
REVIEW OF ELECTRICITY STANDARDS OF SERVICE FOR THE NORTHERN TERRITORY

DRAFT REPORT

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Table of Contents

Overview	1
Introduction	1
Proposed standards of service framework	1
Setting service performance targets	3
Implementation	5
Introduction	7
Background	7
Electricity standards of service	8
Measures of service performance	9
Northern Territory experience	11
Summary of terms of reference and scope of review	13
Overview of Issues Paper and submissions	13
Purpose of this paper	14
Service performance in the Territory	16
Service performance from 1999-00 to 2008-09	16
Reporting of service performance	22
Proposed standards of service arrangements	24
Objectives of a standards of service framework.....	24
Key design features	26
Setting standard of service targets	36
Exclusion of events	40
Planned and unplanned outages	41
Data segmentation	41
Implementation in the Northern Territory	44
Matters relevant to the implementation of the proposed standards of service arrangements	44
Appendix A	50

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CHAPTER 1

Overview

Introduction

- 1.1 In November 2009, the Treasurer endorsed terms of reference for the Commission to review and report on the adequacy of current standards of service established by the Electricity Standards of Service Code, and advise on options to ensure electricity generation, network and retail standards of service are appropriate in the Territory.

Proposed standards of service framework

- 1.2 The Commission considers that a standards of service framework is necessary in the Territory to:
- establish minimum and average standards of reliability, quality and customer service in the electricity supply industry;
 - promote improvement in the level of services supplied by electricity generators, network service providers, and retailers operating in the Territory; and
 - establish effective arrangements for monitoring and reporting on performance.
- 1.3 The Commission has considered options to encourage improvements to service performance as part of a separate Review of Options for Implementation of a Customer Service Incentive Scheme for Electricity Customers. Consequently, the focus of this review is on the approach to defining the standards that might apply to electricity services, performance targets, and the associated monitoring and reporting arrangements.

Measures of reliability performance

- 1.4 The Commission considers that the Territory's standards of service arrangements require reporting of reliability performance measures.

Generation reliability performance reporting

- 1.5 Generators operating in the Darwin-Katherine, Alice Springs and Tennant Creek power systems should report:
- measures of generation reliability outcomes. The measures should include equivalent forced outage factor (EFOF) and equivalent availability factor (EAF) indicators, and similar measures of generation reliability used elsewhere in Australia; and
 - measures of the effect of generation reliability performance on customers. The measures should include system average interruption duration index (SAIDI) and system average interruption frequency index (SAIFI) indicators, as these are useful

measures for communicating the consequence of generation outages to customers.

Network reliability performance reporting

- 1.6 The Power and Water Corporation (PWC), as the local distribution network service provider (DNSP) should report:
- overall distribution network reliability performance outcomes using the SAIDI and SAIFI indicators; and
 - feeder reliability performance outcomes for central business district (CBD), urban, rural short and rural long feeders using SAIDI and SAIFI indicators.
- 1.7 The Commission considers that specific reliability measures should be established for the transmission elements of the Territory's electricity networks. The proposed measures of transmission reliability performance should include:
- transmission line, circuit and transformer availability;
 - average outage duration; and
 - frequency of outages.
- 1.8 The Commission would consult with PWC Networks to identify the transmission elements of each regulated network.
- 1.9 PWC Networks (transmission and distribution) should report planned and unplanned network outages.

Measures of quality of supply performance

- 1.10 The Commission considers that monitoring customer complaints relating to quality of supply is the best available approach for measuring quality of supply outcomes at this time. Further, the Commission notes that System Control is establishing a generator compliance monitoring regime that should include consideration of quality of supply outcomes.
- 1.11 However, the Commission considers there might be merit in PWC Networks investigating the costs and benefits of the limited use of smart meters to collect quality of supply information. The Commission notes that smart meters have been installed as part of the Alice Springs Solar Cities program, and that this may present an opportunity to test the collection of quality of supply data.

Measures of customer service performance

- 1.12 The Commission considers that electricity retailers operating in the Darwin-Katherine, Alice Springs and Tennant Creek power systems should report:
- the average time taken to answer telephone calls, the number of calls not answered within 20 seconds of a customer choosing to speak to a human operator, and the number of calls abandoned; and
 - the number and type of complaints about retail services, and the time to respond to written enquiries.

1.13 The Commission considers that PWC Networks should report:

- the average time taken to answer telephone calls, the number of calls not answered within 20 seconds of a customer choosing to speak to a human operator, and the number of calls abandoned;
- the number and type of complaints about network services (excluding voltage events); and
- the number of new connections not provided within 24 hours for reconnection, five business days for a new connection (CBD or urban area) and 10 business days for a new connection (rural area).

1.14 PWC Retail and PWC Networks may report a combined result for telephone call answering times and calls abandoned until such time as system functionality supports separate reporting.

1.15 The Commission considers that retailers and PWC Networks should report on the incidence of customer hardship, using measures that are consistent with those in the Ministerial Council on Energy proposals for a National Energy Customer Framework:

- disconnections for failure to pay and reconnections in the same name;
- customer service and customer complaints;
- the use of prepayment meters;
- social welfare concessions, such as membership of pensioner concession schemes; and
- the number of security deposits.

Setting service performance targets

1.16 The Commission considers that service performance targets should be set for generation reliability performance and network reliability performance, and that service providers use best endeavours to achieve these targets.

1.17 The best endeavours approach is based on the premise that the service provider will not always be able to meet the performance target. Rather, performance targets are based on annual average target levels the business is expected to achieve over the course of the year. In addition, setting performance targets on this basis would not have a disproportionate financial impact on customers.

Generation reliability performance targets

1.18 The Commission considers that a generation reliability performance target (a system reliability standard) should be established by determining the maximum level of unserved energy (USE) for the Darwin-Katherine, Alice Springs and Tennant Creek systems. The USE target would represent the statistical risk of the electricity supply not meeting customer demand over time, and would inform assessment of the minimum generation reserve capacity requirements.

1.19 Defining a target for USE is consistent with practice elsewhere in Australia, and should assist future assessment of generation adequacy and the timing and size of new generation capacity investments. The Commission considers that the USE target should be determined according to good industry practice for assessing appropriate

system reliability for a region or system, including consultation with system participants, and should take account of the costs and characteristics of the Territory systems.

Network reliability performance targets

- 1.20 The Commission considers that a distribution network reliability performance target should be established using a five year average of adjusted (using the 2.5 beta method) SAIDI and SAIFI data. The Commission is also proposing that distribution network service performance targets be defined for each market system, and for each feeder type (CBD, urban, rural short and rural long).
- 1.21 To avoid the risk of potentially lower targets due to a deterioration in performance, the Commission recommends that a floor be set on the target.
- 1.22 The Commission also recommends that benchmarking of PWC's performance against that of relevant utilities elsewhere in Australia be used when considering service performance targets.
- 1.23 The Commission is of the view that methods for accurately assessing customer preferences and their willingness to pay should be reconsidered at a later stage.

Monitoring and reporting

- 1.24 The Commission considers that an electricity standards of service framework for the Territory should include comprehensive monitoring and reporting arrangements that deal with:
 - what measures are reported and when data is reported;
 - how data is treated, including excluded events and segmentation of data;
 - who receives data, including public reporting; and
 - compliance measures, such as auditing to ensure data is accurate and a service provider is complying with the requirements of the framework.

Exclusions

- 1.25 Service performance (whether generation, networks or retail) can be affected by events that are outside the reasonable control of the service provider, such as extreme acts of nature (e.g. fire, flood or tempest), industrial action or terrorism. These are events that a service provider cannot reasonably be expected to prevent or avoid, at least without substantial capital investment.
- 1.26 Standards of service arrangements commonly define excluded events for the purposes of determining service targets, and reporting on service performance. The Commission considers that:
 - the 2.5 beta method should be used to adjust network performance data for both reporting performance and setting service targets;
 - PWC Networks should be required to report adjusted and unadjusted performance; and
 - PWC Networks should be required to provide detailed comments on those events which are excluded using the 2.5 beta method.

Segmentation of data

1.27 The Commission considers that performance data should be segmented so as to provide a more detailed view of performance outcomes. Service providers should report performance data as follows :

- PWC Networks should report network reliability data by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs), by feeder type (CBD, urban, rural short and rural long), and if outages were planned or unplanned;
- PWC Networks should report network quality of supply data (complaints about quality of supply) by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs);
- PWC Networks should report complaints received relating to network activities by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs);
- PWC Networks should report customer connection data by location - urban, rural or remote;
- generators should report generation reliability data by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs), and if outages were planned or unplanned;
- retailers should report customer service complaints received relating to retail activities by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs); and
- retailers and PWC Networks should report on telephone answering time (average answer time and number of calls not answered within 20 seconds of a customer choosing to speak to a human operator) and calls abandoned on a Territory wide basis. PWC Networks and PWC Retail may provide a combined report for these measures until system functionality and operating practices allow separate reporting.

Implementation

1.28 The terms of reference require the Commission to recommend a course of action and provide detailed plans for implementation of that recommendation.

1.29 The Commission considers that the key implementation considerations include:

- legislation and statutory arrangements to apply the proposed standards of service framework;
- methodology for determining service performance targets;
- monitoring and reporting arrangements;
- assurance about service performance data quality used for reporting and determining service performance targets; and
- service providers subject to the proposed standards of service framework.

Legislation and statutory requirements

1.30 The Commission considers that a specific head of power for establishing a clear standards of service framework would deliver greater regulatory certainty, and support new investment. In particular, the Commission considers that a specific head of power

is required to clarify and confirm monitoring and reporting arrangements for a standards of service framework.

1.31 The options identified by the Commission are:

- for the Commission to include an obligation in the licence granted by the Commission to each service provider requiring them to comply with the proposed standards of service arrangements;
- for the Minister to make a new Regulation under the *Electricity Reform Act* giving the Commission the authority to make a Code establishing the proposed standards of service arrangements; or
- for an amendment to the *Electricity Reform Act* to include a provision(s) establishing the proposed standards of service arrangements.

1.32 At this stage, the Commission considers that a new Regulation under the *Electricity Reform Act* is the most appropriate way of establishing the proposed standards of service arrangements. The Commission will consult further on this matter before recommending more detailed implementation plans as part of the Final Report.

Availability and quality of performance data

1.33 The Commission considers that the quality of regulation is largely dependent on the quality of the information provided by the service provider. Accurate information is necessary for the regulator to set accurate and relevant quality standard levels, and monitor quality on a meaningful and consistent basis over time.

1.34 The Commission intends conducting regular audits of PWC's data collection systems and processes so obtain reasonable assurance that service performance data is accurate. The standards of service framework should establish a requirement for independent auditing of service performance data, and the effectiveness of reporting processes.

Scope of arrangements

1.35 The Commission considers that the standards of service framework should apply to all licensed firms operating in the market systems, and supplying customers connected to the regulated networks. Further, the Commission considers that a standards of service framework should have the flexibility to apply to service providers operating in the market systems and to service providers operating in remote and regional centres.

CHAPTER 2

Introduction

Background

- 2.1 The electricity supply industry in the Northern Territory is regulated through the *Electricity Reform Act*, *Electricity Networks (Third Party Access) Act*, *Utilities Commission Act* and associated legislation. This statutory framework was introduced on 1 April 2000.
- 2.2 The statutory framework is primarily focused on regulating the activities of electricity industry participants and customers in the Darwin-Katherine, Alice Springs and Tennant Creek power systems – referred to as the market systems. Key elements of the statutory framework are:
- third party access to the Darwin-Katherine, Alice Springs and Tennant Creek electricity networks;
 - staged introduction of retail contestability, with all customers contestable from 1 April 2010; and
 - an independent economic regulator, the Utilities Commission, to regulate monopoly electricity services, licence market participants and enforce regulatory standards for market conduct and service performance.
- 2.3 The Power and Water Corporation (PWC) is the main industry participant in the market systems, generating the majority of electricity, operating the network and supplying retail services to all customers. PWC also provides water supply and sewerage services to customers throughout the Territory.
- 2.4 PWC is a vertically integrated electricity service provider, with generation, network and retail business units operating as separate businesses.¹ The commercial relationship and transactions between each unit are subject to oversight and regulation by the Commission.² PWC is owned by the Territory Government, and is also subject to oversight by a shareholding Minister through the *Government Owned Corporations Act*.
- 2.5 In the three market systems, PWC is currently the sole electricity retailer, supplying electricity to over 74 000 customers in the market systems at 30 June 2009.³ PWC is also the main electricity generator, with almost 91 per cent of generation capacity. There are three other firms generating electricity in the Darwin-Katherine and Alice

¹ This paper refers to the separate business units as PWC Retail, PWC Networks and PWC Generation.

² Regulatory instruments include the licensing framework and the Northern Territory Electricity Ring-Fencing Code.

³ Power and Water Corporation, September 2009, 2008-09 Annual Report, page 23.

Springs systems. However, these businesses generate electricity under contract for PWC rather than selling directly to an electricity retailer, and PWC provides the fuel used for electricity generation.⁴

- 2.6 PWC operates the Darwin-Katherine, Alice Springs and Tennant Creek networks, and is responsible for system control.⁵ The networks are not interconnected, and are separated by long distances. The networks comprise 730 kilometres (km) of high voltage transmission lines and 7 378 km of low voltage distribution lines.⁶
- 2.7 Electricity supply in regional and remote centres of the Territory is mainly managed by the Territory Government and a service provider through a contract for service model. These systems include: the 72 communities and outstations where essential services are provided through the Territory Government Indigenous Essential Services program; the three mining townships of Nhulunbuy, Alyangula and Jabiru, where electricity is supplied by the associated mining firm; and eight remote townships (e.g. Elliott, Yulara and Ti-Tree).

Electricity standards of service

- 2.8 Electricity standards of service in Australia are regulated by governments or industry regulators to ensure that customers receive reasonable standards of reliability and quality of supply, and customer service levels. Average and minimum service performance targets are defined for electricity transmission and distribution network service providers (TNSP and DNSP), and the electricity generation and retail sectors in most jurisdictions.
- 2.9 The most common approaches for regulating standards of service in Australia are:⁷
- monitoring or information disclosure requirements, with firms required to publish information about service performance against a number of reliability, quality and customer service performance measures or benchmarks;
 - definition of minimum service standards, with minimum standards of performance mandated in legislation;
 - guaranteed service level (GSL) schemes, with payments made to customers when service performance is outside a defined threshold (e.g. worse than a minimum standard);
 - financial incentive schemes, with financial incentives established through a price regulation framework to encourage defined performance outcomes; and

⁴ These generators are located at Pine Creek (between Darwin and Katherine), Shoal Bay (at the Darwin City Council dump) and Brewer Estate (in Alice Springs).

⁵ The System Controller is located in the PWC networks business unit, and is responsible for monitoring and controlling the operation of the power system to ensure the system operates reliably, safely and securely in accordance with the System Control Technical Code.

⁶ Power and Water Corporation, September 2009, 2008-09 Annual Report, page 23.

⁷ Energy Networks Association, March 2007, Service Standard Regulatory Policy & National Reliability Reporting Framework, page 8.

- contractual service standards, whereby firms agree with a customer through the contract negotiation process to achieve a particular service level.
- 2.10 The key factor in establishing standards of service arrangements is identifying what represents acceptable levels for service performance, which involves understanding customer preferences, and customers' willingness to pay more or less for improved or reduced levels of service.⁸ A further factor in determining acceptable levels of service performance is the local circumstances, such as prevailing weather, number and location of customers, size of the network and other local conditions. The variation in local circumstances means that standards of service differ between jurisdictions, and between regions within jurisdictions.
- 2.11 Standards of service frameworks most commonly apply to DNSPs and TNSPs. As natural monopolies, DNSPs and TNSPs have less incentive to strive to provide improved, or different, levels of service as customers generally cannot move to an alternative provider. Consequently, the standards of service achieved by DNSPs and TNSPs are a key consideration of regulators in undertaking network price regulation, and identifying the optimum balance between price and service levels.
- 2.12 Additionally, the performance of the equipment a firm uses to provide a good or service can influence standards of service. For example, the safe, secure and reliable operation of a power system requires that electricity generators design and operate their equipment so as to meet specified technical and performance parameters. As such, the technical and service performance of generators is regulated and managed to avoid the adverse reliability (e.g. outages) or quality (e.g. power surges) outcomes for customers that could result from operating outside these parameters.⁹
- 2.13 Finally, electricity retailers have been required to report on aspects of service performance in most Australian jurisdictions, with the main objective of providing information to household customers on the affordability and accessibility of electricity services, and customer satisfaction with the quality of service. A focus of examining retailers' standards of service, and the monitoring of retail service performance, is to bring transparency and accountability to how retailers are treating their customers, and particularly vulnerable customers.¹⁰

Measures of service performance

- 2.14 Measures of service performance used in Australia typically include:¹¹
- reliability of supply, which identifies the ability of a service provider to maintain the availability of the service in question, typically being measured by how often and for how long customers go without the service during a given period;

⁸ Ibid, pages 7-8.

⁹ The operating parameters for the Territory power systems are managed by System Control, and documented in the System Control Technical Code and Networks Technical Code.

¹⁰ For example, refer Essential Services Commission of Victoria, December 2009, Energy Retailers Comparative Performance Report – Customer Service 2008-09.

¹¹ See discussion in Utilities Commission, August 2004, *Developing a Standards-of-Service Framework*, page 1.

- quality of supply, which identifies the specification of supply, and involves measures such as voltage levels, frequency and harmonic content; and
- customer service, which identifies how the service provider interacts with individual customers and involves measures of customer complaints, and service provision (e.g. attending appointments, billing).

Reliability of supply

2.15 Reliability measures are system wide measures derived from the duration and number of power outages experienced, and the number of customers affected. Measures of reliability used in the Territory and Australia include:¹²

- system average interruption duration index (SAIDI) – is the average number of minutes that a customer is without supply each year. SAIDI is calculated as the sum of the duration of each sustained customer interruption (in minutes), divided by the total number of customers. SAIDI excludes momentary interruptions (one minute or less);
- system average interruption frequency index (SAIFI) – is the average number of times a customer's supply is interrupted each year. SAIFI is calculated as the sum of each sustained customer interruption, divided by the total number of customers. SAIFI excludes momentary interruptions;
- customer average interruption duration index (CAIDI) – is the average duration of each interruption. CAIDI is calculated as the sum of the duration of each sustained customer interruption (in minutes) divided by the total number of sustained customer interruptions (SAIDI divided by SAIFI). CAIDI excludes momentary interruptions; and
- momentary average interruption frequency index (MAIFI) – the average number of momentary interruptions per customer per year. MAIFI is calculated as the total number of customer interruptions of one minute or less, divided by the total number of customers.

2.16 Supply interruptions can be planned or unplanned. For example, a planned power outage would occur when a DNSP de-energises a substation or feeder to undertake routine maintenance, and an unplanned outage would occur when there is an equipment failure, resulting in loss of supply to customers.

2.17 Jurisdictions can adopt different approaches to including planned and unplanned outages when measuring and reporting on reliability performance, for example by excluding planned interruptions or excluding unplanned interruptions caused by infrequent and catastrophic natural events like cyclones.

Quality of supply

2.18 Quality of supply refers to the electrical specification of supply, and is measured by such indicators as voltage levels, frequency and harmonic content. Poor quality of supply shows up as dimming, flickering or overly bright lights, or motors speeding up and slowing down (e.g. ceiling fans), and damage to electrical appliances. Quality of

¹² Refer Utilities Regulators Forum, March 2002, National Regulatory Reporting for Electricity Distribution and Retailing Businesses Discussion Paper, page 6, table 1.

supply is a concern where customers use voltage sensitive electrical appliances and equipment (e.g. computers and electronically controlled systems).

- 2.19 Quality of supply is difficult to measure. Although the quality of supply is the subject of fairly detailed regulation specified in various Australian Standards, there are no commonly used measures for monitoring and reporting the response to, and prevention of quality problems. A common approach to monitoring quality is to rely on customer feedback, or complaints, about voltage problems.
- 2.20 In the longer term, policies being implemented or considered by governments across Australia to mandate the installation of 'smart' meters for households should facilitate improved measurement of quality of supply outcomes.

Customer service

- 2.21 Retailers and DNSPs provide services directly to customers, whether through billing for energy consumed or through responsibility for connections or distribution reliability. Most jurisdictions monitor standards of customer service to bring transparency and accountability to the level of service performance. A particular focus of monitoring of customer service is the treatment of vulnerable customers.
- 2.22 Measures of customer service by retailers and DNSPs commonly monitored in Australia include:
- call centre responsiveness, with reporting of the time taken for customer telephone calls to be answered, the length of time the callers have to wait, and use of automated interactive services;
 - whether a DNSP keeps appointments made with customers;
 - the number of connections, disconnections and reconnections, focusing on customers disconnected due to non-payment of bills, and reconnections in the same name;
 - the time taken by a DNSP to repair a faulty street light once notified;
 - advice of planned interruptions – adequate planning, assessment of impact of planned interruptions on customers, and communication to customers; and
 - the number and type of customer complaints.

Northern Territory experience

- 2.23 Service performance in the Territory has been monitored by the Commission since January 2006, with the introduction of the Electricity Standards of Service Code (ESS Code). The ESS Code establishes a performance reporting framework, and minimum standards for specified outcomes or services provided by PWC Generation, PWC Networks and PWC Retail.
- 2.24 The service performance of PWC has come under greater community scrutiny in recent years due to a series of major outages affecting a large number of customers. The outages in September and October 2008 in the Casuarina zone substation service area caused extensive community disruption, with the most significant event causing more than 11 000 customers to lose power for up to 14 hours. More recently, the Darwin-Katherine system black incident on 30 January 2010 caused all customers

served by the Darwin-Katherine system to lose power for up to 10 hours (affecting more than 58 000 customers, or 78 per cent of all customers in the market systems).

- 2.25 The Casuarina outages raised significant concerns about the reliability of the Territory's electricity networks, and power systems. A comprehensive review of the incident and substation maintenance by Mervyn Davies (the Davies Enquiry), a former senior executive of Energy Australia and a member of the Board of Western Power, exposed deficiencies in network maintenance practices and asset management by PWC.¹³
- 2.26 Although the Davies Enquiry only looked at the adequacy and reliability of substations, the findings indicated that the problems of inadequate maintenance effort, record keeping and asset management systems could be systemic throughout PWC. This raised broader questions about the condition of electricity assets, expectations for the potential future levels of service performance, and the capital and maintenance investment required to achieve desired levels of service performance.
- 2.27 The prospects for future electricity service performance in the Territory are recognised in the PWC 2010-11 Statement of Corporate Intent, where PWC states that:¹⁴
- The electricity...systems are under significant and increasing pressure. Essential work will require greater funding than had been previously planned and approved... to mitigate the risk of major equipment failure through an increase in spending on asset refurbishment and renewal.*
- This increased infrastructure investment is a consequence of past under-investment. Additionally, ongoing investigations have found that the previous estimates of the residual life of many assets may have been optimistic and that additional urgent refurbishment or replacement of key assets is needed.*
- The development of generation capacity is planned to meet projected demand with timing for new plant primarily based on the n-2 criterion, and focuses in particular on power system reliability, fuel supply reliability, plant efficiency and incremental capacity increases. Because of increasing reliability issues with generation assets, a revised Generation capital investment strategy was developed and approved in February 2010.*
- 2.28 PWC has an extensive capital and maintenance investment program intended to avoid further deterioration in current levels of generation and network service performance, and meet future growth. However, there appears to have been no recent consideration or debate about the standards of electricity services that Territorians should reasonably expect, or are willing to pay for.

¹³ Mervyn Davies, February 2009, Independent Enquiry into Casuarina Zone Substation Events and Substation Maintenance Across Darwin Final Report.

¹⁴ Power and Water Corporation, 2010-11 Statement of Corporate Intent, page 24.

Summary of terms of reference and scope of review

- 2.29 The terms of reference ask the Commission to report on the adequacy and effectiveness of the ESS Code, to advise on the indicators and reasonable benchmarks for standards of service in the Territory, and to develop options for setting, monitoring and enforcing standards of service.
- 2.30 In undertaking the review, the Commission is to take into account:
- the objectives of the ESS Code;
 - standards of service and standards of service arrangements in other jurisdictions;
 - environmental and market characteristics of the Territory that may have a bearing on standards of service; and
 - all relevant economic and policy developments, including economic conditions, customer preferences, willingness and capacity to pay for a certain standard of service, environmental standards, current service performance and the cost of meeting higher service performance.
- 2.31 The Commission considers that the minimum and average standards of service that might apply to service providers should be addressed through standards of service arrangements.

Overview of Issues Paper and submissions

- 2.32 The Commission initiated this review in May 2010 with the release of an Issues Paper that set out the issues identified by the Commission, sought comment from interested parties on the options and considerations for a future electricity standards of service framework.
- 2.33 The Issues Paper examined the current electricity standards of service arrangements and considered options in light of the experience adopted in the national electricity market (NEM) and other Australian jurisdictions. The key points the Commission sought comments on were:
- whether standards of service arrangements should apply to electricity generation, networks and retailers in the Territory;
 - how service performance should be measured and reported;
 - how performance targets should be set, including whether the Commission should consider customers' preferences and willingness to pay when setting standard of service targets;
 - whether, and how, events beyond the reasonable control of service providers should be excluded for the purposes of setting service targets and reporting performance; and
 - the availability and quality of service performance data provided by PWC.

Summary of submissions

- 2.34 The Commission received submissions to the Issues Paper from PWC and Northern Territory Treasury (Treasury).

PWC

- 2.35 PWC supports a standards of service framework for electricity generation, network and retail service providers that recognises current service levels received by customers, and sets appropriate and achievable service targets for PWC to improve performance over time, in line with customer expectations.
- 2.36 PWC is of the view that the development of standards of service framework in the Territory should take into account the costs and benefits of obtaining reliable information, and the particular operational and environmental characteristics PWC operates. The framework should only relate to performance which is within the control of the service provider. PWC noted that it is committed to continuous improvement and has started to adopt standards similar to those in the NEM as part of efforts to deliver better outcomes to customers.

Treasury

- 2.37 Treasury supports a review of the ESS Code to identify ways for measuring and reporting on service performance to better anticipate and prevent system failures. Treasury supports the introduction of a framework that incorporates disclosure requirements, legislated minimum service level standards, and financial incentives, such as a GSL. Treasury considers that a more comprehensive and effective framework is necessary to improve transparency and accountability in service performance.
- 2.38 Treasury considers that the economic assessment of customers' preferences is required to better understand the level of service that customers wanted and were willing to pay for.

Purpose of this paper

- 2.39 This Draft Report sets out the Commission's proposals for measures of service performance for electricity generation, networks and retail in the Territory, the methodology for determining service performance targets, reporting arrangements and implementation considerations.
- 2.40 The Commission is seeking comment from interested parties on these draft proposals and implementation considerations by Friday 10 September 2010. The Commission will submit a final Report with final recommendations to the Treasury by November 2010.
- 2.41 The Commission's approach to this review and the consultation process is set out in table 2.1 below.

Table 2.1: Review Timetable

Date	Action
Wednesday 18 August 2010	Release of Draft Report.
Friday 10 September 2010	Submission on Draft Report due.
Friday 29 October 2010	Final Report submitted to the Treasurer.

- 2.42 The Commission has undertaken a separate Review of Options for Implementation of a Customer Service Incentive Scheme for Electricity Customers, which examines possible incentive arrangements for service providers to improve service performance and to avoid very poor service performance.

CHAPTER 3

Service performance in the Territory

Service performance from 1999-00 to 2008-09

- 3.1 The standard of electricity services in the Territory is affected by a number of factors, such as the radial design of the network, the location and capacity of generation, density of customers, the condition of electricity assets, weather and the high incidence of storm activity, including lightening, rapid vegetation growth in the Top End, and fruit bats roosting on power lines.
- 3.2 To inform consideration of options for measuring and defining electricity generation, networks and retail standards of service in the Territory, the Commission has compared generation and network reliability outcomes experienced by customers in the Darwin-Katherine, Alice Springs and Tennant Creek systems from 1999-00 to 2008-09.
- 3.3 To provide a benchmark of reliability outcomes in the Territory relative to elsewhere in Australia, the Commission has also compared the reliability outcomes experienced by urban customers of Ergon Energy (a DNSP and retailer servicing the areas of Queensland outside of Brisbane) from 2002-03 to 2008-09.
- 3.4 The Commission considers that Ergon provides a reasonable point of comparison for service performance outcomes in the Territory relative to elsewhere in Australia. In particular, the Commission considers that Ergon and PWC face similar challenges in providing electricity services, including similar weather and seasonal patterns, and a widely dispersed customer base. Further, although the two businesses differ in scale, the equipment, practices and activities associated with supplying electricity are fundamentally similar.
- 3.5 The Commission notes that the radial design of the PWC network is not unique. The Ergon network is also radial, with more than two thirds of zone substations in the Ergon network connecting to radial feeders.¹⁵
- 3.6 The PWC networks comprise urban and short rural feeders.¹⁶ The PWC networks have a customer density of 9.2 customers/line km, reflecting a higher proportion of customers on urban feeders. The Ergon network has a customer density of 5.2

¹⁵ Ergon Energy, Annual Stakeholder Report 2007/08, page 32.

¹⁶ An urban feeder has maximum demand per total feeder route length of greater than 0.3 MVA/km. A short rural feeder has a total route length of less than 200 km. A long rural feeder has a total route length of more than 200 km.

customers/line km, reflecting a higher proportion of customers on short and long rural feeders.¹⁷

- 3.7 Given the characteristics of the PWC and Ergon systems, and based on the available data, the Commission considers that the most reasonable benchmark of PWC network reliability in the Darwin-Katherine and Alice Springs systems (i.e. experienced by the majority of customers in the Territory) is the network reliability experienced by Ergon customers supplied by urban feeders.

Network reliability performance

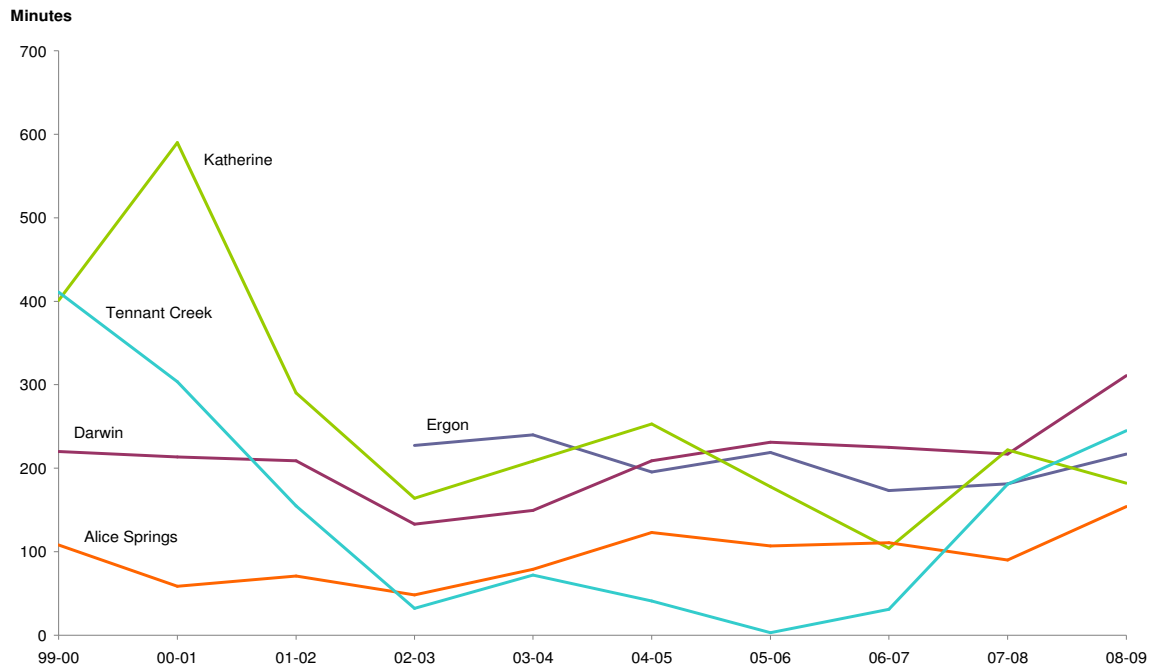
- 3.8 The average duration (SAIDI) and average frequency (SAIFI) of electricity network related outages are commonly used indicators of network reliability performance in Australia. The network SAIDI and SAIFI data presented in charts 3.1 and 3.2 below is based on adjusted data to identify the underlying reliability performance over time.
- 3.9 Adjusted data excludes the effect of severe weather events or other unusual and unanticipated events that adversely affect reliability. The ESS Code allows PWC to adjust network reliability data to exclude the effect of severe interruptions to supply using the “2.5 beta method”, an objective statistical methodology for identifying outlier performance.¹⁸ Ergon network reliability data is also adjusted to exclude the effect of severe interruptions to supply using the 2.5 beta method.¹⁹
- 3.10 Network SAIDI (average duration of outages) for Darwin, Katherine, Alice Springs, Tennant Creek and Ergon (urban) customers is shown compared in Chart 3.1.

¹⁷ Australian Energy Regulator, State of the Energy Market 2009, page 165; Ergon Energy, Electricity Distribution Quarterly Service Quality Report, April – June 2009; and Utilities Commission, 2008-09 Power System Review.

¹⁸ For a description of the 2.5 beta method, refer to the Institute of Electrical and Electronic Engineers, Working Group on System Design, January 2003, Classification of Major Event Days.

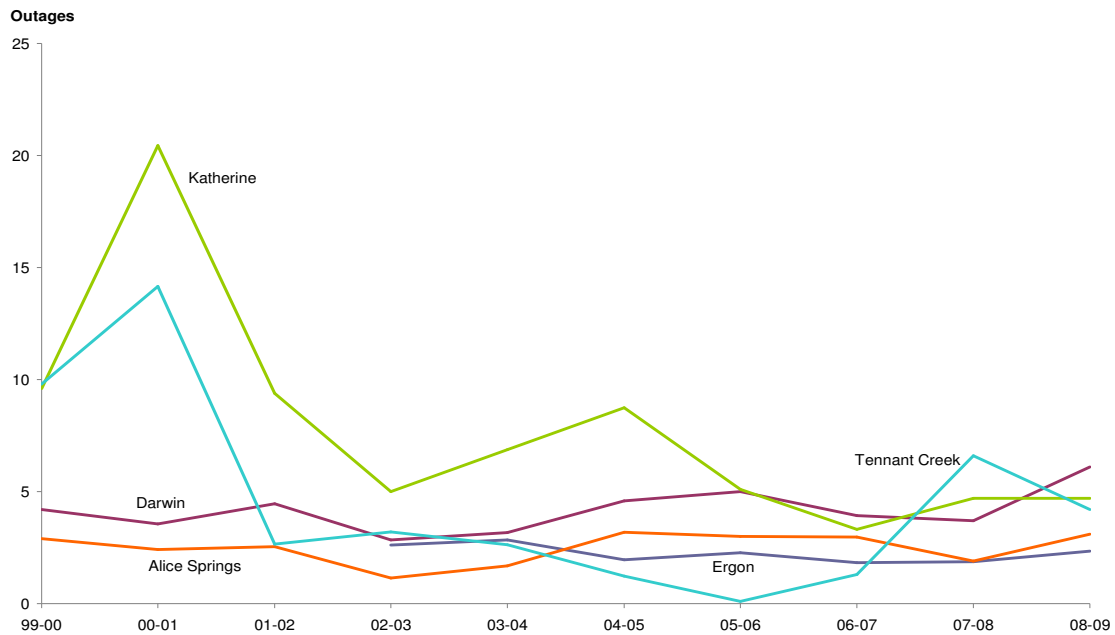
¹⁹ Queensland Competition Authority, August 2005, Electricity Distribution: Service Quality Reporting Guidelines v2, section 2.2.

Chart 3.1: Electricity networks SAIDI (adjusted) 1999-00 to 2008-09²⁰



- 3.11 Network SAIDI performance in the Territory is mixed, with the average duration of outages since 1999-00 declining in Katherine and Tennant Creek, but increasing in Darwin and Alice Springs.
- 3.12 Ergon (urban) SAIDI performance is generally similar to that experienced in Darwin, but is more stable over time compared to the performance in the Territory, with Territory customers experiencing greater variation across years in the average duration of outages.
- 3.13 The trend in network SAIFI performance in the Territory is similar to SAIDI performance, with the average frequency of outages since 1999-00 declining in Katherine and Tennant Creek, but increasing in Alice Springs and Darwin. Ergon (urban) SAIFI performance is similar to that experienced in Alice Springs, and is again more stable over time compared to the performance in the Territory.

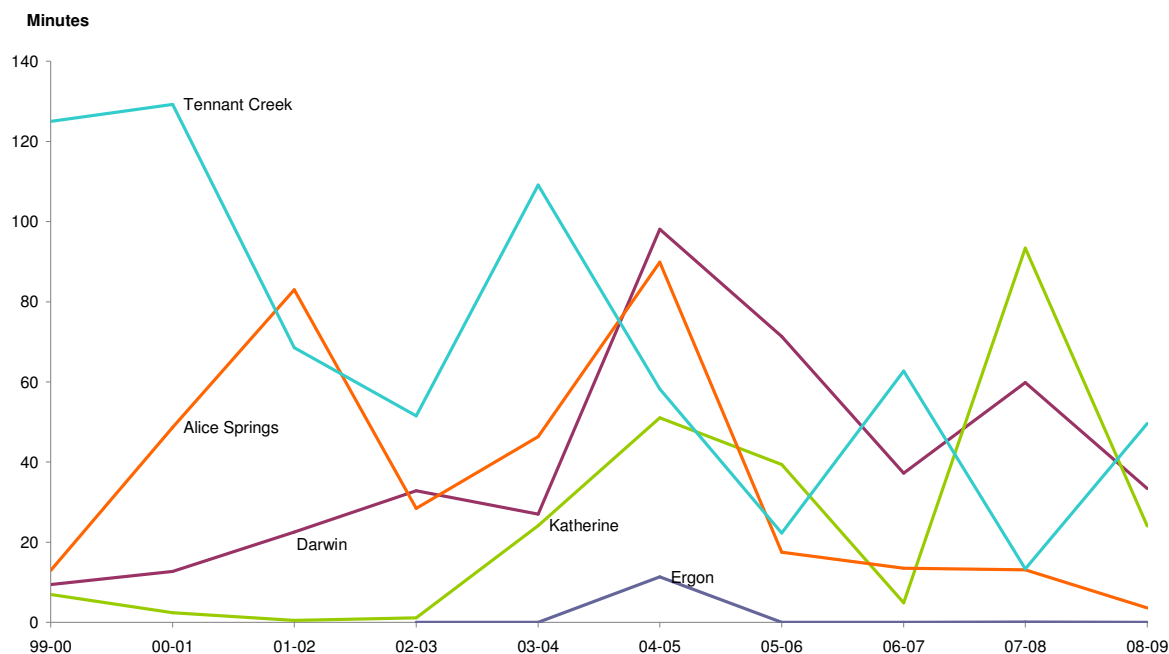
²⁰ Utilities Commission, Annual Service Performance reports and 2008-09 Power System Review, and Queensland Competition Authority, distributors' quarterly service performance reports made under the QCA Electricity Distribution Service Quality Guidelines, refer www.qca.org.au.

Chart 3.2: Electricity networks SAIFI (adjusted) 1999-00 to 2008-09²¹

Generation reliability performance

- 3.14 Generation reliability in the Territory is currently measured using SAIDI and SAIFI. Service performance reporting arrangements for Queensland DNSPs include reporting of generation related SAIDI and SAIFI data.
- 3.15 Since 1999-00 there has been significant variation in the annual average duration of generation outages across the four systems in the Territory, with the average duration of outages declining in Tennant Creek and Alice Springs, but tending to increase in Darwin and Katherine.
- 3.16 Average generation SAIDI in Darwin between 2006-07 and 2008-09 is 43.5 minutes off supply per customer, which accounted for about 15 per cent of the average minutes off supply experienced annually by each customer, based on the sum of generation SAIDI and adjusted network SAIDI.
- 3.17 In contrast, Ergon customers experienced generation related outages once between 2002-03 and 2008-09, with an average of 11.4 minutes off supply per customer in 2004-05 only.

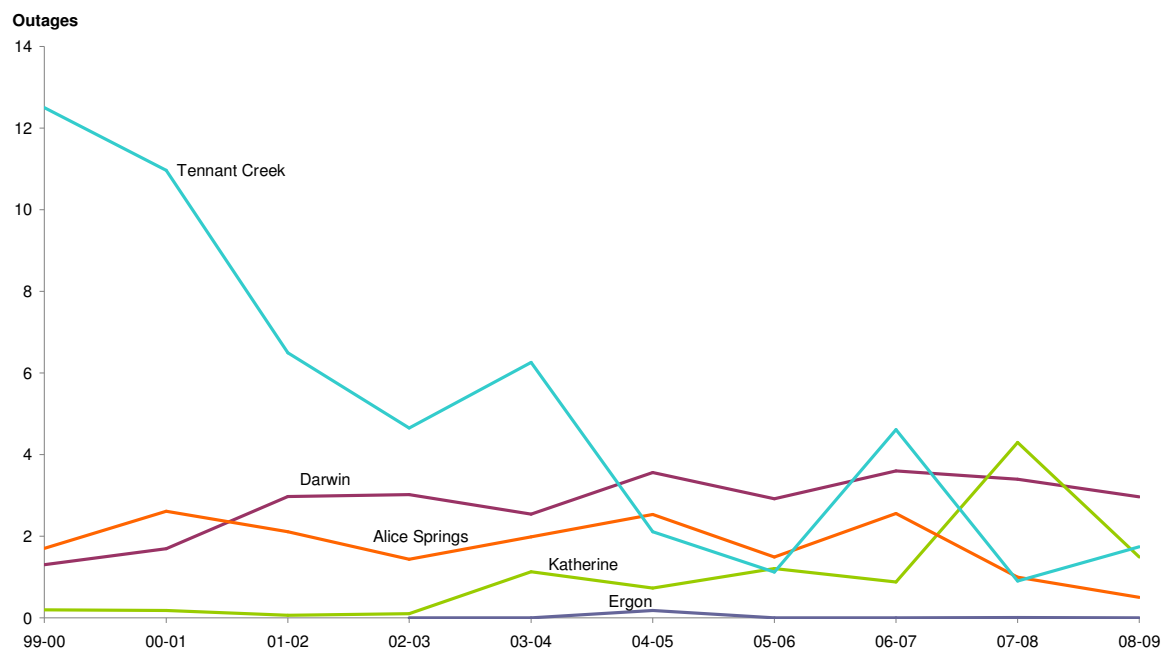
²¹ Ibid.

Chart 3.3: Electricity generation SAIDI (adjusted) 1999-00 to 2008-09²²

3.18 The trend in generation SAIFI is the same as for generation SAIDI, with the average frequency of outages experienced by each customer declining in Alice Springs and Tennant Creek, but increasing in Darwin and Katherine.

3.19 Average generation SAIFI performance in Darwin between 2006-07 and 2008-09 was 3.3 outages per customer each year. Ergon customers experienced generation related outages in 2004-05 only, with generation SAIFI performance of 0.2 outages for each customer.

²² Ibid.

Chart 3.4: Electricity generation SAIFI 1999-00 to 2008-09²³

Comments on reliability performance

- 3.20 The reliability data available to the Commission suggests that, on average, customers in Tennant Creek, Katherine and Alice Springs have generally experienced improved reliability of supply since 1999-00. In particular, network and generation reliability in Tennant Creek has noticeably improved since 1999-00, and now appears to be on a par with the other systems in the Territory. However, customers in Darwin appear to have experienced a small decline in network and generation reliability during this period.
- 3.21 A possible explanation of the worsening trend in reliability outcomes since 1999-00 in Darwin is that the serious deficiencies identified by the Davies Enquiry in PWC Network's monitoring and reporting on the condition of network assets, and in maintenance practices were common to other PWC business units, so that poor asset condition is causing worsening reliability outcomes. This conclusion is supported by the increased priority given by PWC over the period 2009-10 to 2014-15 to network and generation infrastructure investment to mitigate the risk of major equipment failure.²⁴
- 3.22 Notwithstanding the apparent decline in reliability since 1999-00 experienced by Darwin customers, average reliability performance is better than the minimum standards defined by the existing ESS Code. Further, network performance in the Territory appears generally comparable to that received by Ergon customers. The better generation reliability outcomes experienced by Ergon customers can probably

²³ Ibid.

²⁴ Power and Water Corporation, April 2010, 2010-11 Statement of Corporate Intent, page 25.

be attributed to the larger scale of the system and interconnection with other supply regions of the NEM providing more generation capacity and reserve capacity.

- 3.23 The PWC response to the Davies Enquiry is a comprehensive program of remedial works and replacement of network assets through the remedial asset management program (RAMP). RAMP has been underway since early 2008, and has involved a significant and ongoing investment in maintenance and remediation of network assets to meet acceptable standards of reliability and safety.
- 3.24 Further, the 2010-11 SCI advises that a generation capital investment program was approved by the PWC Board in February 2010 to allow the urgent refurbishment or replacement of key assets. This program appears to have a similar objective as RAMP, but addressing expected generation related reliability problems.
- 3.25 PWC is putting significant effort into improving capital planning and asset management practices, and is undertaking an extensive capital and maintenance program to maintain and improve generation and network service performance. However, there is no clear link between the amount of investment required to avoid worsening service performance, the target level for service performance or the timeframe for reaching that target.

Reporting of service performance

- 3.26 Service performance in the Territory has been monitored by the Commission since January 2006. PWC reports annually on reliability, quality and customer service performance for electricity generation, networks and retail activities in the Darwin-Katherine, Alice Springs and Tennant Creek systems.
- 3.27 The Commission uses the annual performance data reported by PWC to prepare a public report on overall performance, and performance against the minimum standards of service.²⁵ Performance data is available for 1999-00 to 2008-09, with 2009-10 data available in November 2010.

Electricity standards of service code

- 3.28 Electricity standards of service are regulated through the ESS Code, which was introduced in December 2005.
- 3.29 The ESS Code establishes 46 indicators of performance, and defines a minimum standard for 45 of these indicators. The indicators focus on:
- network and generation reliability, with data on the frequency and duration of outages experienced on average by customers in a year;
 - feeder performance, with data on poorly performing urban and rural feeders;
 - quality of supply complaints;
 - the time taken to connect properties to the network;

²⁵ Refer Utilities Commission, December 2008, Power and Water's Electricity Service Performance 2007-08, and Power and Water Corporation, October 2008, Standards of Service 2007-08 Key Service Performance Indicators. For 2008-09, the Commission included the report on service performance in the 2008-09 Power System Review.

- the response to telephone calls; and
- customer service complaints, with categories including billing and service levels.

3.30 The minimum standards of service set through the ESS Code are based on the service performance achieved in 1999-00 (or an alternative standard where accurate data was not available for that year). This approach to setting the standards is prescribed in legislation.²⁶

3.31 The levels of the minimum standards were to be reviewed prior to 1 July 2010. However, the Commission decided in June 2009 to continue with the existing minimum standards until 30 June 2011 to permit a comprehensive review of the level of the standards, and the effectiveness of monitoring and reporting arrangements (that is, this review).²⁷

²⁶ *Electricity Reform Act*, s.92.

²⁷ Utilities Commission, June 2009, Approval of Minimum Standards of Service Extension to 30 June 2011.

CHAPTER 4

Proposed standards of service arrangements

Objectives of a standards of service framework

- 4.1 The Commission is required to consider the adequacy and effectiveness of the ESS Code, taking into account the objectives of the ESS Code.
- 4.2 The objectives of the ESS Code are to:²⁸
- (a) establish minimum standards of reliability, quality and customer service in the Electricity Supply Industry;*
 - (b) develop, monitor and enforce compliance with and promote improvement in standards and conditions of service and supply by Regulated Electricity Entities in the Electricity Supply Industry; and*
 - (c) require that Regulated Electricity Entities have in place arrangements which regularly report actual service performance against the key service performance indicators in terms of reliability, quality and customer service.*
- 4.3 The Commission considers the purpose of the ESS Code is to provide a process for defining minimum standards of service, establish a process for monitoring of performance outcomes, and to promote improvement in service performance.
- 4.4 The Commission did not explicitly address the potential objectives of a standards of service framework in the Territory in the Issues Paper issued May 2010. The Commission's key concerns with the objectives of the ESS Code are:
- the ESS Code is only concerned with minimum standards of reliability, quality and customer service; and
 - the ESS Code does not include any penalty or incentive mechanisms to promote improvements in service performance.

Average and minimum standards of service

- 4.5 The standards of service established in the ESS Code are referred to as minimum standards. However, the Commission is of the view that any future standards of service arrangements in the Territory should deal with both average and minimum service performance.

²⁸ Utilities Commission, December 2005, Electricity Standards of Service Code, clause 3.

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- 4.6 Minimum standards are generally defined for the purposes of GSL schemes. Service performance to date has generally been significantly better than the minimum standards.
 - 4.7 The Commission has considered minimum standards of service as part of a separate Review of Options for Implementation of a Customer Service Incentive Scheme for Electricity Customers. That review considers minimum standards and thresholds (set as absolute values) which trigger payments to customers experiencing significantly poor service performance. However, the mechanism for determining the future level of minimum standards is a matter for this review.
 - 4.8 The average standards of service (generally for reliability outcomes) achieved by DNSPs and TNSPs are considered by regulators when determining regulated network charges.

Views in submissions

- 4.9 PWC did not support establishing a relationship between minimum and average standards of service, noting that such an approach was not widely used in other Australian jurisdictions. PWC considered that a GSL scheme was the framework to set absolute (or minimum) targets for service performance.

Response to views in submissions and further analysis

- 4.10 The Commission considers that there should be a relationship between minimum and average standards of service, as poor and average performance outcomes should be dynamic over time. As such, the Commission considers that a standards of service framework should deal with both minimum and average service performance and associated targets.
- 4.11 Establishing a relationship between minimum and average standards would recognise that poor service performance is not fixed in time, and that the perception of poor service is a function what is perceived to be an acceptable level of service.
- 4.12 The increasing disparity between the minimum SAIDI and SAIFI standards established by the ESS Code relative to actual average annual reliability performance highlights the problem associated with not assessing minimum and average performance outcomes as part of the same process.
- 4.13 In addition, setting minimum standards at absolute levels would not provide any incentive on service providers to continuously improve its service performance over time.
- 4.14 The Commission notes that the approach of establishing a relationship between minimum and average standards is used elsewhere in Australia, with the South Australian regulator having defined poor feeder performance by comparing the SAIDI performance of individual feeders against the (average) SAIDI target for the region.

This approach establishes a relationship between minimum and average reliability performance.²⁹

Commission's draft recommendation

- 4.15 The Commission's draft recommendation is that the objectives of the ESS Code be expanded to recognise the relationship between minimum and average service performance and targets.

Incentives for improvements in service performance

- 4.16 The Commission notes that the ESS Code does not include any incentive or penalty mechanisms, as the Commission took the view in 2005 when developing the ESS Code that decisions on these matters are best made once reporting mechanisms were effective and the standards adopted were based on accurate performance data.
- 4.17 The Commission has considered options for creating effective incentive or penalty mechanisms to encourage improvements to service performance as part of a separate Review of Options for Implementation of a Customer Service Incentive Scheme for Electricity Customers, including:
- a financial incentive scheme, by which PWC would be rewarded or penalised for above or below average network service performance; and
 - a GSL scheme, by which individual customers would receive payments if PWC did not meet minimum acceptable network service performance targets.
- 4.18 Consequently, the focus of this review is on the approach to defining the standards that might apply to electricity services, performance targets, and the associated monitoring and reporting arrangements.

Key design features

- 4.19 The Commission has considered the following key features for the design of an electricity standards of service framework in the Territory:
- the measures of generation, networks and customer service performance;
 - the method for setting performance targets; and
 - monitoring and reporting arrangements.

Measures of generation performance

- 4.20 Under the existing ESS Code framework, generation reliability in the Territory is measured using SAIDI, SAIFI and CAIDI indicators.
- 4.21 In contrast, the reliability standard applied to generators in the NEM establishes the minimum acceptable level of bulk electricity supply to be delivered to customers in a region measured against the total demand of consumers in that region. The standard is expressed as the maximum permissible unserved energy (USE) and measures the

²⁹ Utilities Commission, May 2010, Review of Electricity Standards of Service for the Northern Territory – Issues Paper, page 36.

expected amount of energy at risk of not being delivered to customers due to a lack of available capacity. The level was set at 0.002 per cent unserved energy in 1998, and has remained at this level.³⁰

- 4.22 Performance against the NEM reliability standard is currently measured over the long term using a moving average of the actual observed levels of annual USE for the most recent ten financial years.
- 4.23 The generation reliability outcomes achieved in the Territory's market systems are worse than in the NEM. This is probably, at least in part, due to the small scale of the systems, and the number and location of generation facilities means there is less reserve or redundant capacity than in the NEM. However, reliability outcomes could also be influenced by the lack of competition in the generation sector, with PWC Generation operating in a monopoly environment, and facing fewer incentives to provide improved service performance than exist in the NEM or a similar competitive environment.
- 4.24 Generation performance is also measured using a range of indicators, such as:
- equivalent forced out outage factor (EFOF), which measures outages that required the removal of a unit or component from service and which cannot be deferred beyond the next weekend. Forced outages are an indication of the amount and quality of maintenance performed, and the lower the outages the better; and
 - equivalent availability factor (EAF), which measures overall availability by report the loss of generation capacity due to all plant causes.
- 4.25 PWC generation performance is reported using the EFOF and EAF measures in the annual Energy Supply Association of Australia publication, Electricity Gas Australia. Reporting of the planned and forced outage rate of generation, and similar measures of generation availability, is common in the NEM.

Commission's view in the Issues Paper

- 4.26 The Commission asked for comment on whether market conditions for electricity supply in the Territory warranted the definition of standards of service for electricity generation, and on whether reliability standards such as SAIDI, SAIFI and CAIDI were effective measures of generation reliability.

Views in submissions

- 4.27 PWC and Treasury support an electricity standards of service framework that establishes performance measures for generation, networks and retail. However, PWC does not consider that SAIDI, SAIFI and CAIDI are effective measures of generation reliability. PWC is of the view that these measures are only useful for monitoring network reliability.
- 4.28 PWC considers that the technical parameters and requirements for generators contained in the Secure System Guidelines (developed by System Control under the System Control Technical Code) establish generation reliability standards, and provide

³⁰ Australian Energy Market Commission Reliability Panel, April 2010, Reliability Standard and Reliability Settings Review Final Report, pages 5 and 9.

indicators of generation reliability. PWC proposes a review of generation reliability indicators as part of future work by the Commission, including the annual Power System Review, the Review of Electricity System Planning, Monitoring and Reporting, and the Review of Electricity System Planning and Market Operation Roles and Structures.

- 4.29 PWC supports the use of EFOF and EAF indicators for reporting on generation reliability performance. However, PWC does not support setting targets for these indicators.

Response to views in submissions and further analysis

- 4.30 The Territory appears to be the only Australian jurisdiction where SAIDI, SAIFI and CAIDI indicators are the only measures of reliability performance by the generation sector (noting that SAIDI and SAIFI are used to measure generation performance in Queensland, but in conjunction with other performance indicators).
- 4.31 In the NEM, generation reliability performance is defined by a level of USE, which is set independently by the Australian Energy Market Commission (AEMC) Reliability Panel according to a process defined in the National Electricity Rules (and is known as the Reliability Standard). Further, AEMO requires generators to report forced and planned outage data (e.g. EFOF and EAF). AEMO uses this data to identify if there is sufficient generation and transmission capacity in each NEM region, or available via transmission interconnection from another region, to meet the Reliability Standard.³¹
- 4.32 The long-term averages of unserved energy (USE) for various states for the period 1998 to 2009.³²

Table 4.1: Unserved energy(USE) - long term averages, December 1998 to June 2009

Region	Unserved energy (%)
Queensland	0.00000
New South Wales	0.00010
Victoria	0.00044
South Australia	0.00051

- 4.33 The Commission notes that the reliability standard used by PWC is N-2 (i.e. reserve capacity should be sufficient to meet demand with the loss of the two largest units of capacity), and that this standard is set through an internal process by PWC System Control and PWC Generation, with consultation with the shareholding Minister. There is no statutory obligation or process for determining the generation reliability standard. There has been no explicit economic assessment or community consultation on the appropriate level for generation reliability.

³¹ Australian Energy Regulator, 2009, State of the Energy Market, page 65.

³² Australian Energy Market Operator, June 2009, Reliability Standard and Settings Review Issues Paper.

- 4.34 The Commission notes that PWC System Control reported in the December 2009 Darwin-Katherine Power System Bi-annual Report that the USE for the Darwin-Katherine system was 0.0029 per cent.³³

Commission's draft recommendation

- 4.35 The Commission's draft recommendation is for the Territory's standards of service arrangements to include the following generation performance measures:
- EFOF and EAF (and equivalent) measures should be used to report on generation reliability performance, as they should inform expectations of future reliability. Additionally, using the EFOF and EAF measures will facilitate comparison of generation reliability in the Territory and elsewhere in Australia;
 - SAIDI and SAIFI measures should be used to report on generation reliability performance, as they are useful measures for communicating the impact of generation outages to customers;
 - the Commission does not consider that CAIDI is currently a useful indicator of generation reliability and sees no benefit in continuing to report this measure; and
 - the USE measure should be used to establish the maximum permissible unserved energy estimated for each of the power systems in the Territory (a reliability standard). Defining a target for USE is consistent with NEM practices, and should assist future assessment of generation adequacy.

Measures of network performance

- 4.36 Under the existing ESS Code framework, average network reliability in the Territory is measured using SAIDI, SAIFI and CAIDI. The ESS Code also requires PWC Networks to report on the reliability of feeders. There is no distinction between the distribution and transmission elements of the networks.

Distribution network reliability measures

- 4.37 All Australian jurisdictions require DNSPs to report their reliability performance using average reliability indicators such as SAIDI and SAIFI. The service target performance incentive scheme developed by the Australian Energy Regulator (AER) requires DNSPs to report SAIDI, SAIFI, and MAIFI where available.
- 4.38 CAIDI and MAIFI are less commonly used measures of DNSP reliability. PWC has previously noted to the Commission that CAIDI is a flawed indicator of reliability because there is the potential for a higher frequency of outages to improve the CAIDI result, without there being an actual improvement in either the average duration or frequency of outages.³⁴ A similar point about the potentially limited use of CAIDI in measuring reliability has been made by the Queensland regulator.³⁵ Reporting of MAIFI

³³ Power and Water Corporation, Darwin-Katherine Power System Bi-annual Report July to December 2009, page 8.

³⁴ Power and Water, October 2009, Standards of Service 2008-09, Key Service Performance Indicators, page 9.

³⁵ Queensland Competition Authority, April 2009, *Review of Electricity Distribution Network Minimum Service Standards and Guaranteed Service Levels to apply in Queensland from 1 July 2010*, page 10.

requires sophisticated systems capable of capturing short outages at the feeder or customer level.

- 4.39 Under the existing ESS Code framework, PWC reports on poorly performing feeders within the interconnected and radial networks. Feeder performance on the interconnected network is limited to the Darwin (urban) and Alice Springs systems while performance on the radial networks relates to the Darwin (rural), Katherine and Tennant Creek systems.

Commission's view in the Issues Paper

- 4.40 The Commission considered that SAIDI and SAIFI are reasonable indicators of DNSP reliability, as they are used and understood by the electricity industry. The Commission also considered that reporting on feeder performance is a reasonable indicator of DNSP reliability, in particular to identify areas of poor performance within a network.

Views in submissions

- 4.41 PWC supports the use of SAIDI and SAIFI as measures of network service performance since they are widely used reporting measures. However, PWC is of the view that individual feeder performance should not be used as an indicator of network reliability. Setting targets for individual feeders could result in uneconomic investment decisions whereby high levels of investment might be required for a small proportion of its customer base. Rather, PWC proposed setting annual SAIDI and SAIFI targets by feeder type (CBD, urban, rural short and rural long) to identify worst-performing feeder types.

Response to views in submissions and further analysis

- 4.42 The Commission considers there is merit in the PWC proposal to establish SAIDI and SAIFI targets by feeder type as this would recognise the level of reliability for different parts of the power system. However, the Commission does not agree with PWC that this approach would identify worst-performing feeder types as reliability targets by feeder type would be based on average performance and would not provide specific information on poor performing feeders.
- 4.43 The Commission is of the view that reporting on feeder performance is important to identify those feeders with a level of performance that is well below what is expected for a particular feeder type or in a particular area. The Commission is not convinced that poor feeder performance targets might lead to uneconomic outcomes as the targets are set for different feeder types at a level well below that of average reliability targets.
- 4.44 The Commission considers that the targets for poorly performing feeders should be set according to feeder type such as CBD, urban, rural short and rural long (rather than interconnected and radial networks) so that all aspects of network reliability performance are aligned.

Commission's draft recommendation

- 4.45 The Commission's draft recommendation is for the Territory's standards of service arrangements to include the following distribution reliability performance measures:
- SAIDI and SAIFI measures should be used to report distribution network reliability performance, as they are commonly used measures of network reliability.
 - SAIDI and SAIFI measures should be used to establish targets for average distribution network reliability performance.
 - SAIDI and SAIFI measures should be used to establish targets for feeder reliability performance (for CBD, urban, rural short and rural long feeders).
 - the Commission does not consider that CAIDI is currently a useful indicator of distribution network reliability and sees no benefit in continuing to report this measure.

Transmission network reliability measures

- 4.46 There is no specific or statutory distinction between transmission and distribution in the Territory. Nonetheless, a transmission network overlay exists to connect generation to major load centres. In the Darwin-Katherine system, the Channel Island, Weddell and Berrimah power stations are connected to primary load centres via two 132 kV transmission lines and seven 66 kV zone substations. This network is also connected with power stations and loads at Katherine and Pine Creek via a single 132 kV line from Channel Island. The transmission elements of the Territory system comprise 730 km of high voltage transmission lines, or about 10 per cent of total line length.
- 4.47 Elsewhere in Australia, there is a clear distinction in the operation and ownership of the transmission and distribution elements of an electricity system. Transmission networks carry electricity at high voltage from the generator to the distribution network, where the electricity is converted to a lower voltage and transported to customers.
- 4.48 Currently, performance reporting requirements in the Territory do not require PWC Networks to separately report on transmission and distribution reliability. The reliability of the transmission element of the system is measured as a component of the network SAIDI, SAIFI and CAIDI indicators.

Commission's view in the Issues Paper

- 4.49 The Commission sought comment on whether different reliability standards should be developed for transmission elements of the Territory electricity system.

Views in submissions

- 4.50 PWC considered that measuring transmission reliability in the Territory would be of limited value as transmission is a very small component of the electricity system. In addition, although transmission and distribution networks were separate businesses in the NEM, they were combined in the Territory.
- 4.51 Similarly, Treasury did not support separate indicators for transmission and distribution networks. Transmission specific indicators may only be considered in the event of transmission and distribution businesses being split.

Response to views in submissions and further analysis

- 4.52 The Commission is of the view that the transmission network in the Territory represents a significant element of the network and system. In particular, transmission network performance is important due to the radial design of the system that can mean a transmission fault or problem can have significant adverse consequences for customers. The Darwin-Katherine system black on 30 January 2010 highlights the potential widespread impact of a failure of the transmission element of the network. As a result, the Commission considers that there is a good case for measuring transmission reliability performance.
- 4.53 The Commission notes that the AER uses reliability standards for TNSPs in the NEM as part of the network regulation process, with performance measures including:³⁶
- transmission line, circuit and transformer availability³⁷;
 - average outage duration; and
 - frequency of outages.
- 4.54 The AER reserves the right to use other methods, and may add or amend reliability indicators at the TNSPs' request.

Commission's draft recommendation

- 4.55 The Commission's draft recommendation is that specific reliability indicators should be established for the transmission elements of the Territory's electricity networks. The proposed transmission measures are consistent with those established by the AER, insofar as they are relevant to the Territory:
- transmission line, circuit and transformer availability;
 - average outage duration; and
 - frequency of outages.
- 4.56 The Commission would consult with PWC Networks to identify the transmission elements of the network.

Quality of supply measures

- 4.57 Quality of supply refers to the electrical specification of supply, and is measured by such indicators as voltage levels, frequency and harmonic content. Poor quality of supply shows up as dimming, flickering or overly bright lights, motors speeding up or slowing down (e.g. on ceiling fans), and damage to electrical appliances. Quality of supply is increasingly of concern to industrial and commercial customers as voltage sensitive appliances and equipment become more prevalent.

³⁶ Australian Energy Regulator, 2009, State of the Energy Market, page 141.

³⁷ A transmission line can be defined as a component part of system extending between adjacent stations or from a station to an adjacent interconnection point. A line may consist of one or more circuits. Availability for a line refers to the availability of all circuits that comprise that line, while circuit availability considers the availability of each circuit.

- 4.58 Generators, TNSPs and DNSPs are generally obliged to operate their equipment within defined technical parameters so as to keep the power system in a secure and reliable operating state. However, quality of supply is difficult to measure, and there are no commonly used indicators for monitoring and reporting the response to, and prevention of, quality of supply problems.
- 4.59 The Queensland regulator considered the possibility of introducing a new voltage supply measure as part of a recent investigation of DNSP service standards. However, the conclusion was that further investigation was required before any quality of supply scheme was introduced.³⁸
- 4.60 The Western Australian DNSP monitors quality of supply using specially designed meters deployed in various parts of the low voltage distribution network. The placement of the meters allows collection of unbiased data for regulatory compliance purposes. The number of meters has been increased from 28 to 56, but the deployment will not be further expanded due to the option of smart meters being considered.³⁹
- 4.61 The ESS Code currently requires PWC Networks to report the number and nature of complaints by customers about voltage events such as voltage dips, swells and spikes.

Commission's view in the Issues Paper

- 4.62 The Commission expressed the view that specifying specific quality of supply indicators to be reported by generators or the DNSP in the Territory may not be feasible due to difficulties of collecting accurate data.

Views in submissions

- 4.63 PWC reiterated that, although voltage can be measured at individual customer premises, there is no cost effective way of aggregating individual customer voltage data and reporting on it at a system wide level. PWC added that it could not report complaints received on voltage problems as such complaints were based on customers' perception.
- 4.64 In addition, PWC considered that quality of supply indicators were not relevant for generators as they were already required to comply with the technical requirements set out in the Secure System Guidelines, and monitored by System Control.
- 4.65 Treasury considered that the current requirement to report on customer complaints about quality of supply was of limited relevance as it could be expected that many voltage events were not captured through formal customer complaints. However, until smart meters are widely used in the future, Treasury concurred that reporting of customer complaints was adequate.

³⁸ Queensland Competition Authority, April 2009, Review of Electricity Distribution Network Minimum Service Standards and Guaranteed Service Levels to apply in Queensland from 1 July 2010, page 12.

³⁹ Western Power, September 2009, Annual Reliability & Power Quality Report - Financial Year Ending June 2009, page 5.

Response to views in submissions and further analysis

- 4.66 The Commission considers that, at this stage, introducing quality of supply measures may not be feasible given the apparent need for new equipment and reporting systems (i.e. smart meters).
- 4.67 However, the Commission notes that governments across Australia are considering mandating the installation of smart meters for all customers, which should facilitate improved measurement of quality of supply outcomes. Further, the Commission notes the approach adopted by the Western Australian DNSP, Western Power, which has undertaken a limited roll out of smart meters to collect quality of supply data.

Commission's draft recommendation

- 4.68 The Commission's draft recommendation is that PWC Networks investigate the costs and benefits of the limited use of smart meters to collect quality of supply information. The Commission notes that smart meters have been installed as part of the Alice Springs Solar Cities program, and that this may present an opportunity to test the collection of quality of supply data in that area.
- 4.69 In the interim, the Commission considers that monitoring customer complaints relating to quality of supply is the best available approach for measuring quality of supply outcomes. Further, the Commission notes that System Control is establishing a generator compliance monitoring regime that should include consideration of quality of supply outcomes.

Customer service measures

- 4.70 Customer service refers to the interaction between a DNSP or retailer and customers, and is generally monitored by measuring responsiveness and dependability in service provision, and the level of complaints. All Australian jurisdictions impose some requirement for DNSPs and retailers to report customer service performance, with specific indicators for each sector.
- 4.71 In the Territory, the ESS Code establishes customer service measures for the following activities:
- the number of connections to the network not provided within a specified time frame;
 - the number of telephone calls responded to within 20 seconds from when the customer chooses to speak to a human operator; and
 - the number of complaints about DNSP and retail activities.
- 4.72 The customer service reporting arrangements in the Territory do not distinguish between DNSP and retailer customer service.

Commission's view in the Issues Paper

- 4.73 The Commission considered there was a case for establishing specific measures for retailers and PWC Networks.

4.74 Possible customer service measures for PWC Networks were:

- time taken to answer telephone calls (number of calls not answered within 20 seconds of a customer choosing to speak to a human operator), and the number of calls abandoned or that drop out;
- number of disconnections and reconnections; and
- the number of new connections not provided within the specified timeframe.

4.75 Possible customer service measures for retailers were:

- time taken to answer telephone calls, and the number of calls abandoned or that drop out;
- the number and type of complaints about retail services; and
- the time to respond to written enquiries.

4.76 The Commission also raised the option of establishing customer service measures relating to customer hardship consistent with other Australian jurisdictions and the AER's proposed framework as part of the National Energy Customer Framework.⁴⁰ Possible measures identified by the Commission were:

- disconnections for failure to pay and reconnections in the same name;
- customer service and customer complaints;
- the use of prepayment meters;
- concessions; and
- security deposits.

Views in submissions

4.77 PWC and Treasury support adopting nationally consistent customer service measures for PWC Networks and retailers.

4.78 PWC advised that, due to PWC Networks and PWC Retail sharing a single billing system and call centre, it is unable to separately report on a number of customer service measures.

4.79 PWC supported the establishment of customer hardship measures as long as these measures applied equally to all new entrants. Treasury anticipated that the National Energy Customer Framework being developed by the Ministerial Council on Energy (MCE) could be adopted in the Territory to the extent possible.

Response to views in submissions and further analysis

4.80 The Commission acknowledges that PWC Networks and Retail sharing a single call centre and billing system may pose a significant level of difficulty in separately reporting on customer service indicators such as the time taken to answer telephone calls and the number of calls abandoned.

⁴⁰ Australian Energy Regulator, April 2010, Developing National Hardship Indicators.

Commission's draft recommendation

4.81 The Commission's draft recommendation is that:

- retailers and PWC Networks should report on the average time taken to answer telephone calls, the number of calls not answered within 20 seconds of a customer choosing to speak to a human operator, and the number of calls abandoned. PWC Retail and PWC Networks may report a combined result for this measure until such time as system functionality supports separate reporting;
- PWC Networks should report the number and type of complaints about network services (excluding voltage events);
- PWC Networks should report the number of new connections not provided within 24 hours for reconnection, five business days for a new connection (CBD or urban area) and 10 business days for a new connection (rural area); and
- retailers should report the number and type of complaints about retail services, and the time to respond to written enquiries.

4.82 The Commission considers that measures of customer hardship should be monitored. The proposed measures should be consistent with those in the MCE National Energy Customer Framework:

- disconnections for failure to pay and reconnections in the same name;
- customer service and customer complaints;
- the use of prepayment meters;
- concessions; and
- security deposits.

Setting standard of service targets

Best endeavours approach

4.83 Standards of service for reliability are generally held to be average rather than absolute targets as there are instances where a service provider will not be able to meet a performance threshold. However, over time, the service provider would be expected to achieve a consistent average (rather than absolute) level of service performance. This is known as a best endeavours approach.

Commission's view in the Issues Paper

4.84 The Commission's view in the Issues Paper was to adopt the best endeavours approach when setting average standards of service for reliability and customer service. The Commission considered that the average standards of service are meant to represent the level of service achieved over time, and service performance could be worse in some parts of the system or on certain days due to a particular event (e.g. a cyclone).

Views in submissions

4.85 PWC supported the Commission's proposal for adopting the best endeavours approach when setting standards of service, as absolute targets would likely have a significant financial impact which would eventually be passed on to customers.

- 4.86 Treasury recognised the difficulty in adopting an approach whereby the service provider is required to always meet its targets.

Response to views in submissions and further analysis

- 4.87 The best endeavours approach is based on the premise that the service provider will not always be able to meet its performance target. Rather, performance targets are based on annual average target levels the business is expected to achieve over the course of the year. In addition, setting performance targets on this basis would not have a disproportionate financial impact on customers.

Commission's draft recommendation

- 4.88 The Commission's draft recommendation is that the best endeavours approach be adopted when setting standards of service.

Setting service performance targets

- 4.89 The service performance targets set through the ESS Code are based on service performance in 1999-00, except for some services where accurate data on performance was not available, and the target was based on performance in an alternative later year.
- 4.90 At the time the ESS Code was developed, the Commission considered that the advantages of using past performance information to determine targets was that it implicitly takes into account the operating characteristics of the service provider in question and provides information continuity. The Commission also noted that past performance does not always provide an accurate guide to future performance, particularly if technology changes, or if the service providers face lower incentive to improve service quality.⁴¹

Commission's view in the Issues Paper

- 4.91 The Issues Paper sought comments on the following approaches to setting service performance targets:
- targets based on a multiple year rolling average;
 - targets based on benchmarks; and
 - targets to improve service quality.

Views in submissions

- 4.92 PWC supported the use of either a 3-year or a 5-year average of historical data that has been normalised to consider seasonal events and outages caused by external factors outside the service provider's control.
- 4.93 PWC considers that using benchmarking data to inform performance targets should be limited to being 'directional' (rather than 'deterministic'). PWC did not consider that its performance can be benchmarked against utilities as its operating practices and

⁴¹ Utilities Commission, August 2004, Developing a Standards-of-Service Framework - Issues Paper, page 19.

environmental circumstances were unique to the Territory. PWC argues against the Commission's use of Ergon as a benchmark for reliability performance.

- 4.94 Finally, PWC supports the idea of incorporating improvements in service performance over time as long as the improvements were achievable and took into account customer's willingness to pay.
- 4.95 Treasury saw merit in drawing from all three approaches identified by the Commission in setting standards of service targets.

Response to views in submissions and further analysis

- 4.96 Consistent with practices elsewhere in Australia and overseas, the Commission considers that service targets based on the recent past performance of the service provider is a reasonable approach. The Commission acknowledges that, in developing the ESS Code in 2004, the use of a single year created the potential risk of determining targets based on an atypical year.
- 4.97 The Commission is of the view that using historical performance data should ensure that PWC's average performance is at least maintained to average historic performance levels, without any material deterioration.
- 4.98 A further consideration in setting a target based on an average is that a year of poor performance (or a series of years) would make the target less onerous, leading to a reduction in network performance. The Commission's view is that the risk of potentially lower targets due to a deterioration in performance could be avoided by putting a floor on the target.
- 4.99 When considering benchmarking PWC's performance data, the Commission is not convinced that PWC faces unique challenges relative to other utilities in other Australian jurisdictions. Although there are many challenges in operating a power system in the Territory, the Commission notes that cyclonic and severe storm conditions, termite and bat infestations, and vegetation growth are conditions which are faced by Ergon in Northern Queensland, and Horizon Energy in Western Australia.
- 4.100 The Commission does, however, acknowledge that neither Ergon or Horizon Energy is a perfect match, albeit considering Ergon as the best available given data constraints. Nonetheless, the Commission considers that benchmarking PWC's reliability performance with interstate peers is a worthwhile exercise.

Commission's draft recommendation

- 4.101 The Commission's draft recommendation is that service performance targets be determined as follows:
- for distribution and transmission networks performance targets, based on a five year average of historical adjusted (using the 2.5 beta method) performance data; and
 - for generation performance targets, using good industry practice for assessing appropriate USE levels for a region or system.
- 4.102 To avoid the risk of potentially lower targets due to a deterioration in performance, the Commission recommends that a floor be set on the target.

4.103 The Commission also recommends that benchmarking of PWC's performance against that of relevant utilities elsewhere in Australia be used when considering service performance targets.

Customers' preference and willingness to pay

4.104 The level of reliability and quality of electricity supply is determined by system planning and design and operating practices, which in turn influence capital and maintenance expenditure decisions, and the price of electricity for customers. A key consideration of regulators in undertaking network regulation is to define a standard of service which requires a trade off between desired service performance and the cost borne by customers.

4.105 Methods of identifying the appropriate balance between an acceptable level of service performance over time and cost include an economic assessment of the value of customer reliability, undertaking customer preference surveys or customer consultation.

Commission's view in the Issues Paper

4.106 In the Issues Paper the Commission sought comment on the merits in assessing Territory customer preferences and willingness to pay for a certain level of electricity service performance to inform the development of standards of service. The Commission also queried as to whether there should be an explicit obligation on electricity service providers to consult with customers on their preferences for standards of reliability and quality of supply, given the cost of supply and price implications.

Views in submissions

4.107 PWC did not support the use of customer surveys to determine service targets. PWC noted that customer surveys have limitations, including:

- they are expensive;
- they are not always appropriate on equity grounds; and
- they are often used by placing a monetary value to service improvements but ignore the fact that retail prices for small customers are subsidised.

4.108 In addition, PWC contends that it was difficult to translate customers' willingness to pay into meaningful targets.

4.109 Finally PWC is of the view that there should not be any obligation on electricity service providers to consult with customers as it was not consistent with practices in other Australian jurisdictions.

4.110 Treasury suggested that there is a need to undertake an economic assessment of the value customers place on reliability performance relative to their willingness to pay. Treasury suggested that PWC develop a cost reflective pricing framework which would signal to customers the current level of subsidies being applied and would determine customers' willingness to pay for an improved standard of service.

Response to views in submissions and further analysis

4.111 The Commission notes that evidence of the use of customer surveys in South Australia, Victoria and Queensland does not provide a clear case for their effectiveness, and the results were difficult for the regulators to translate customer preferences into service targets. The Commission is not convinced that, given the possible cost of undertaking customer surveys, meaningful information on consumer preferences can be extracted at this stage.

Commission's draft recommendation

4.112 The Commission is of the view that methods for accurately assessing customer preferences and their willingness to pay should be reconsidered at a later stage.

Exclusion of events

4.113 Service performance (whether generation, networks or retail) can be affected by events that are outside the reasonable control of the service provider, such as extreme acts of nature (e.g. fire, flood or tempest), industrial action or terrorism. These are events that a service provider cannot reasonably be expected to prevent or avoid, at least without substantial capital investment.

4.114 Standards of service arrangements commonly define excluded events for the purposes of determining service targets, and reporting on service performance. The common reasons for adjusting service performance targets are whether an outage is defined as a major event or whether an outage is planned.

4.115 The ESS Code allows PWC to adjust its service performance by excluding the effects of severe interruptions to supply using the 2.5 beta method. However, the ESS Code requires both the adjusted and unadjusted reliability data to be reported.

Commission's view in the Issues Paper

4.116 The Commission's preliminary view was that:

- a defined list of excluded events be used for the purpose of reporting service performance, and
- the 2.5 beta method be used for adjusting performance for the purpose of setting service targets.

Views in submissions

4.117 PWC considered that the same exclusion method should be used for the purposes of reporting performance and setting service targets.

4.118 PWC supported the use of the 2.5 beta method as it is a well established and widely accepted statistical method. PWC also suggested that a subjective list of excludable events could supplement the 2.5 beta method by excluding events which are outside the control of the firm.

Response to views in submissions and further analysis

4.119 The Commission accepts PWC's view that, for the sake of simplicity, the 2.5 beta method should be used for reporting and for setting service targets.

4.120 However, the Commission does not see any merit in having a subjective list of excludable events for setting or reporting service performance. When using the 2.5 beta method, major events, such as extreme weather events should automatically be excluded through application of the method.

4.121 The Commission is of the view that the requirement on PWC to report both adjusted and unadjusted performance should be retained. PWC should also provide detailed comments on those excluded events.

Commission's draft recommendation

4.122 The Commission's draft recommendation is:

- the 2.5 beta method should be used to adjust network performance data for both reporting performance and setting service targets;
- PWC Networks should be required to report adjusted and unadjusted performance; and
- PWC Networks should be required to provide detailed comments on those events which are excluded using the 2.5 beta method.

Planned and unplanned outages

4.123 Interruptions to supply can be planned or unplanned. The ESS Code does not distinguish between planned and unplanned outages.

Commission's view in the Issues Paper

4.124 The Commission considered that separately reporting the contribution of planned and unplanned outages to overall system reliability performance could provide useful information on condition of electricity assets, particularly if the cause of the unplanned outages was also identified.

Views in submissions

4.125 PWC supported the reporting of planned and unplanned outages for networks only, as the data was readily available.

4.126 Treasury supported the reporting of planned and unplanned outages for networks and generation.

Commission's draft recommendation

4.127 The Commission's draft recommendation is that:

- generators should report on planned and unplanned generation outages; and
- PWC Networks (transmission and distribution) should report planned and unplanned network outages.

Data segmentation

4.128 The ESS Code requires that performance data be segmented into the following categories:

- regional categories – Darwin, Katherine, Tennant Creek, Alice Springs and other;

- feeder categories - urban and rural; and
- customer categories – residential customers and commercial/industrial customers.

Commission's view in the Issues Paper

4.129 In the Issues Paper, the Commission sought comment on whether service performance data should be reporting using nationally consistent categories.

Views in submissions

4.130 PWC supported the reporting of service performance data using nationally consistent categories on the condition that the data segmentation was applicable and could be obtained from the existing systems.

4.131 PWC proposed that the performance data be segmented in the following categories:

- network reliability data should be segmented by feeder type (CBD, urban, rural short and rural long), by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs) and if outages were planned or unplanned;
- network quality of supply data (complaints about quality of supply) should be segmented by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs);
- PWC Networks should report complaints received relating to network activities by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs);
- PWC Networks should report customer connection data by location - urban, rural or remote;
- retailers should report customer service complaints received relating to retail activities by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs); and
- telephone calls answered within 20 seconds and telephone calls abandoned should be reported on a Territory wide basis.

4.132 PWC did not propose any data segmentation for generation on the grounds that it did not consider that service targets should be set for generation and that generation performance should be reported using EFOF and EAF.

4.133 Treasury was of the view that the Territory should be consistent with the national arrangements, and supports segmentation of performance data into nationally consistent categories.

Response to views in submissions and further analysis

4.134 The Commission considers that most of PWC's proposals for data segmentation are appropriate. However, the Commission also considers that generation performance should be reported for each power system.

Commission's draft recommendation

4.135 The Commission's draft recommendation is that performance data be segmented in the following categories:

- distribution network reliability data should be reported by feeder type (CBD, urban, rural short and rural long), by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs) and if outages were planned or unplanned;

- generation reliability data should be reported by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs);
- transmission reliability data, planned and unplanned, should be reported for network assets connecting major generation and load centres;
- distribution network quality of supply data (complaints about quality of supply) should be segmented by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs);
- PWC Networks should reports complaints received relating to network activities by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs);
- PWC Networks should report customer connection data by location - urban, rural or remote;
- retailers should report customer service complaints received relating to retail activities by power system and sub-system (Darwin, Katherine, Tennant Creek and Alice Springs); and
- telephone answering time (average answer time and number of calls not answered within 20 seconds of a customer choosing to speak to a human operator) and calls abandoned should be reported by on a Territory wide basis.

CHAPTER 5

Implementation in the Northern Territory

Matters relevant to the implementation of the proposed standards of service arrangements

- 5.1 The terms of reference require the Commission to recommend a course of action and provide detailed plans for implementation of that recommendation.
- 5.2 The Commission does not yet have a complete understanding of the implementation requirements for the proposed standards of service arrangements, and cannot provide detailed implementation plans at this stage. The Commission considers that the key implementation considerations include:
- legislation and statutory arrangements to apply the proposed standards of service framework;
 - methodology for determining service performance targets;
 - monitoring and reporting arrangements;
 - assurance about service performance data quality used for reporting and determining service performance targets; and
 - service providers subject to the proposed standards of service framework.

Legislation and statutory requirements

- 5.1 The Commission established the existing ESS Code under statutory authority provided in the *Utilities Commission Act* [ss6 and 24], *Electricity Reform Act* [s92], the *Electricity Networks (Third Party Access) Act* [s10] and the clause 9A of the Electricity Networks (Third Party Access) Code [cl.9A].
- 5.2 The Commission considers that aspects of the proposed standards of service arrangements could potentially be implemented using the existing legislation. In particular, the Commission potentially has the ability to define a USE target for the market systems through the System Control Technical Code. Also, the Commission could apply the network related aspects of the proposed standards of service arrangements through the *Electricity Networks (Third Party Access) Act* and Code, as part of the network regulation process.
- 5.3 However, the Commission's view is that the proposed standards of service arrangements for the Territory should be established through an explicit statutory provision or regulatory instrument that establishes a clear head of power for the arrangements. In particular, the Commission notes that the existing legislative framework does not provide authority to apply service performance arrangements to retailers, or allow for the development of comprehensive performance monitoring and reporting arrangements.

- 5.4 In addition, the Commission notes that this head of power could incorporate a head of power for any customer service incentive scheme.
- 5.3 The options identified by the Commission are:
- for the Commission to include an obligation in the licence granted by the Commission to each service provider requiring them to comply with the proposed standards of service arrangements;
 - for the Minister to make a new Regulation under the *Electricity Reform Act* giving the Commission the authority to make a Code establishing the proposed standards of service arrangements; or
 - for an amendment to the *Electricity Reform Act* to include a provision(s) establishing the proposed standards of service arrangements.
- 5.1 The Commission could include new obligations in the licenses held by service providers. However, using the licensing framework to establish the standards of service framework has the potential to create regulatory uncertainty, as the obligations would be specific to each firm, rather than to the industry sector, thereby creating the possibility of differing service performance arrangements for individual firms.
- 5.4 At this stage, the Commission considers that a new regulation under the *Electricity Reform Act* is the most appropriate way of establishing the proposed standards of service arrangements.
- 5.5 The Commission notes that the National Electricity Rules [6.6.2] require the AER to develop and publish a service target performance incentive scheme to provide incentives (which may include targets) for DNSPs to maintain and improve performance.
- 5.6 The Commission considers that a specific head of power for establishing a clear standards of service framework would deliver greater regulatory certainty, and support new investment. In particular, the Commission considers that legislation is required to clarify performance reporting and compliance monitoring (data quality) arrangements, and financial incentive arrangements (e.g. for a GSL scheme). The Commission will consult further on this matter before recommending more detailed implementation plans as part of the Final Report.

Determining service performance targets

Generation performance targets

- 5.7 The Commission is proposing establishing a generation service performance target by defining a minimum level of unserved energy (USE) for each market system.
- 5.8 The NEM Reliability Standard of 0.002 per cent USE represents the statistical risk of the electricity supply not meeting customer demand over time, and the minimum acceptable level of bulk electricity supply delivered to consumers in a region measured against the total demand of consumers in that region.⁴²

⁴² Australian Energy Market Commission Reliability Panel, Annual Market Performance Review 2008-09, page 17.

- 5.9 AEMO uses the Reliability Standard to calculate the minimum reserve level for each region, taking into account plant performance characteristics (e.g. forced outage rates), demand characteristics (e.g. weather) and the capability of the network. AEMO then compares forecast and actual reserve levels with the minimum reserve level to manage the risk that the Reliability Standard will not be met at the time of dispatch. Historically, the NEM has performed well against the Reliability Standard.⁴³
- 5.10 The expectation is that firms will supply generation capacity (by building new capacity, or offering demand side management response) necessary to meet the minimum reserve level of capacity. Incentives for supplying this capacity are the Reliability Settings (the market price cap, the cumulative price threshold and the market price floor) of the NEM wholesale market mechanism. AEMO has the responsibility of intervening to supply capacity if there is a risk that there will be insufficient capacity to meet the minimum reserve levels, and a failure to meet the USE target.
- 5.11 Performance against the Reliability Standard is measured over the long-term using a moving average of the actual observed levels of annual USE for the most recent ten financial years. Operationally, it should be planned to achieve an expected USE that is within the Reliability Standard in each financial year, for each region and for the NEM as a whole.⁴⁴
- 5.12 The level of the Reliability Standard is set at 0.002 per cent USE per year, which is equivalent to:⁴⁵
- a system wide outage of 10.5 minutes at an average level of system demand;
 - an outage of approximately 18 per cent of the demand for 1 hour at an average level of system demand;
 - a system wide outage of approximately 7 minutes at peak demand; or
 - approximately 12 per cent of the demand for 1 hour at peak demand.
- 5.13 A USE target is calculated by assessing the change to average capacity (over time) required to meet a particular level of customer demand. For example, if customer energy demand was 100 000 MWh over the long term, a USE target of 0.002 per cent would require the supply of no less than 99 998 MWh, which can be translated into installed generation capacity. This involves analysis of the investment requirements to achieve a particular reliability outcome – the AEMC Reliability Panel undertook this analysis for the NEM as part of the Reliability Standard and Reliability Settings Review completed in April 2010.
- 5.14 The Commission considers that a USE target should be determined for the market systems, taking into account the approach adopted by the AEMC Reliability Panel, including consideration of reliability and security of supply in the Territory, and the financial consequences of a particular USE target. The process would involve input

⁴³ Australian Energy Market Commission Reliability Panel, April 2010, Reliability Standard and Reliability Settings Review: Final Report, page 9.

⁴⁴ Ibid, page 11.

⁴⁵ Ibid, pages 17-18.

with PWC, and broader public consultation once the range of options is identified to obtain input to the reliability/security and investment outcomes.

Network performance targets

- 5.15 The Commission is proposing that distribution network service performance targets be defined for each market system, and for each feeder type (CBD, urban, rural short and rural long). Additionally, the Commission is proposing that transmission network service performance targets be defined for transmission assets. In both cases, the targets are to be set based on historical reliability outcomes.
- 5.16 The Commission will take these network performance targets into consideration as part of the assessment of network capital and operating costs for the next regulatory period from July 2014.

Customer service performance targets

- 5.17 The Commission is not proposing any specific customer service performance targets. However, the Commission has proposed that certain network related customer services could be covered by a GSL scheme.
- 5.18 Further, the level of network related customer service performance will be considered as part of the assessment of network capital and operating costs for the next regulatory period. There is no intention at this stage to establish average customer service performance outcomes.

Monitoring and reporting

- 5.19 The monitoring and reporting aspects of a standards of service framework deal with the arrangements for:
- what measures are reported and when data is reported;
 - how data is treated, including excluded events and segmentation of data;
 - who receives data, including public reporting; and
 - compliance measures, such as auditing to ensure data is accurate and a service provider is complying with the requirements of the framework.
- 5.20 The ESS Code requires PWC to provide the Commission with an annual report (by 30 October) on the service performance achieved for each performance measure in the most recent financial year.⁴⁶ The Commission has set out the procedures and requirements for annual reporting in a Guideline.⁴⁷
- 5.21 The Commission may appoint an independent auditor to audit PWC's compliance with the ESS Code, such as data collection and reporting systems, and accuracy of data.⁴⁸
- 5.22 The Commission considers that the statutory instruments (legislation, codes or guidelines) establishing the proposed standards of service framework would define the

⁴⁶ Utilities Commission, December 2005, Electricity Standards of Service Code, cl.8.1.

⁴⁷ Utilities Commission, March 2006, Electricity Standards of Service Code Procedural Guideline.

⁴⁸ Utilities Commission, December 2005, Electricity Standards of Service Code, cl.8.2.

measures to be reported, treatment of data (e.g. excluded events), reporting of data, and compliance processes.

Availability and quality of performance data

- 5.23 The Commission considers that quality of regulation is dependent on the quality of the information provided by the service provider. Accurate information is necessary for the regulator to set accurate and relevant quality standard levels, and monitor quality on a meaningful and consistent basis over time.
- 5.24 When developing the ESS Code, the Commission noted that there was some uncertainty about the quality of performance data, and that this could mean the service targets may not have been appropriate. The Commission has previously indicated an expectation that the quality of performance data would improve as data collection protocols improved and more robust service performance data accumulates.⁴⁹
- 5.25 Common practice for obtaining certainty about data quality is to undertake an audit of the process and practice involved in collecting and reporting the data. Audit requirements are a feature of most standards of service arrangements.⁵⁰ Depending on the jurisdiction, audit procedures may range from random checks to various degrees of intrusiveness dependent on the accuracy of the information.
- 5.26 PWC supports the audit of its performance data collection and reporting systems. By and large, it considered data to be of an acceptable level of accuracy. PWC conceded that, for some of the measures reported, the data retrieval was not automated and was subject to potential inaccuracies. PWC also commented on the limitations of its current systems (e.g. PWC's single call centre and billing system). These issues were expected to be resolved with the implementation of the Asset Management Capability project and the upgrade of its systems and processes.
- 5.27 The Commission notes that the Western Australia Network Quality and Reliability of Supply Code requires that, in respect of their annual performance reporting, TNSPs and DNSPs arrange for an independent expert to audit the operation of the systems that these entities have in place for monitoring their compliance. The audit is to be carried each year.⁵¹
- 5.28 The AER's Service Standards Guideline states that it will audit the performance standards report provided by the TNSPs to ensure that they have complied with the parameters of their respective revenue caps. The AER also states that it is likely it will engage an expert consultant to check the accuracy of the information.⁵²
- 5.29 The Commission intends initiating regular audits of PWC's data collection systems and processes to obtain reasonable assurance that service performance data is accurate.

⁴⁹ Utilities Commission, December 2005, Electricity Standards of Service 2005-06, page 11.

⁵⁰ For example, see Office of the Tasmanian Economic Regulator, May 2009, Electricity Supply Industry Performance and Information Reporting Guideline. section 4.2.4.

⁵¹ State of Western Australia, Electricity Industry (Network Quality and Reliability of Supply) Code 2005, cl. 26.

⁵² The Australian Energy Regulator, November 2003, *Service Standards Guidelines*, paragraph 4.7, page 12.

Firms subject to standards of service arrangements

- 5.30 PWC is effectively the only firm currently actively operating in the market systems. Although network services are likely to continue to be provided through a monopoly provider, other generators and retailers could enter the Territory electricity market in the future. In fact, in the early years of the current decade, PWC did face generation and retail competition in the Darwin-Katherine system.
- 5.31 PWC considers that all licensees should comply with the standards of service framework as it would consistent levels of service regardless of the service provider. However, PWC suggested that service providers supplying remote communities should be excluded as the provision of services (including service standards) is negotiated through an agreement with the Territory Government. Service performance in such situations may best be dealt with through contractual arrangements between the service purchaser and the service provider.
- 5.32 PWC suggests that standards of service arrangements should apply to both regulated and non-regulated networks, with lower target levels set for the latter to acknowledge the difference in operating environment.
- 5.33 Treasury shared the view that the development of standards of service framework should be flexible so that it could apply consistently to all service providers, and supports that a uniform standards of service framework be applied across non-regulated systems.
- 5.34 The Commission considers that the standards of service framework should apply to all licensed firms operating in the market systems, and supplying customers connected to the regulated networks. Further, the Commission considers that a standards of service framework should have the flexibility to apply to service providers operating in the market systems and to service providers operating in remote and regional centres.

APPENDIX A

SUMMARY OF PRELIMINARY PROPOSALS

Table 1: Summary of preliminary proposals for standards of service arrangements

Proposals	DNSP	TNSP	Generation	Retail
Reliability indicators	Setting standards and reporting performance: <ul style="list-style-type: none"> SAIDI SAIFI Feeder performance 	Setting standards and reporting performance: <ul style="list-style-type: none"> transmission line, circuit and transformer availability; average outage duration; and frequency of outages. 	Setting performance standards: <ul style="list-style-type: none"> maximum permissible unserved energy (USE) Reporting performance: <ul style="list-style-type: none"> SAIDI SAIFI EFOF EAF 	NA
Quality indicators	<ul style="list-style-type: none"> Complaints about quality 	Same	NA	NA
Customer service indicators	<ul style="list-style-type: none"> Provision of connection services Number of inquiries relating to network activities Complaints received Telephone calls answered within a time limit (no segmentation between networks and retail required) Telephone calls abandoned (no segmentation between networks and retail required) Response to written enquiries within a given time period 	NA	NA	<ul style="list-style-type: none"> Number of inquiries relating to retail activities Complaints received Disconnections/reconnections Telephone calls answered within a time limit (no segmentation between networks and retail required) Telephone calls abandoned (no segmentation between networks and retail required)
Hardship Indicators				Possible indicators: <ul style="list-style-type: none"> disconnections for failure to pay and reconnections in the same name; customer service and customer

Proposals	DNSP	TNSP	Generation	Retail
				complaints; <ul style="list-style-type: none"> the use of prepayment meters; concessions; and security deposits.
Service targets	Service targets take into account: <ul style="list-style-type: none"> Historical performance (5 year average), Comparison with peers in other jurisdictions A floor be set to avoid deterioration of performance. 	Same	Based on historical data	Same
Excluded events	<ul style="list-style-type: none"> Exclude events using the 2.5 beta method for setting targets and reporting performance Reporting for adjusted and unadjusted data Detailed comments about excluded events 	Same	NA	NA
Data segmentation	<ul style="list-style-type: none"> Segment data by power system and sub-system – Darwin, Katherine, Tennant Creek and Alice Springs Segment data by feeder – CBD, urban, rural short and long Planned and unplanned outages 	<ul style="list-style-type: none"> Planned and unplanned outages 	NA	<ul style="list-style-type: none"> Segment data by power system and sub-system
Audit/monitoring	<ul style="list-style-type: none"> Requirement to audit data quality 	Same	Same	Same