

# **Northern Territory Utilities Commission**

Review of the Northern Territory Electricity  
Standards of Service and Guaranteed Service  
Level Codes

May 2017

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## 1 Introduction

The Northern Territory (NT) Utilities Commission (Commission) has requested CQ Partners to undertake a review of the NT's Electricity Standards of Service (ESS) Code and Guaranteed Service Level (GSL) Code to ascertain consistency with other national electricity market (NEM) jurisdictions in addition to ensuring a pragmatic approach to improved customer service. Based on the review findings, CQ Partners have made recommendations in this report to ensure the Codes are consistent with a nationally unified approach. Compliance with the amended Codes is to commence in the third quarter of 2017.

This review will cover:

- The degree of consistency of the performance indicators in the ESS Code for generation, transmission, distribution and retail, with other NEM regions;
- The degree of consistency of the minimum service criteria, associated thresholds and payment levels in the GSL Code with other NEM regions;
- Detail the differences in reporting and measures with other NEM jurisdictions and make recommendations as to whether the NT region would benefit by aligning with other NEM regions;
- Recommendations as to whether certain measures can be removed or amended/incorporated to ensure progression towards a nationally consistent approach;
- The relevance of performance targets to continued improvement of service to customers.

## 2 Scope of works

The following scope of works was provided by the Commission as a basis for this report:

- Initial kick-off meeting to establish key stakeholders;
- Review of ESS and GSL Codes against other jurisdictions with a focus on NECF jurisdictions to provide a more nationally consistent outcome;
- Document variations with other jurisdictions;
- Review submissions received post 25 March;
- Consider submissions and review to make recommendations for changes to ESS & GSL Codes;
- Produce draft report;
- Review draft report with key stakeholders;
- Finalise report and present to the Commission.

### 3 Approach

To verify alignment with a nationally unified approach, the NT ESS and GSL Codes were assessed against those implemented in other NEM regions that have adopted the National Electricity Customer Framework (NECF). Those regions include South Australia (SA), New South Wales (NSW), Tasmania (TAS) and Queensland (QLD). We then selected SA as the primary region of comparison as it is the lead legislator state for regulatory instruments such as the NECF. A comparison with QLD Codes was also undertaken as it is an adjoining NEM region and is geographically dispersed much like the NT in terms of remote communities and large remote mining loads.

CQ Partners consulted with the Power and Water Corporation (PWC) and Territory Generation to ascertain their views of the ESS and GSL Codes into the future with regards to network transmission, distribution and generation respectively.

In undertaking our review, the following regulatory bodies and instruments were referenced:

- Northern Territory Government
  - Electricity Standards of Service (2012)
  - Guaranteed Service Level Code (2012)
- Australian Energy Market Commission (AEMC)
  - The National Electricity Rules version 89
- QLD Competition Authority (QCA)
  - QLD Electricity Distribution Network Code
- Essential Services Commission of SA (ESCOSA)
  - SA Electricity Distribution Code July 2015
- Australian Energy Regulator (AER)
  - Service Target Performance Incentive Scheme (STPIS)

## 4 Electricity Standards of Service Code - Overview

The ESS Code establishes a process for setting standards of service and performance indicators for the electricity supply industry in the NT. The Code sets out the definition of the performance indicators and targets of the indicators to be reported on by electricity generators, network (transmission and distribution) providers and retailers.

### 4.1 Transmission Network Performance Indicators

#### Adjusted performance indicators

Under clause 6.2.3 of the ESS Code an electricity entity may only exclude a network outage from the adjusted category if the event that caused the network outage is listed below and was beyond the reasonable control of the electricity entity:

- Load shedding due to a shortfall in generation;
- A network interruption where more than two business days' notice was given to customers by the electricity entity and the electricity entity has otherwise complied with the relevant requirements of the applicable regulatory instruments;
- The System Controller exercising any functions or powers under an applicable regulatory instrument, a direction by a police officer or another authorised person exercising powers in relation to public safety, but only to the extent that the exercise of that function or power, or the giving of that direction, is not caused by a failure by the electricity entity to comply with any applicable regulatory instrument;
- A traffic accident;
- An act of vandalism;
- A natural event that is identified as statistical outliers using the IEEE 2.5 beta method; or
- A network interruption caused by a customer's electrical installation.

#### 4.1.1 ESS Code - Transmission Reporting Requirements

The current ESS Code<sup>1</sup> comprises 10 indicators to measure the performance of electricity transmission in the NT. These indicators are as follows:

#### Transmission network circuit performance indicators

**ACOD** is the sum of the duration of each circuit outage expressed in minutes divided by the total number of network outages over the applicable reporting period.

**FCO** is the total number of circuit outages over the applicable reporting period.

- Average Circuit Outage Duration (ACOD) Unadjusted
- Average Circuit Outage Duration (ACOD) Adjusted
- Frequency of Transmission Circuit Outages (FCO) Unadjusted
- Frequency of Transmission Circuit Outages (FCO) Adjusted

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<sup>1</sup> Electricity Standards of Service Code, 1 December 2012

### Transmission network transformer performance indicators

**ATOD** is the sum of each transformer outage duration expressed in minutes, divided by the total number of transformer outages over the applicable reporting period.

**FTO** is the total number of transformer outages over the applicable reporting period.

- Average Transformer Outage Duration (ATOD) Unadjusted
- Average Transformer Outage Duration (ATOD) Adjusted
- Frequency of Transformer Outages (FTO) Unadjusted
- Frequency of Transformer Outages (FTO) Adjusted

### Transmission network reliability performance indicators

**SAIDI** is the sum of the duration of each transmission related network interruption expressed in minutes divided by the average number of customers supplied during the reporting period.

**SAIFI** is the total number of transmission related network interruptions divided by the average number of customers supplied during the reporting period.

- System Average Interruption Duration Index (SAIDI) Adjusted
- System Average Interruption Duration Index (SAIDI) Unadjusted
- System Average Interruption Frequency Index (SAIFI) Unadjusted
- System Average Interruption Frequency Index (SAIFI) Adjusted

### Targets

The transmission performance targets are set by the Commission in the approval of Electricity Network Performance Target Standards for the Regulatory period 1 July 2014 to 30 June 2019. The targets are derived from averaging the previous 5 years' data. The table below outlines the current performance targets:

Table 1 Transmission Performance Targets

Performance Indicator	2007-08	2008-09	2009-10	2010-11	2011-12	Average (Target)
Average circuit outage duration (ACOD) - minutes	492.6	133.3	140.3	486	528.7	358.8
Frequency of circuit outage (FCO) - events	31	44	55	41	74	49
Average transformer outage duration (ATOD) - minutes	43	-	159	-	291	123.25
Frequency of transformer outages (FTO) - events	2	0	1	0	1	0.8

Source: Electricity Network Performance Target Standards for the Regulatory period 1 July 2014 to 30 June 2019

#### 4.1.2 AER Transmission Reporting Requirements

To regulate transmission entities, the AER adopts the Service Target Performance Incentive Scheme (STPIS)<sup>2</sup>, requiring transmission network service providers (TNSPs) to report on 12 performance parameters listed below:

- Total Circuit availability (Without exclusions);
- Total Circuit availability (With exclusions);
- Transmission circuit availability - critical circuits (Without exclusions);
- Transmission circuit availability - critical circuits (With exclusions);
- Transmission circuit availability - peak periods (Without exclusions);
- Transmission circuit availability - peak periods (With exclusions);
- Loss of supply event frequency - No of events > 0.05 system minutes (Without exclusions);
- Loss of supply event frequency - No of events > 0.05 system minutes (With exclusions);
- Loss of supply event frequency - No of events > 1.0 system minutes (Without exclusions);
- Loss of supply event frequency - No of events > 1.0 system minutes (With exclusions);
- Average outage duration (Without exclusions);
- Average outage duration (With exclusions);

The exclusions for the performance parameters include:

- Outages on assets that are not providing prescribed transmission services;
- Unplanned outages shown to be primarily caused or initiated by a fault or other third party system;
- Any unplanned outages caused by a direction from emergency services or AEMO;
- Planned outages;
- Transient interruptions (less than one minute duration);
- Force majeure events.

#### Targets

Each performance parameter derives a factor, known as a service standards factor (s-factor). The s-factor is used to adjust the annual revenue allowance of the transmission entity and rewards (or penalises) them for improved (or diminished) service compared to predetermined targets.

#### Power and Water Corporation Regulatory control period commencing 1 July 2019

The AER was officially transferred responsibility for NT electricity network regulation on 1 July 2015. The 2019-24 regulatory control period will be their first determination of PWC's regulatory proposal. Ordinarily the AER would have separate distribution and transmission determinations, however according to the preliminary framework and approach<sup>3</sup> for PWC, electricity transmission assets will

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<sup>2</sup> AER, Electricity transmission network service provider, Service target performance incentive scheme October 2015

<sup>3</sup> Preliminary framework and approach. Power and Water Corporation Regulatory control period commencing 1 July 2019

be regarded as distribution assets and therefore the AER will make only a single distribution determination.

#### 4.1.3 SA Transmission Reporting Requirements

In addition to the AER's regulatory framework, the Essential Services Commission of SA (ESCOSA) provides regulatory oversight for electricity transmission in SA. This is applied through the Electricity Transmission Code which set obligations that a transmission entity must comply with in relation to the provision of transmission services. An updated Code will be commencing on the 1 July 2018. The discussion below provides a summary of this updated Code.

ESCOSA's Electricity Transmission Code takes a different approach to the ESS Code with regards to performance indicators and the setting of targets. Targets are based on an "N" and "N-1" approach, where "N" is the ability to supply the contracted amount of agreed maximum demand connected to the transmission system provided that all the network elements are in service (such that the loss of a single transmission element could cause supply interruption to some customers). "N-1" means the ability of the transmission system to continue to supply the contacted amount of agreed maximum demand connected to the transmission system without interruption should any one element fail.

For example, Group 1 Exit Points supply non-retailer customers (e.g. SA Water) and require "N" reliability for both lines and transformers, whereas Group 5 Exit Points are in the Adelaide CBD and require "N-1" reliability for both lines and transformers.

In addition to this, the transmission entity must provide an explanation of how the rating of transmission lines and transformers is determined, sufficient spare transformers must be available and an emergency transformer plan must be in place.

Each year the transmission entity must report to ESCOSA outlining the actual performance with the standards and provide an explanation of the reason for any non-compliance.

ESCOSA's service standards differ significantly from the performance indicators used in the ESS Code. However, network performance targets should have regard to the nature of the underlying network and, therefore, the area the network supplies. Electricity transmission throughout the NT is relatively small compared with SA and therefore may not require separate reporting standards.

#### 4.1.4 QLD Transmission Reporting Requirements

On a jurisdictional level, QLD does not regulate transmission entities and there are no governing standards. The AER is primarily responsible for regulation of QLD transmission entities.

#### 4.1.5 Power and Water Corporation Submission

PWC have submitted a submission to the Commission in regards to the current review of the ESS Code. Below is an extract of PWC's submission relating to transmission networks:

*"PWC's transmission and distribution systems have now been classified as distribution, for the purpose of regulation in accordance with the National Electricity Rules (the Rules). As a consequence, PWC does not consider the transmission performance indicators to be necessary. Regardless of function, all network elements are included within the distribution reliability statistics and would become subject to the AER's STPIS provisions. PWC therefore considers that the transmission network performance indicators in section 1.4 of the ESS Code and all references to transmission throughout the document should be removed.*

*It should be noted that there is precedent for this "all distribution" approach to monitoring performance in the NEM. Both Ausgrid and ActewAGL have significant assets with a transmission*



*function (termed “dual function” assets) and those organisations are not subject to the AER’s transmission STPIS”*

#### 4.1.6 Recommendation

In the interest of aligning the ESS Code with the NEM and the regulatory oversight that the AER will have across both transmission and distribution networks, we recommend the removal of the transmission performance indicators (ACOD, FCO, ATOD and FTO). The primary reason for this recommendation is that the AER will assess the performance of the transmission assets as part of the distribution performance reporting. The second reason is that the NT’s transmission assets is relatively small in size and therefore is more readily dealt with under the performance and reporting standards that relate to the distribution network.

We have confirmed with PWC System Control as to whether there is any benefit in retaining the transmission indicators (ACOD, FCO, ATOD and FTO). Their view was these summary indicators are not used in day to day network outage diagnosis or planning as System Control utilise network information of a higher granularity. The indicators, SAIDI & SAIFI will be retained given the transmission assets will be reported as distribution assets.

Due to the above recommendation, references to transmission performance indicators and reporting should be incorporated within the distribution regulatory framework.

## 4.2 Distribution Network Performance Indicators

### 4.2.1 ESS Code Distribution Reporting Requirements

#### Performance Indicators

The ESS Code has 5 different performance indicators used to measure the performance of the electricity distribution network throughout the NT. These indicators are shown below:

**SAIDI** is the sum of the duration of each distribution related network interruption expressed in minutes divided by the average number of customers supplied during the reporting period.

**SAIFI** is the total number of transmission related network interruptions divided by the average number of customers supplied during the reporting period.

**Poorly Performing Feeders** is a SAIDI performance ratio, where the SAIDI performance of an individual feeder is divided by the individual feeder SAIDI performance target for that given feeder category. For all feeders whereby this ratio exceeds the SAIDI Threshold<sup>4</sup> in at least 2 consecutive periods, those feeders are deemed to have performed poorly. For all feeders deemed to have performed poorly, PWC must provide details as to why those feeders have performed poorly and actions taken to resolve these issues to the Commission.

- System Average Interruption Duration Index (SAIDI) Unadjusted;
- System Average Interruption Duration Index (SAIDI) Adjusted;
- System Average Interruption Frequency Index (SAIFI) Unadjusted;
- System Average Interruption Frequency Index (SAIFI) Adjusted; and
- Poorly Performing Feeders.

The adjusted performance indicators reflect outages as outlined in 4.1.1.

Together, SAIDI and SAIFI measure the duration and frequency customers are without electricity supply. These measures are consistent with other industry standards, including The Institute of Electrical and Electronics Engineers (IEEE) Standards, which provide a set of terms and definitions for electricity supply service standards.

#### Feeder Categories

Outlined in the ESS Code Feeder Category, published on the 1 December 2012, are guidelines for feeder categories and definitions used to segment the distribution performance indicators. Table 2 below outlines these feeder categories:

Table 2 Electricity Standards of service Code Feeder Category Guidelines

Type	Description
<b>CBD feeders</b>	Will include those individual feeders that are not urban feeders, mixed feeders, rural short feeders, or rural long feeders that predominately supply commercial, high rise buildings through an underground distribution network containing significant interconnection and redundancy compared with urban areas
<b>Urban feeders</b>	Will include those individual feeders that are not CBD feeders mixed feeders, rural short feeder, or rural long feeder with actual maximum demand over the reporting period per total feeder route length greater than 0.12 megavolt amperes per

<sup>4</sup> SAIDI Threshold is multiple of a distribution network feeder's target standard as directed by the Commission.

Type	Description
	kilometre.
<b>Rural short</b>	Will include those individual feeders that are not CBD feeders, urban feeders, mixed feeders or rural long feeders with a total feeder route length of less than 200 kilometres.
<b>Rural long</b>	Will include those individual feeders that are not CBD feeders, urban feeders, rural short feeders or mixed feeders with a total feeder route length of greater than 200 kilometres.
<b>Mixed feeders</b>	Will include those individual feeders determined by the Commission as being 'Mixed' and categorised into a feeder category in accordance with clause 2.3

Source: *Electricity Standards of Service Code, Feeder Category Guidelines*

## Targets

The ESS Code requires targets to be met for the SAIDI and SAIFI adjusted distribution performance indicators. The targets are outlined in the Determination Approval of Electricity Network Performance Targets Standards for the Regulatory Control Period 1 July 2014 to 30 June 2019.

Targets were provided to the Commission for review by PWC and determined by taking an average of the past 5 years' performance for each feeder category. The Commission however did not approve the proposed targets for the current regulatory period, on the basis they were not consistent with the objectives of the ESS Code. The approved targets were set by the Commission using an improvement factor on the proposed targets of 5% applicable to CBD, rural short and urban feeders and 10% applicable to rural long feeders. The below table outlines the distribution targets set for the control period 1 July 2014 – 30 June 2019 in addition to the SA distribution targets for the 1 July 2015 to 30 June 2020 period.

Table 3 Distribution targets set for the control period 1 July 2014 – 30 June 2019.

Distribution Targets				
Feeder category	System Average Interruption Duration Index (SAIDI) (Minutes)		System Average Interruption Frequency Index (SAIFI) (Events)	
	NT	SA	NT	SA
<b>CBD</b>	18.8	15	0.4	.15
<b>Urban</b>	136.1	120	2.5	1.3
<b>Rural Short</b>	496.3	220	8.1	1.85
<b>Rural Long</b>	2,164.9	n/a	35.1	n/a

Source: Determination Approval Target Standards

### 4.2.2 AER Distribution Reporting Requirements

As previously mentioned in section 4.1.2, the AER was officially transferred responsibility for NT electricity network regulation on 1 July 2015. The AER develops, administers and maintains a separate distribution STPIS to regulate and oversee electricity distribution companies in Australia.

#### Performance Measures

The STPIS adopts four metrics to regulate and measure performance of distribution entities. The metrics include the SAIFI and SAIDI indicators consistent with the ESS Code. The third metric is Momentary Average Interruption Frequency Index (MAIFI), which is the average number of short interruptions (under one minute) that a customer would experience during each year. However, this is currently only applied to Victorian distributors as they are the only jurisdiction that have adequate monitoring equipment to accurately report momentary interruptions. The fourth metric is customer service measures (telephone answering), i.e. how quickly distributors answer customers' fault lines calls to their call centres. The ESS Code does not currently use this performance metric.

Note, only the unplanned SAIDI and SAIFI excluding interruptions less than one minute or less are included with planned metrics are not included.

The STPIS does not adopt the Poorly Performing Indicator as in the ESS Code.

#### Feeder Categories

The feeder categories used in the STPIS to segment the performance metrics include:

- CBD feeder,
- Urban feeder,
- Short rural feeder,
- Long rural feeder.

The Feeder categories are consistent with the categories as specified in the ESS code with exception of mixed feeders, which are not included.

Definitions of the categories vary slightly from the ESS Code, however are not material in nature except for Urban feeder.

ESS Code definition:

*Urban feeders will include those individual feeders that are not CBD feeders mixed feeders, rural short feeder, or rural long feeder with actual maximum demand over the reporting period per total feeder route length greater than 0.12 MVA/km.*

AER STPIS definition:

*Urban feeder – a feeder, which is not a CBD feeder, with actual maximum demand over the reporting period per total feeder route length greater than 0.3 MVA/km.*

The difference of specified actual maximum demand of 0.12 MVA/km vs 0.3 MVA/km will impact of the classification of some feeders, such that a number of Urban feeders would be re-classified as Short Rural feeders with reduced performance targets linked to them. PWC System Control commented that the increasing prevalence of rooftop solar PV in urban areas is likely to further reduce the rating of urban feeders.

It should also be noted an issues paper was published by the AER January 2017, titled Reviewing the Service Target Performance Incentive Scheme and Establishing a new Distribution Reliability Measures Guidelines. This report identified a number of issues with the current STPIS feeder classifications. Below are the new proposed definitions:

- CBD Feeder – means a feeder in one or more geographic areas that have been determined by the relevant participating jurisdiction as supplying electricity to predominately commercial, high-rise buildings, supplied by a predominantly underground distribution network containing significant interconnection and redundancy when compared to urban areas.
- Urban feeder is a feeder which is not a CBD feeder and has a maximum demand (which can be weather normalised) over the feeder route length greater than 0.3 MVA/km
- Short rural feeder means a feeder with a total feeder route length less than 200 km, which is not a CBD feeder or urban feeder,
- Long rural feeder means a feeder with a total feeder route length greater than 200 km, which is not a CBD feeder or urban feeder.

## Targets

STPIS performance targets for the regulatory control period are based on average performance over the past five regulatory years<sup>5</sup> and must not deteriorate across regulatory years, consistent with the ESS Codes.

### 4.2.3 SA Distribution Reporting Requirements

#### Performance Measures

The Electricity Distribution Code is the legislative instrument used to regulate electricity distribution in SA. Consistent with the ESS Code, SAIDI and SAIFI indices are used as reliability measures to measure the distribution entities sustained interruptions. No equivalent poorly performing indices are used in the SA.

It should be noted that the distribution entity in SA is not required to report on unadjusted indices as in the ESS Code. The SA adjusted figures reflect unplanned supply interruptions on the low voltage and high voltage distribution networks but exclude:

- Any planned supply interruptions and supply interruptions of a duration less than one minute; and
- Any unplanned supply interruptions that qualify as Major Event Days (MEDs).

This is consistent with the ESS Codes outage adjusted performance indicators.

#### Feeder Categories

The feeder categories used in the ESCOSA's Electricity Distribution Code include:

- CBD feeder;
- Urban feeder;
- Short rural feeder; and
- Long rural feeder.

The Feeder categories are consistent with the categories as specified in the ESS Code with exception of mixed feeders, which are not included.

The definitions are an exact match of the current AER STPIS; therefore differences are highlighted in section 4.2.2.

## Targets

The distributor must use its best endeavours to achieve the performance targets listed in table 3 above.

For the 2015-2020 regulatory period ESCOSA's final decision was to continue to require the distribution entity to provide network reliability in line with average historical performance. The decision was based on the continued high levels of general satisfaction with existing reliability levels demonstrated through multiple customer surveys. The most recent five years of reliability performance data is used to set the targets, consistent with the ESS Codes.

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<sup>5</sup> AER, Electricity distribution network service providers, Service target performance incentive scheme, November 2009

#### 4.2.4 QLD Distribution Reporting Requirements

The QLD Competition Authority is the jurisdictional body that regulates electricity distribution across QLD. Two instruments are used for this, the Electricity Distribution Network Code which incorporates the required guaranteed service levels, and the individual businesses Distribution Authority's (Energex and Ergon) which incorporates minimum service standards, similar to the performance indicators used in the Electricity Standards of Service Code (ESS).

##### **Performance Measures**

The Minimum Service Standards defined in the Distribution Authority include both SAIDI and SAIFI metrics, consistent with the ESS Codes. The poorly performing indicator is not included.

Excluded interruptions from the metrics are the following:

- an interruption of a duration of one minute or less;
- an interruption resulting from:
  - load shedding due to a shortfall in generation;
  - a direction by AEMO, a system operator or any other body exercising a similar function under the Act, the NER or the NEL;
  - automatic shedding of load under the control of under-frequency relays following the occurrence of a power system under-frequency condition described in the power system security and reliability standards;
  - a failure of the shared transmission grid; or
  - a direction by a police officer or another authorised person exercising powers in relation to public safety;
- any interruption to the supply of electricity on the distribution entity's supply network which commences on a major event day; and
- an interruption caused by a customer's electrical installation or failure of that electrical installation.

The excluded interruptions are consistent with the exclusions for the adjusted performance indicators. Note there is a requirement to report on adjusted and unadjusted metrics consistent with the ESS Code.

##### **Feeder Categories**

The feeder categories used in the QLD Distribution Authority include:

- CBD feeder,
- Urban feeder,
- Short rural feeder,
- Long rural feeder.

Note: two major distribution entities exist in QLD, Ergon and Energex, definitions vary slightly between the two distribution authorities. This may reflect their individual distribution networks.

These definitions are consistent with the AER STPIS.

##### **Targets**

Targets are defined in the distribution entities Distribution Authority, but it is unclear how the targets are determined.

#### 4.2.5 Power and Water Corporation Submission

Extract from the PWC submission:

*“The definitions of feeder types used in the ESS Code, namely:*

- *CBD*
- *Urban*
- *Rural*
- *Long Rural*

*do not currently align with those in the NEM. PWC considers it is essential that they do align, in order that reliability performance reported to the AER is consistent with, and can be compared with, other distribution businesses.:*

- *PWC also draws attention to the NT of Australia Electricity Standards of Service Code Feeder Category Guidelines published by the UC on 1 December 2012. These guidelines, which are made under the ESS Code, should be subject to review at this time because they act to clarify the application of the code. PWC suggests that these guidelines be amended to align with nationally used definitions.*
- *Discussions at the officer level have indicated that the requirement to provide an annual report to the UC by 1 November each year,<sup>6</sup> could be reduced. PWC notes that the Regulatory Information Notices served upon network companies in the NEM, which require the reporting of similar service information, must be completed and submitted to the AER by 31 October of each year. PWC consider the current timeframe to be reasonable and would suggest that finalising the annual report any earlier would be problematic.*
- *PWC’s propose that the Network reliability targets need to promote performance improvements only if the current performance is less than that considered desirable. Otherwise, they need only be framed to discourage performance deterioration.*
- *PWC notes that the regulatory bodies in the NEM are moving towards a more inclusive regime, where the views of customers and stakeholders are considered when making decisions. Of particular relevance is the approach taken by the Tasmanian Government in setting their jurisdictional distribution reliability standards. PWC supports increased influence over the targets by customers and stakeholders as long as this is supported by fully informed contributions. Therefore, any engagement programs should be appropriately resourced to ensure considered outcomes”*

#### 4.2.6 Recommendations

##### **Performance Measures**

The adjusted and unadjusted USAIDI and USAIFI distribution performance indicators used in the ESS Code are consistent throughout the NEM. For simplicity and to avoid confusion, calculations and definitions have minor variations and should be aligned. Similarly, outage exclusions used for adjusted performance should be aligned to the AER STPIS exclusions as listed below:

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<sup>6</sup> Section 4.1.1 of the ESS Code



- Load shedding due to a generation shortfall;
- Automatic load shedding due to the operation of under frequency relays following the occurrence of a power system under-frequency condition;
- Load shedding at the direction of the Australian Energy Market Operator (AEMO) or a system operator;
- Load interruptions caused by a failure of the shared transmission network;
- Load interruptions caused by a failure of transmission connection assets except where the interruptions were due to inadequate planning of transmission connections and the DNSP is responsible for transmission connection planning;
- Load interruptions caused by the exercise of any obligation, right or discretion imposed upon or provided for under jurisdictional electricity legislation or national electricity legislation applying to a DNSP;
- A major event day.

The AER is presently seeking feedback on its *Issues Paper - Reviewing the Service Target Performance Incentive Scheme and Establishing a new Distribution Reliability Measures Guidelines*. This paper provides the following changes to performance measurement exclusions by the Australian Energy Market Commission (AEMC) for discussion:

- Should catastrophic days be treated differently from "major event days" ;
- Load interruptions caused or extended by a direction from state or federal emergency services, provided that a fault in, or the operation of, the network did not cause, in whole or part, the event giving rise to the direction;
- Further clarification on failure of a transmission assets that was not the result of an act or omission by the distributor;

Whilst the Poorly Performing Feeders metric inconsistent with other regions, we would recommend retaining these measures to assist the Commission in identifying where network issues are located and action to resolve those issues.

### **Feeder Categories**

Feeder categories; CBD feeder, Urban feeder, rural short feeder and rural long feeder align with the NEM. The mixed feeder category as referenced in the ESS Code Feeder Category Guidelines is not commonly used throughout the NEM. We would recommend removal of this category to align with other NEM regions.

ESS Code category definitions<sup>7</sup> for CBD Feeder, Short rural feeder and long rural feeder vary slightly from the NEM. To avoid confusion the definitions should be aligned with the AER STPIS, consideration should also be given to the recent AER review of the Service Target Performance Incentive Scheme<sup>8</sup>.

The table below provides a comparison of the current AER STPIS and ESS definitions.

**Table 4** Feeder Category Definition Comparison

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<sup>7</sup> Northern Territory of Australia, Electricity Standards of Service Code Feeder Category Guidelines, 1 December 2012

<sup>8</sup> AER, Issues paper Reviewing the Service Target Performance Incentive Scheme and Establishing a new Distribution Reliability Measures Guidelines

Feeder Category	AER STPIS Definition	NT ESS Definition
CBD	A feeder supplying predominantly commercial, high-rise buildings, supplied by a predominantly underground distribution network containing significant interconnection and redundancy when compared to urban areas.	Will include those individual feeders that are not urban feeders, mixed feeders, rural short feeders, or rural long feeders that predominately supply commercial, high rise buildings through an underground distribution network containing significant interconnection and redundancy compared with urban areas.
Urban	A feeder, which is not a CBD feeder, with actual maximum demand over the reporting period per total feeder route length greater than 0.3 MVA/km.	Will include those individual feeders that are not CBD feeders mixed feeders, rural short feeder, or rural long feeder with actual maximum demand over the reporting period per total feeder route length greater than 0.12 megavolt amperes per kilometre.
Short Rural	A feeder which is not a CBD or urban feeder with a total feeder route length less than 200 km.	Will include those individual feeders that are not CBD feeders, urban feeders, mixed feeders or rural long feeders with a total feeder route length of less than 200 kilometres.
Long Rural	A feeder which is not a CBD or urban feeder with a total feeder route length greater than 200 km.	Will include those individual feeders that are not CBD feeders, urban feeders, rural short feeders or mixed feeders with a total feeder route length of greater than 200 kilometres.

Source: NT Government, ESCOSA, QCA

The table below list minor changes proposed by the AEMC for feeder category definitions as listed in the *Issues Paper - Reviewing the Service Target Performance Incentive Scheme and Establishing a new Distribution Reliability Measures Guidelines*.

Table 5 AEMC Proposed Feeder Category Definitions

Feeder Category	AER STPIS Definition (Proposed)
CBD	A feeder in one or more geographic areas that have been determined by the relevant participating jurisdiction as supplying electricity to predominantly commercial, high-rise buildings, supplied by a predominantly underground distribution network containing significant interconnection and redundancy when compared to urban areas.
Urban	A feeder which is not a CBD feeder and has a maximum demand (which can be weather normalised) over the feeder route length greater than 0.3 MVA/km.
Short Rural	A feeder with a total feeder route length less than 200 km, which is not a CBD feeder or urban feeder.
Long Rural	A feeder with a total feeder route length greater than 200 km, which is not a CBD feeder or urban feeder.

Source: NT Government, ESCOSA, QCA

Also noting the rating for Urban Feeder in the AER STPIS is 0.3 MVA/km whilst the NT ESS defines them as a rating of 0.12 MVA/km or higher. Given the likely increase in Urban feeders being re-classified as Short Rural feeders with reduced performance targets, we would recommend retaining the NT specific definition of Urban feeders as having a rating of 0.12 MVA/km or higher

## **Targets**

ESS Code targets standards are proposed to the Commission by PWC through averaging the preceding five financial years' data, this is a commonly used standard across the NEM. To ensure these proposed targets are acceptable, customers and stakeholders should be engaged.

### 4.3 Generation Services Performance Indicators

Presently, Territory Generation is required to provide the following under the ESS:

- Availability Factor (AF)
- Unplanned Availability Factor (UAF)
- Equivalent Availability Factor (EAF)
- Forced Outage Factor (FOF)
- Equivalent Forced Outage Factor (EFOF)
- System Average Interruption Duration Index (SAIDI)
- System Average Interruption Frequency Index (SAIFI)

In consultation with Territory Generation, it was noted both SAIDI and SAIFI are reported by PWC as part of their transmission and distribution network service provision functions. Other NEM regions do not require generators to report on these metrics as this is a function of distribution network service providers. The difference being, other regions in the NEM have interconnectivity and redundancy that ensures any generator outages do not result in customer impact, whereas the NT region would experience customer impact as a result of generator outage.

With regards to all other metrics, these are published within the public domain by the NT Utilities Commission. With transition to an open market this information should be regarded as commercial in confidence for generation entities and should be utilised solely by the appointed electricity market operator as a function of managing market supply.

#### **Recommendation**

The Commission should retain the obligation for reporting SAIDI and SAIFI with Territory Generation given the relevance of generator outages and resulting customer impacts which are unique to the NT region.

With respect to all other metrics, the Commission should consider removing this information from the public domain if the NT electricity market is opened up to new generation entities participating within a competitive market. Within the NEM, generators are required to report their availability, planned and unplanned to AEMO for the purposes of managing system security. None of this information is released within the public domain.

## 5 Guaranteed Service Level Code (GSL)

### 5.1 Comparison of Customer Payments with Other Regions

This section provides a direct comparison between small customer payments provided by distribution network service providers (DNSP's) with NEM regions SA and QLD. Any recommended changes are provided in the comments column and summarised at the end of section 7.

#### 5.1.1 Appointments with Customers

Payments here relate to any appointment made with a small customer to visit the customer's site. Payment is made to a customer where the DNSP is late for the appointment.

Table 6 Customer Appointments Payments

Region	Basis	Payment	Comments
NT	If over 30 minutes late for CBD or urban appointment	\$20	Once off charge.
	If over 1 hour late for rural appointment	\$20	
SA	If over 15 minutes late for any appointment	\$30	
QLD	If late or does not attend within time period of 1 day (Ergon Energy), 5 hours (Energex)	\$57	

Source: NT Government, ESCOSA, QCA

#### 5.1.2 New Connections and Reconnections

Payments here apply to reconnections of existing small customer services or establishment of new small customer connections. Payment is made to a customer where the DNSP does not either re-establish the existing connection or a new connection within a specified time period.

Table 7 New Connections & Reconnections Payments

Region	Basis	Payment	Comments
<b>Reconnections</b>			
NT	Within 24 hours of receiving valid request.	\$50 per day up to a max of \$300	Recommend change to align with QLD to allow differences in servicing different feeder types.
SA	Request received prior to 5pm on a business day Same day for CBD/Urban otherwise next business day. Request received between 5pm and 10pm on a business day (& pays distributor's afterhours reconnection charges) Same day for CBD/Urban otherwise next business day. Request received prior after 10pm on a business day Next business day.	\$30 per day	SA provisions are more complex than required for NT.
QLD	CBD/Urban	\$57 per day	

	Same business day if received prior to 12pm otherwise the next business day.  Short Rural  Next business day.  Long Rural  Within 10 business days.		
<b>New Connections</b>			
NT	Within 5 days of receiving valid request (CBD, Urban) or 10 days for Rural.	\$50 per day up to a max of \$300	Recommend change to align with QLD to allow differences in servicing different feeder types.
SA	If not performed on agreed date, or if no date agreed, within 6 business days.	\$65 per day up to a max of \$325	
QLD	Not connected prior to or on the agreed day.	\$57 per day	

Source: NT Government, ESCOSA, QCA

### 5.1.3 Frequency of Interruption Payments

Payments here relate to the number of individual interruptions a small customer experiences at their site within a year.

Table 8 Comparison of Frequency of Interruption Payments

Region	Threshold 1	Threshold 2	Threshold 3	Comments
NT	\$80  (more than 12 for CBD & urban feeders)	\$80  (more than 16 for rural feeders)		Recommend to simplify the process and align with other regions by providing annual payments rather than case by case basis. This would be based on a financial year, with payments provided at least 2 months after the end of the financial year (i.e. commencing no earlier than 1 October).  May also need to review amount of payments to align with QLD. TAS & QLD make payments based on feeder type, whereas SA, Vic and NSW base payments on number of interruptions irrespective of feeder type.
SA	\$100  (between 10 and 12 interruptions)	\$150  (between 13 and 15 interruptions)	\$200  (over 15 interruptions)	Payments made annually with no variation based on feeder type.
QLD	\$114  (CBD & Urban feeders if more than 10 (Energex) or 13 (Ergon))	\$114  (Short rural feeders if more than 16 (Energex) or 21 (Ergon))	\$114  (Long rural feeders if more than 16 (Energex) or 21 (Ergon))	

Source: NT Government, ESCOSA, QCA

### 5.1.4 Duration of Interruptions Payments

Payments here relate to the duration of single-event interruptions a small customer experiences at their site within a year.

Table 9 Comparison of Duration of Interruption Payments

Region	Threshold 1	Threshold 2	Threshold 3	Thresholds 4-5	Comments
NT	\$80 (between 12 and 20 hours)	\$125 (more than 20 hours)			Recommend change to align with QLD and also provide consistency with frequency of interruptions payments which are based on feeder type.
SA	\$100 (between 12 and 15 hours)	\$150 (between 15 and 18 hours)	\$200 (between 18 and 24 hours)	\$405 (between 24 and 48 hours) \$605 (more than 48 hours)	
QLD	\$114 (CBD feeder if over 8 hours)	\$114 (Urban & Short rural feeders if more than 18 hours)	\$114 (Long rural if more than 24 hours)		

Source: NT Government, ESCOSA, QCA

### 5.1.5 Cumulative Duration of Interruptions

Payments here relate to the total duration of interruptions a small customer experiences at their site within a year.

Presently, SA and QLD do not provide payments based on the cumulative duration of interruptions. To provide consistency with other NEM regions, we recommend this category of payment be removed.

## 5.2 Other GSL Considerations

For consistency with other regions, we would recommend the GSL scheme only continue to provide payments to small customers, both residential and small business.

PWC have requested that the requirement for PWC to seek approval from the Commission in regards to natural events detailed in clauses 2.2.2 and 2.2.3. Other regions assessed do not require the DNSP to seek approval for declaration of a natural event as these are determined by an external entity and process. We would recommend for consistency and avoidance of duplication of effort to remove this required from PWC.

The present GSL Code for the NT requires a DNSP to reimburse a retailer for costs incurred through the provision of GSL payments to a small customer. This requirement is inconsistent with the SA and

QLD regions and there is no requirement under the Rules for a retailer to be reimbursed administrative expenses associated with processing GSL payments. We would recommend removal of clause 3.1.6 from the GSL Code to facilitate consistency with other regions.



## 6 Recommendations

This section provides a consolidate summary of our recommendations.

### 6.1 Changes to the ESS Code

Section	Recommendation
Transmission Performance Indicators	<p>In the interest of aligning the ESS Code with the NEM and the AER we concur with PWC in removing the transmission performance indicators (ACOD, FCO, ATOD, FTO), on the basis that they will be covered within the distribution performance reporting. A pragmatic approach would incorporate the transmission performance indicators into the distribution performance standards given the relatively small scale of the NT's transmission assets. PWC System Control have confirmed the transmission indicators are not used in day to day outage diagnoses or planning.</p> <p>If the size of the transmission network does increase through interconnection or additional significant augmentation, then the Commission should review whether the transmission network should have its own performance indicators.</p>
Distribution Performance Measures	<p>The adjusted and unadjusted USAIDI and USAIFI distribution performance indicators used in the ESS Code are consistent throughout the NEM. For simplicity and to avoid confusion, calculations and definitions have minor variations and should be aligned with the STPIS. Similarly, outage exclusions used for adjusted performance should be aligned to the AER STPIS.</p> <p>Whilst the Poorly Performing Feeders metric inconsistent with other regions, we would recommend retaining these measures to assist the Commission in identifying where network issues are located and action to resolve those issues.</p>
Distribution Feeder Categories	<p>ESS Code category definitions<sup>9</sup> for CBD Feeder, Short rural feeder and long rural feeder vary slightly from the NEM. To avoid confusion the definitions should be aligned with the AER STPIS, consideration should also be given to the recent AER review of the STPIS<sup>10</sup>. Also noting the rating for Urban Feeder in the AER STPIS is 0.3 MVA/km whilst the NT ESS defines them as a rating of 0.12 MVA/km or higher.</p> <p>Given the likely increase in Urban feeders being re-classified as Short Rural feeders with reduced performance targets, we would recommend retaining the NT specific definition of Urban feeders as having a rating of 0.12 MVA/km or higher</p>
Distribution Targets	<p>ESS Code targets standards are proposed by PWC to the Commission through averaging the preceding five financial years' data, this is a commonly used standard across the NEM. To ensure these proposed targets are acceptable, the Commission should engage with customers and stakeholders to ensure that the targets are appropriate.</p>
Generation Performance	<p>The Commission should retain the obligation for reporting SAIDI and SAIFI with Territory Generation given the relevance of generator outages and resulting</p>

<sup>9</sup> Northern Territory of Australia, Electricity Standards of Service Code Feeder Category Guidelines, 1 December 2012

<sup>10</sup> AER, Issues paper Reviewing the Service Target Performance Incentive Scheme and Establishing a new Distribution Reliability Measures Guidelines

Indicators	customer impacts, which are unique to the NT region.
	<p>With respect to all other metrics, the Commission should consider removing this information from the public domain if the NT electricity market is opened up to new generation entities participating within a competitive market.</p> <p>With respect to all other metrics, the Commission should consider removing this information from the public domain if the NT electricity market is opened up to new generation entities participating within a competitive market. Within the NEM, generators are required to report their availability, planned and unplanned to AEMO for the purposes of managing system security. None of this information is released within the public domain.</p>

## 6.2 Changes to the GSL Code

Section	Recommendation
Clauses 2.2.2 and 2.3.3	Remove requirement for PWC to seek approval from the Commission in regards to natural events.
Clause 3.1.6	We would recommend removal of clause 3.1.6 (requiring the DNSP to provide payments to retailers for managing GSL payments) from the GSL Code to facilitate consistency with other regions.
Reconnections & New Connections	Recommend change to align with QLD to allow differences in servicing different feeder types
Duration of Interruptions	Recommend change to align with QLD and also provide consistency with frequency of interruptions payments which are based on feeder type.
Frequency of Interruptions	Recommend change to align with QLD and also provide consistency with frequency of interruptions payments which are based on feeder type.
	<p>Recommend to simplify the process and align with other regions by providing annual payments rather than case by case basis. This would be based on a financial year, with payments provided at least 2 months after the end of the financial year (i.e. no earlier than 1 October).</p> <p>May also need to review amount of payments to align with QLD. TAS &amp; QLD make payments based on feeder type, whereas SA, Vic and NSW base payments on number of interruptions irrespective of feeder type.</p>

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