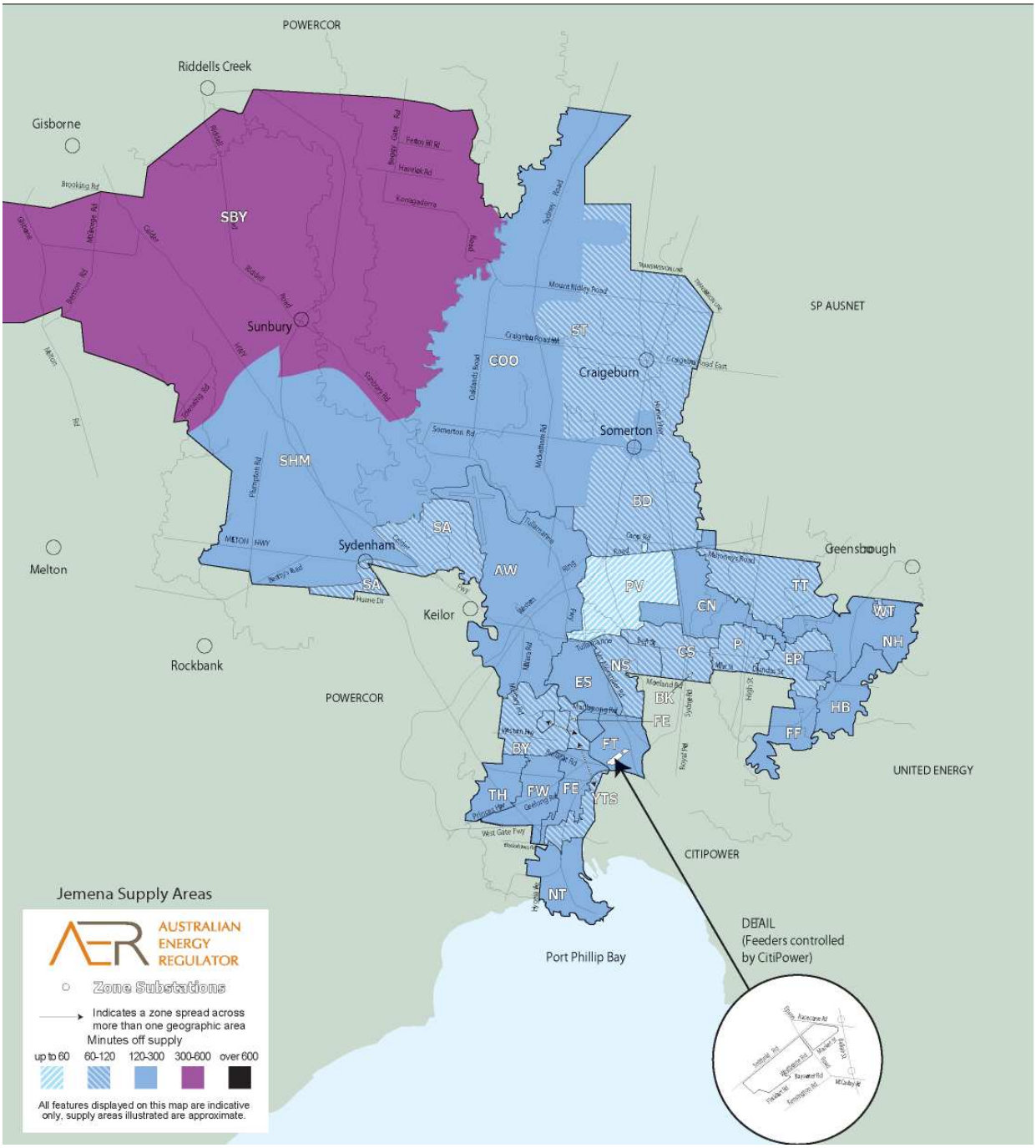


Figure E.4 Jemena reliability map



Powercor

Figure E.5 Powercor minutes-off-supply, average total minutes-off-supply per customer, 2009

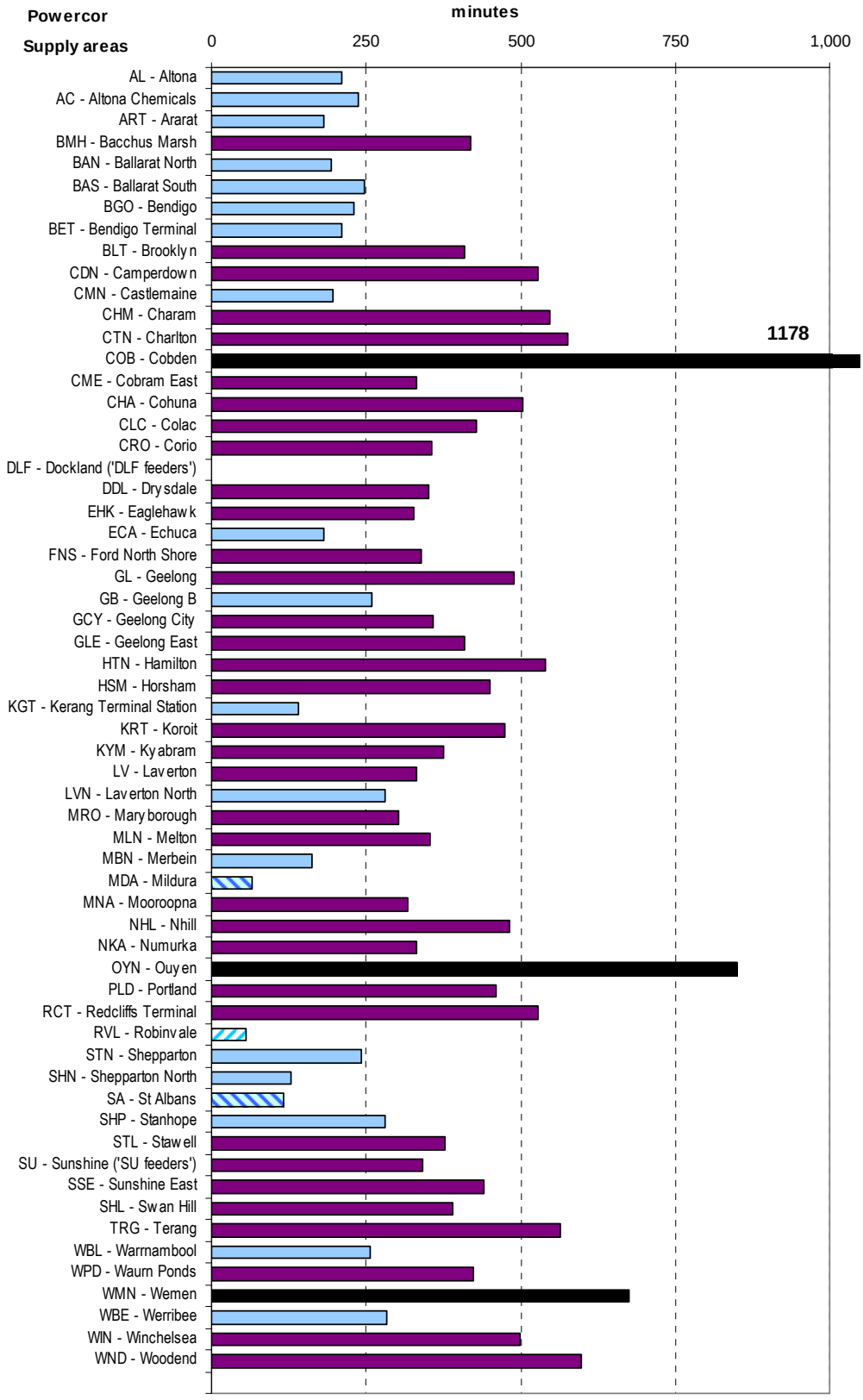


Figure E.6 Powercor reliability map

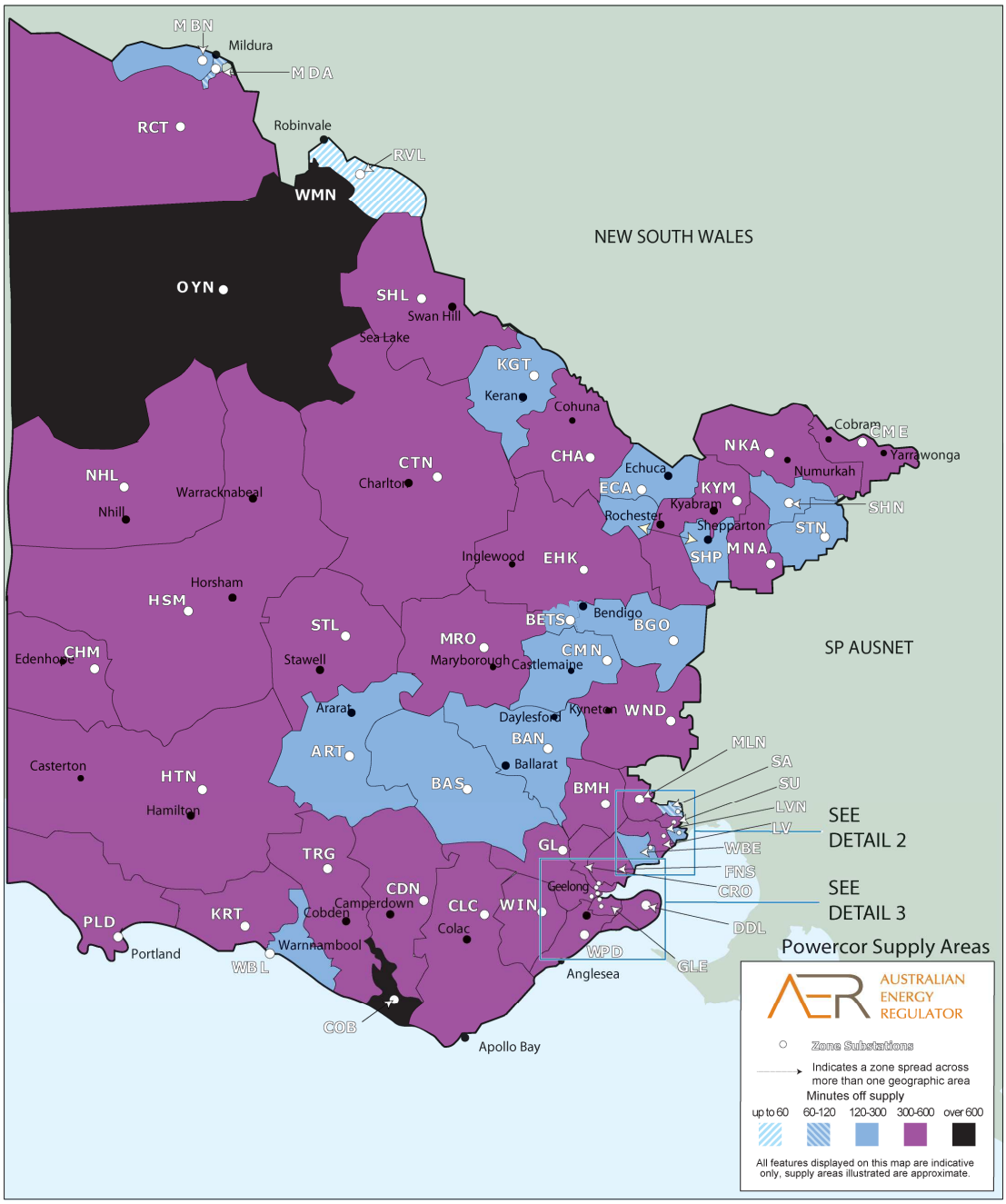
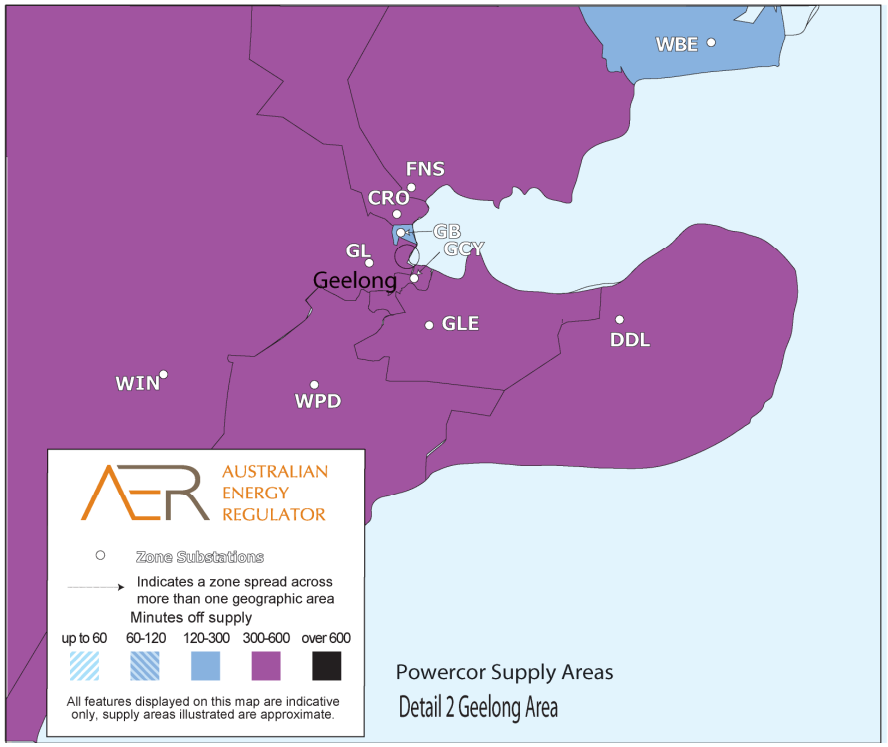
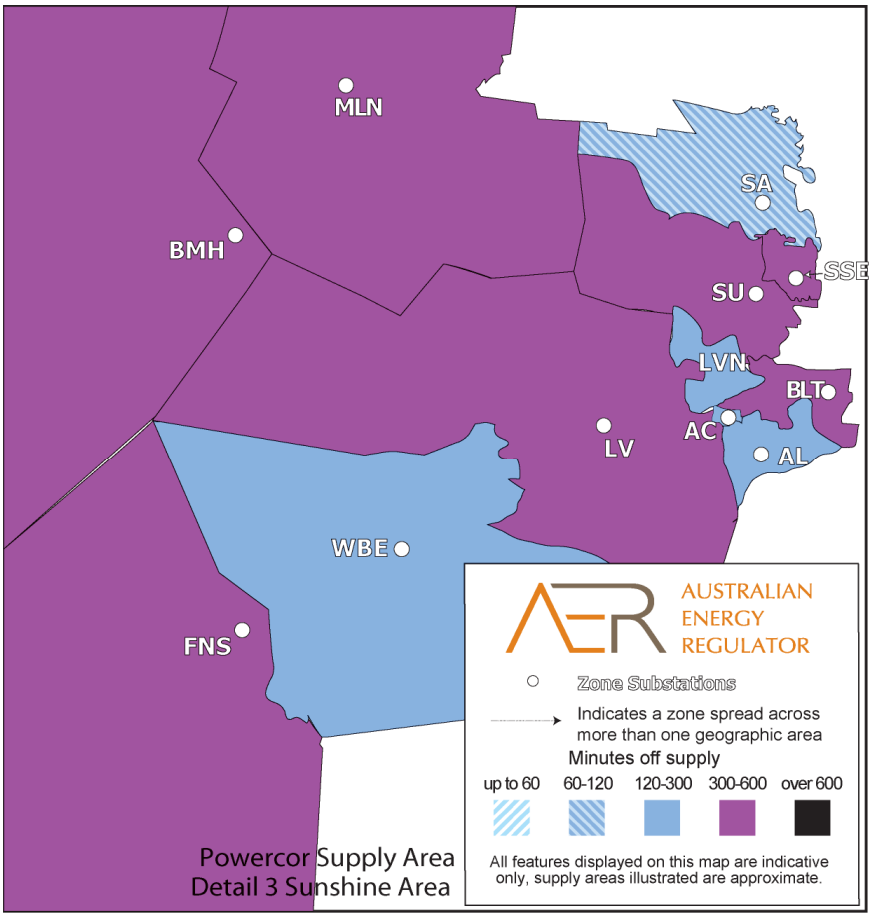


Figure E.7 Powercor reliability maps (Geelong and Sunshine areas)





SP AusNet

Figure E.8 SP AusNet minutes-off-supply, average total minutes-off-supply per customer, 2009

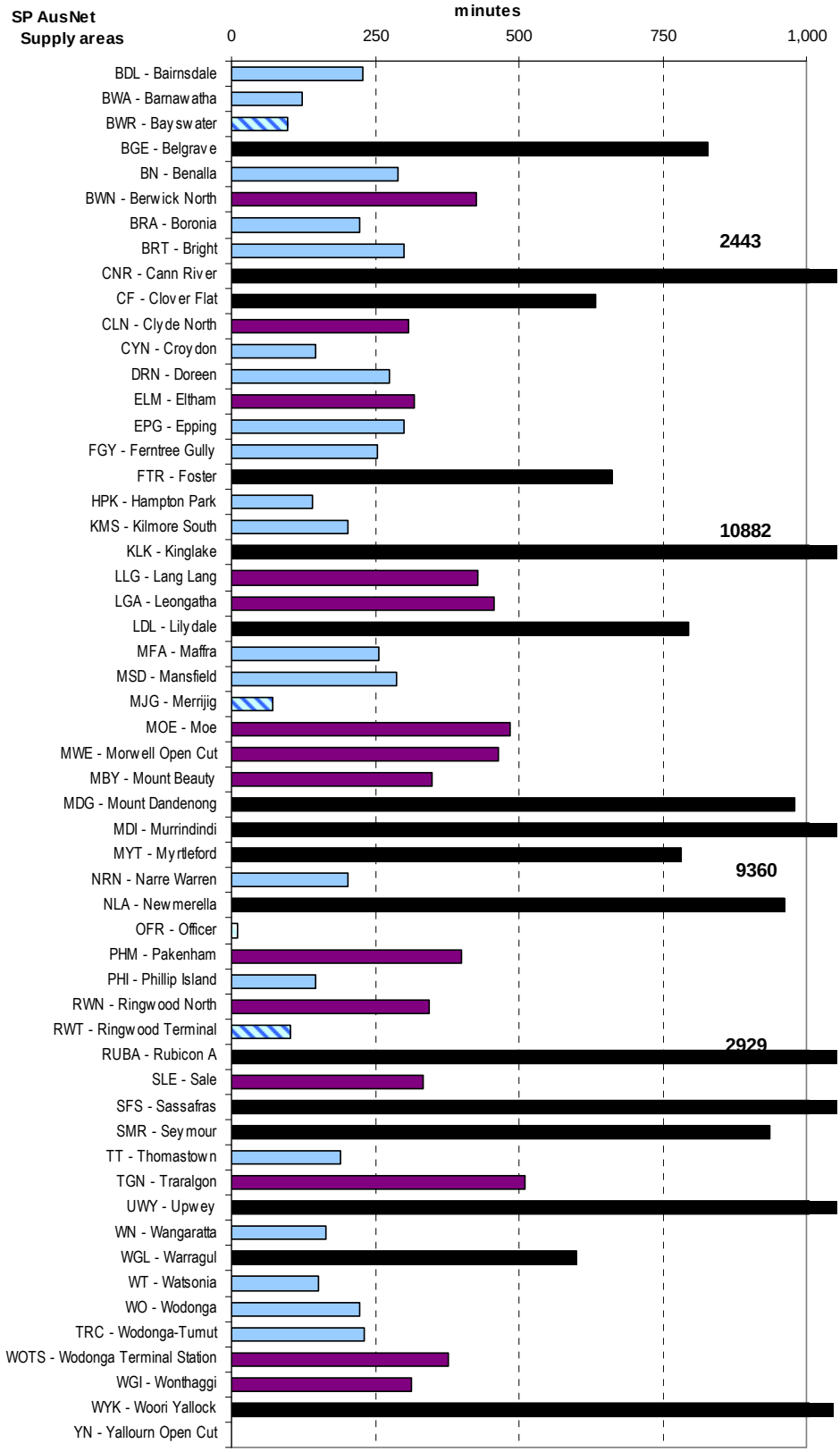


Figure E.9 SP AusNet reliability map

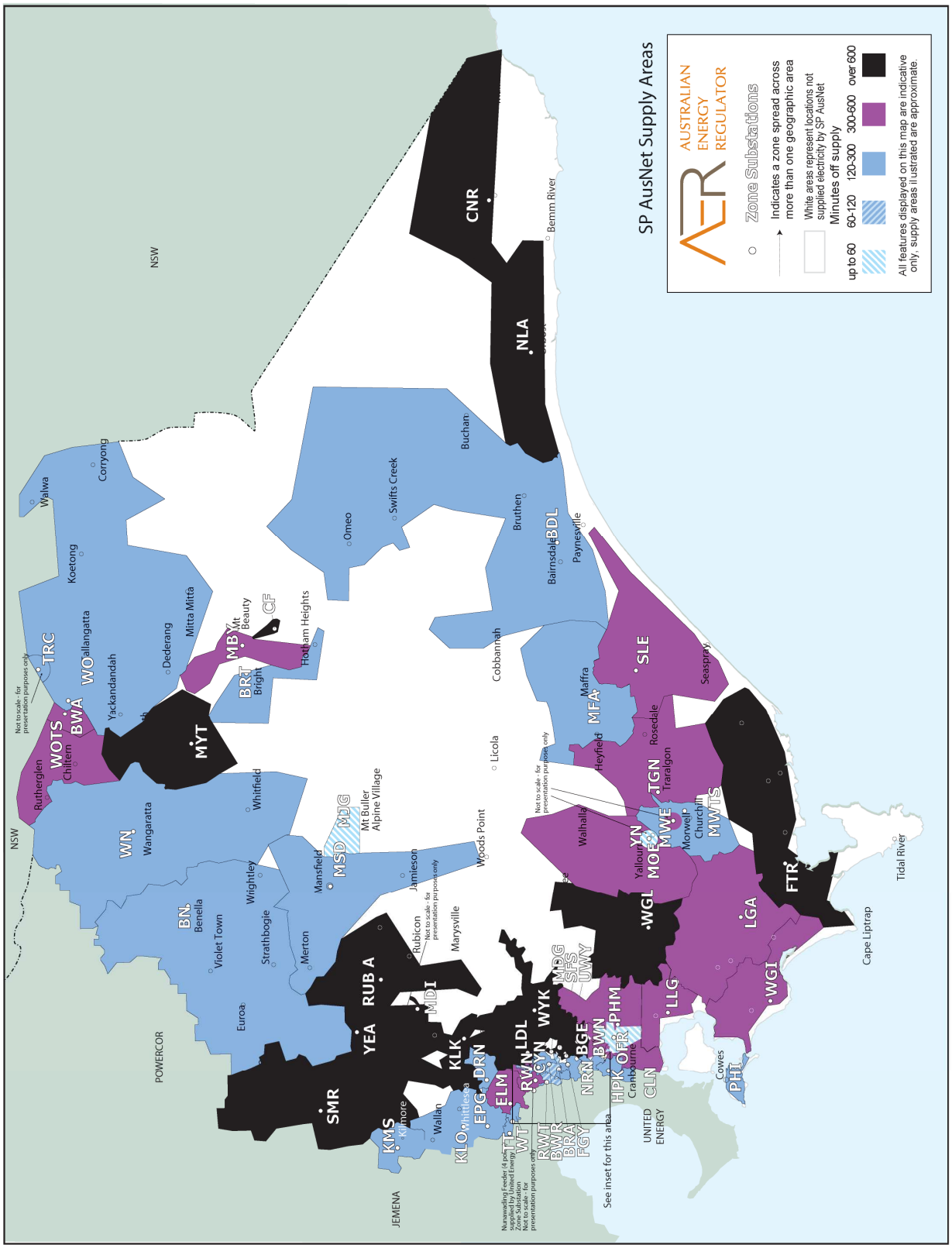
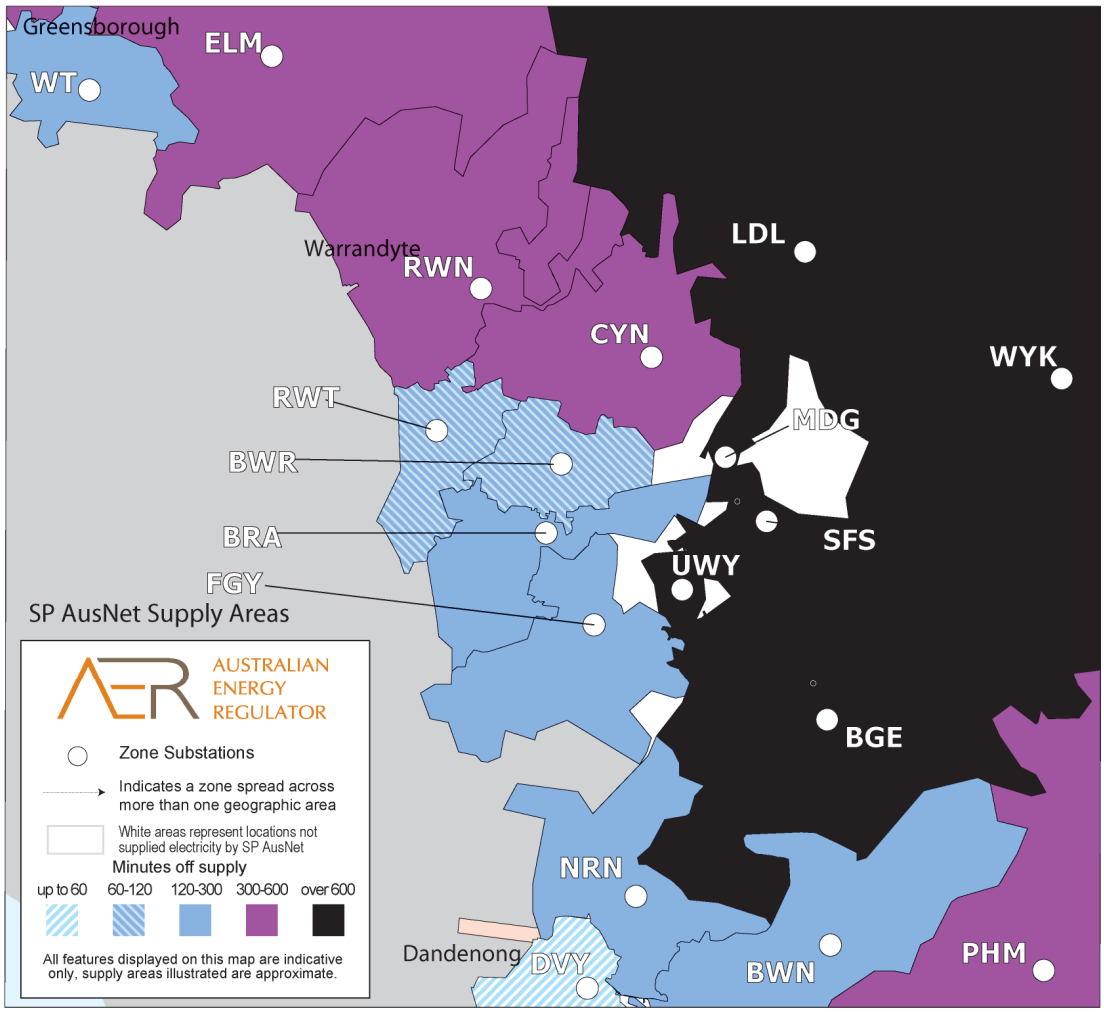


Figure E.10 SP AusNet reliability map (insert)



United Energy

Figure E.11 United Energy minutes-off-supply, average total minutes-off-supply per customer, 2009

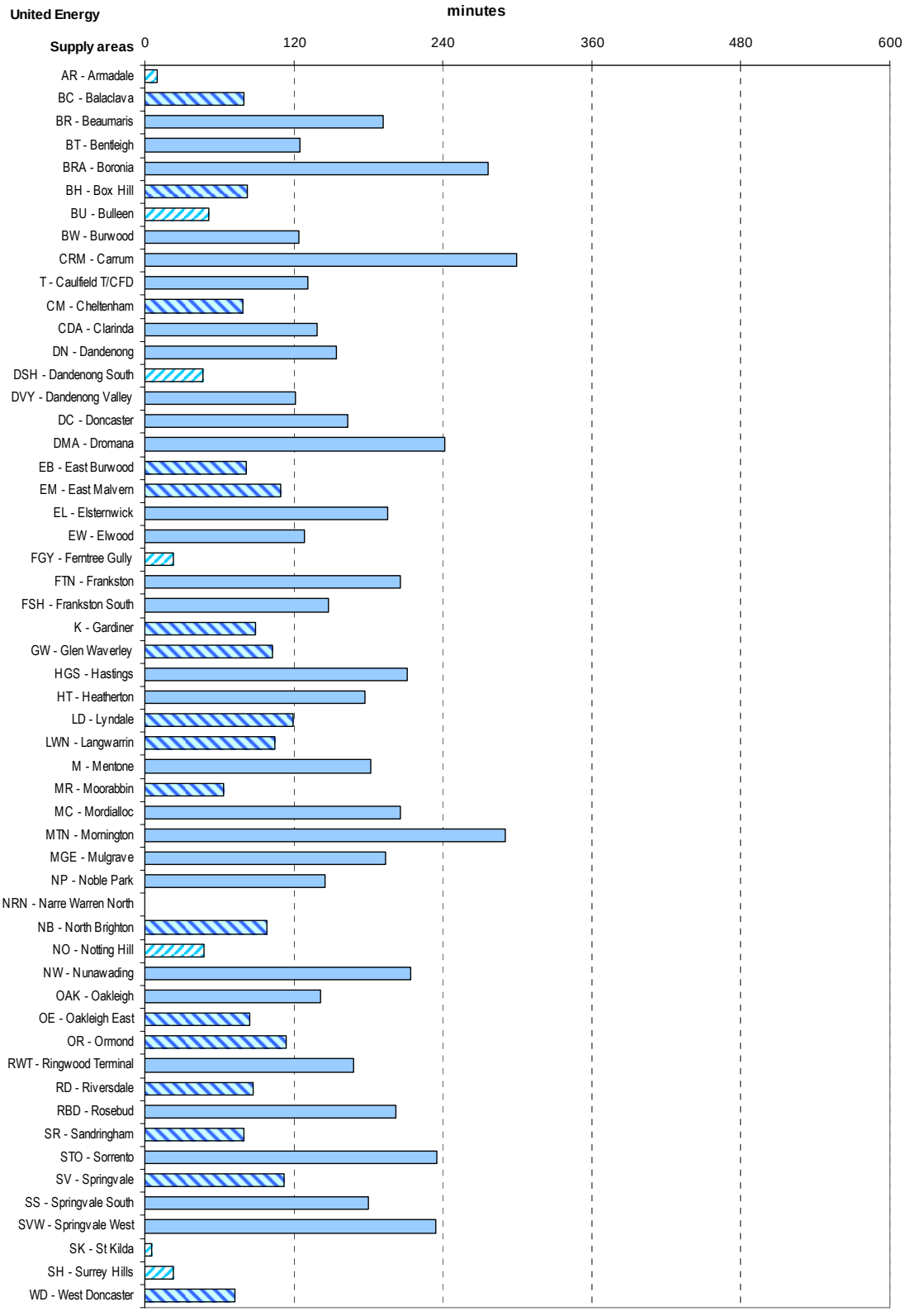


Figure E.12 United Energy reliability map