Annual Public Reliability Performance Report

Year ending 30 June 2025

SA Power Networks

Empowering South Australia

Contents

1. Executive Summary

About SA Power Networks

As our State's primary electricity distributor, SA Power Networks plays a vital role in our community, managing the distribution network that delivers electricity to over 900,000 homes and businesses across South Australia. We are recognised as an industry leader in reliability and safety. We are also number one for efficiency on an individual and a state-by-state basis as measured by the Australian Energy Regulator and that has enabled us to keep a lid on our prices over many years - holding increases in line with inflation since 1999. Currently our charges account for less than a third of the average residential electricity bill.

SA Power Networks has the oldest fleet of network assets in the National Electricity Market, and we currently maintain them with a remarkably low level of expenditure with, on average, only 1.5% of our assets being replaced per year. As those assets continue to age and their condition deteriorates, we will need to increase our investment in asset maintenance and replacements to maintain the current level of community safety and supply reliability performance.

Customers and stakeholders

SA Power Networks customers and stakeholders are widespread, diverse and evolving. We serve almost the entire population of South Australia and as the state develops the number of customers we serve continues to grow. Our customers' and stakeholders' expectations are changing rapidly as technological changes sweep through the energy industry. They want to be able to use the network in new ways and be both exporters as well as consumers of energy. They want us to provide better information about outages and predicted restoration times, and they want to understand our costs better. Above all, our customers want us to:

1. maintain safety and reliability;
2. deliver good service;
3. enable the clean energy transition; and
4. keep the price as low as possible, and play our part in improving equity.

Public performance reporting

SA Power Networks is required by our electricity distribution licence to comply with the Electricity Distribution Code (**EDC**). Clause 2.7.4 of the EDC requires us to report directly to the public on:

a) our performance against service standards set out in clauses 2.1 to 2.4 of this industry code during the previous regulatory year

b) our performance in the regions[1] defined by the Commission's Electricity Industry Guideline No. 1 (as amended from time to time), and

c) instances of non-compliance with service standards, the reason(s) for the non-compliance and an explanation of how the distributor intends to improve its performance so as to meet the service standards set out in clauses 2.1 to 2.4.

The following provides an overview of the performance of SA Power Networks in 2024/25 against the standards set out in the EDC clauses 2.1 to 2.4, which includes our reliability and customer service performance for the Year ending 30 June 2025.

With respect to reliability and customer service performance, SA Power Networks:

- met all of its customer service targets established by the Essential Services Commission of South Australia (**ESCoSA**); and

[1] There are ten mainly geographic areas specified in Guideline No.1

- Met all "best endeavours" requirements for reliability (eg outage numbers, duration, feeder type, historical comparison).

Historical trend analysis since 2005-06 shows South Australians typically enjoy significantly improved system reliability performance, highlighted by reduced average outage duration impact for the metropolitan area, major regional centres, and some regional areas such as the Eyre Peninsula. However, the recent restoration of supply performance is declining in rural areas due to the increased impacts of lightning, insulator pollution (due to historically low levels of rain) and the increase in Solar PV penetration in these areas.

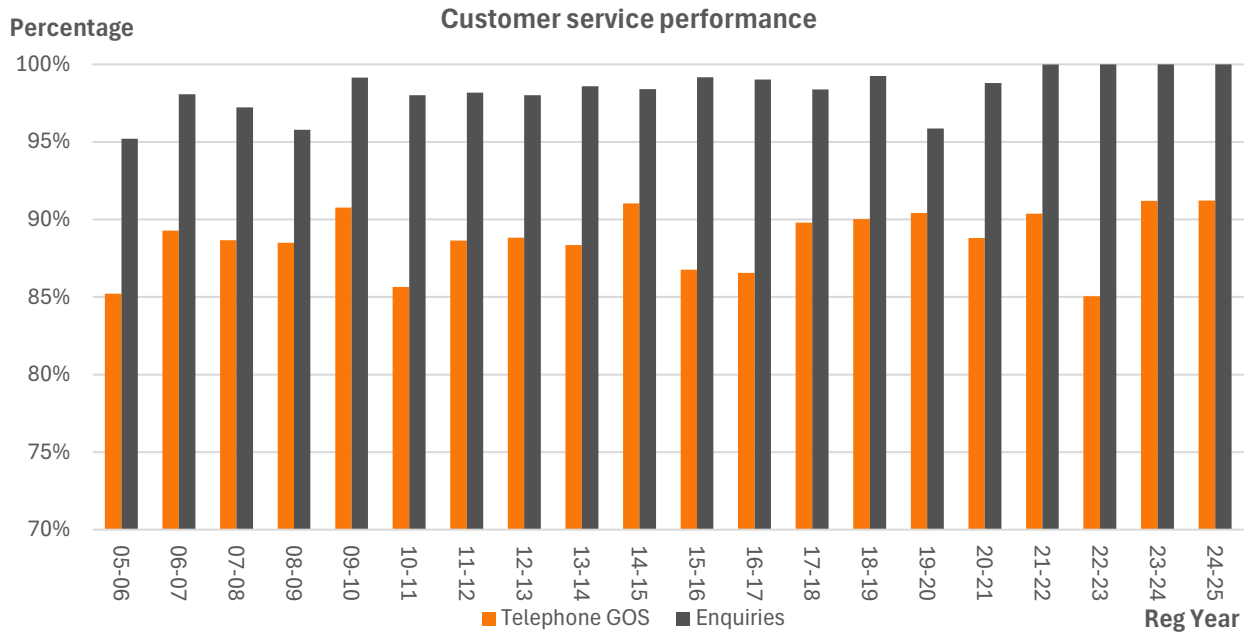
SA Power Networks achieved all customer service standards (EDC clause 2.1)

SA Power Networks:

- Answered 91%[2] of telephone calls within 30 seconds compared to a target of 85%; and
- Responded to 100% of enquiries within 5 business days compared to a target of 95%.

Figure 1 below highlights SA Power Networks' customer service performance on these two measures since 1 July 2005. SA Power Networks' performance was better than both targets during 2024/25.

Figure 1: Customer service performance



SA Power Networks achieved 10 reliability service standard targets

In 2024/25, SA Power Networks achieved 10 of the 16 normalised reliability targets, for the four feeder categories specified in the South Australian Electricity Distribution Code (**EDC**). These targets exclude the reliability contribution from interruptions starting on Major Event Days (**MEDs**)[3]. The following measures are used to monitor reliability performance:

- Unplanned System Average Interruption Duration Index (**USAIDI**), which is the average time in minutes that customers are without their electricity supply due to unplanned interruptions per annum;

[2] SA Power Networks answered 95.9% of Faults and Emergency calls in 30 seconds.

[3] A MED is any day where the USAIDI contribution from interruptions starting on the day exceed a predetermined USAIDI threshold which is recalculated annually, historically it has been around 6 minutes. On average there have been 3.1 MEDs pa over the 15-year period 1 July 2005 to 30 June 2020, contributing 56.5 minutes to USAIDI.

- Unplanned System Average Interruption Frequency Index (**USAIFI**), which is the average number of unplanned interruptions that customers experience per annum; and
- Customer restoration of supply (**CRoS**), which is a measure of the percentage of customers who experience an interruption for the year ending 30 June where the duration exceeds a specified number of hours.

The EDC specifies normalised measures and targets (i.e. excluding interruptions on MEDs), which are designated with a "n" (ie USAIDI**n** and USAIFI**n**). Table 1 and Table 2 below details our actual normalised performance for 2024/25 against the targets, for each of the four-feeder categories and overall.

Table 1: Feeder Category Normalised Reliability Performance

EDC Feeder Category	USAIDIn		USAIFIn	
	TARGET	2024/25	TARGET	2024/25
Central Business District (**CBD**)	15	19.8	0.15	0.18
Urban	110	92.1	1.15	0.76
Short Rural (SR)	200	142.6	1.65	1.10
Long Rural (**LR**)	290	388.9	1.75	1.71
Overall Distribution System[4]	***150***	***143.0***	***1.30***	***0.94***

Table 2: Restoration of supply performance (CRoSn)

EDC Feeder Category	Duration of Interruption (Hrs)	Target (%)	Actual (%)
CBD	≥ 1	11	15.5
	> 2	4	3.1
Urban	> 2	27	23.5
	> 3	11	10.6
SR	> 3	27	21.8
	> 5	8	6.8
LR	> 4	30	44.0
	> 7	10	17.5

The EDC incorporates a reporting threshold[5] which acknowledges the normal variation in annual performance[6] of the reliability measures. Of the six targets not achieved in 2024/25, four feeder categories exceeded the reporting threshold being:

- CBD CRoSn > 1 hr, and

4 The ESCoSA reliability service standards do not include an overall distribution system target. These figures are the implied equivalent targets using the individual feeder category targets and the number of customers supplied from each feeder category.

5 The threshold is set so that on average once every four years the performance will be worse than the reporting threshold and therefore will require detailed explanation.

6 Noting that the EDC reliability targets are based on average performance over the 10-year period ending 30 June 2019, and there must be no expectation that the targets will be achieved every year. Also, no funding was provided to achieve the targets each year.

- Long Rural USAIDIn, CRoSn > 4hrs and CRoSn >7hrs.

There were five MEDs

For the 2024/25 regulatory year, there were five MEDs as summarised in Table 3 below.

Table 3: Major Event days 2024/25

Date(s)	USAIDI	Customers Affected	MED Category[7]	Comment
19 July 2024	5.78	26,299	Cat 1	Severe weather event
17 October 2024	8.44	17,089	Cat 1	Severe weather event
10 March 2025	5.36	7,904	Cat 1	Severe weather event
26 May 2025	6.55	37,489	Cat 1	Severe weather event
7 June 2025	4.93	24,109	Cat 1	Severe weather event
Total	**31.06**	**112,890**		

Section 6.2 includes further details of these MEDs.

SA Power Networks is maintaining the distribution system to deliver electricity to customers reliably

SA Power Networks monitors three key metrics (among others) to determine if the distribution system is being maintained cost effectively to reliably transport electricity to customers under normal weather conditions and on MEDs. The three metrics are:

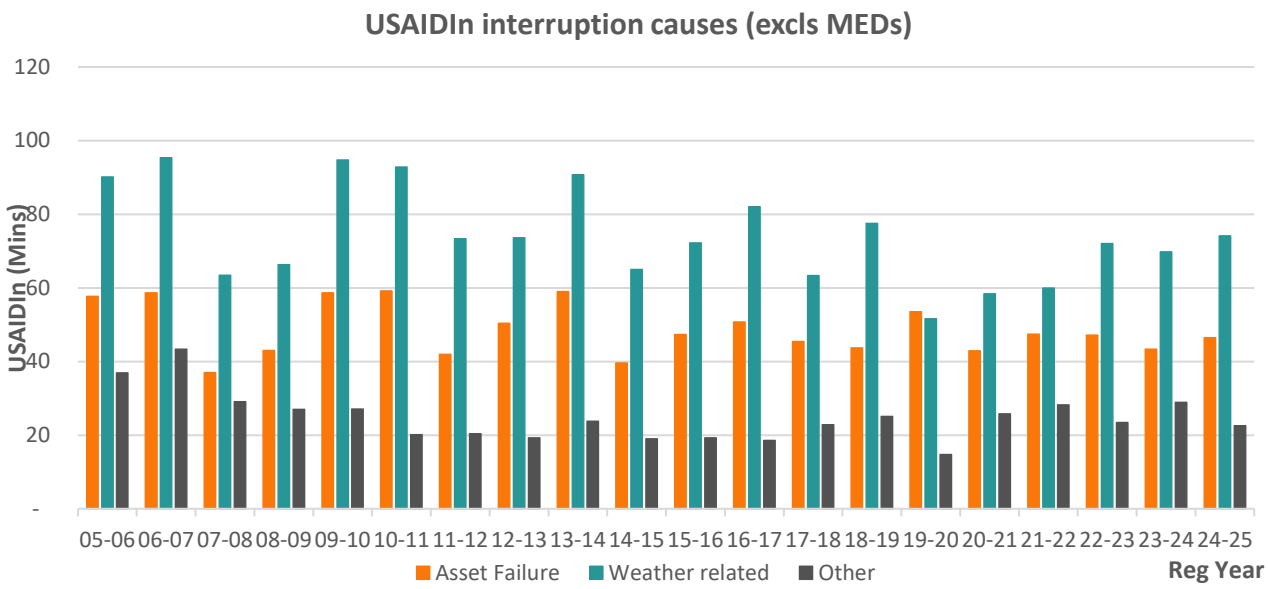
- The contribution to USAIDIn of equipment failure related interruptions. This monitors our performance in maintaining the distribution system under normal operating conditions;
- The contribution to USAIDIn of weather[8] related interruptions; and
- The percentage of USAIDI resulting from equipment failure related interruptions on MEDs. This monitors the ability of the distribution system to cope with Severe Weather Events (**SWE's**).

Figure 2 (next page) indicates that SA Power Networks has been appropriately maintaining the distribution system as there is no increasing trend in the USAIDIn from interruptions caused by equipment failure or weather under normal conditions (i.e. non-MED days). However, there continues to be an increase in weather related interruptions (mainly lightning) since 2019-20, which has led to a decline in reliability performance. In 2024/25 we also experienced supply interruptions resulting from pollution on our powerline insulators due to an abnormally low levels of rainfall. Notwithstanding this, the results continue to be better than the historic average. There is no long-term increasing trend (i.e. no decline in distribution system's resilience) in the percentage contribution to USAIDI due to equipment failure on MEDs.

7 SA Power Networks categorises the severity of MEDs based on the USAIDI contribution from interruptions that commence on that day, with the severity graded from the least Cat1 to the most Cat4.

8 'Weather' includes 'unknown' and 'vegetation', as the contribution from these causes is higher during SWE.

Figure 2: Maintaining the network performance



Four of the 16 reliability measures exceeded the reporting threshold.

In 2024/25, the CBD CRoSn > 1hr and the Long Rural USAIDIn, CRoSn > 4hrs and CRoSn > 7hrs exceeded the reporting threshold, compared with an average of three over the 10-year Target Setting Period (**TSP**).

Table 4 details the reliability measures that exceeded the reporting threshold in 2024/25 and the reasons for that exceedance.

Table 4: Reliability performance that exceeded the reporting threshold.

Feeder Category and measure	Comment
CBD CRoSn	The CBD feeder category restoration of supply performance was adversely affected by third party vandalism on our asset in July, a switching cubicle failure in August and an insulator and underground cable fault in October.
Long Rural USAIDIn	The poor 2024/25 USAIDIn performance resulted from a combination of poor CRoSn performance and the contribution from the interruption causes of weather, mainly lightning and insulator pollution, and third party (animals and vehicles damaging infrastructure). These interruption causes are typically beyond the control of SA Power Networks and contributed 101 minutes more than the average during the 10-year TSP.
Long Rural CRoSn	The Long Rural feeder category restoration of supply performance was adversely affected by the performance of 19kV SWERs (see the Monitoring evaluation and compliance strategy (**MECS**) section 6.1). 19kV SWER feeders contributed more than half the CRoSn >4hrs and the CRoSn >7hrs outcome in 2024/25.

As explained in our MECS, there is a systemic issue with the Long Rural restoration of supply performance due to the significant increase in Solar PV exports on 19kV SWER feeders continuing to export when there is a fault on the feeder. This prevents sectionalisers from operating. This results in longer patrol times to locate and then repair the fault, as the whole feeder must be patrolled instead of just the section downstream of the sectionaliser. The longer patrol times have caused a decline in both CRoSn and USAIDIn.

We are trialling alternative equipment options for sectionalising SWERs to mitigate this issue.

There are no declining trends in regional reliability performance

SA Power Networks is required to report the reliability of ten regions: nine distinct regions and another segmentation of feeders located in Major Regional Centres[9] (**MRC**) as defined in ESCoSA's Guideline No.1.

The annual regional reliability performance varies from year to year, both positive (better) and negative (poorer) than the long-term historical average (i.e. 15-year period ending 30 June 2020). There has been no declining trend in the reliability performance of any region's normalised reliability performance (i.e. excluding MEDs) over the long-term, despite service standards being established on feeder categories since 1 July 2015. SA Power Networks monitors the regional reliability using the measures USAIDIn and USAIFIn, to determine if historic performance of any region has declined.

In 2024/25, 18[10] of the 20 reliability measures performance (two per region) were better than the 15-year historic average. There were two regional measures that exceeded the reporting threshold being USAIDIn for the Barossa, Mid-North and Yorke Peninsula (**BMY**) and the South East (**SE**) regions.

The poor performance of these regions for the 2024/25 period was primarily due to weather; pollution on powerline insulators and lightning, and failure of our sectionalisers to operate effectively during periods of high solar PV generation.

SA Power Networks used 'best endeavours' to meet all reliability targets in 2024/25

In 2020, the EDC incorporated a new reporting threshold, whereby we are required to demonstrate the use of best endeavours if the reporting threshold for a reliability measure is exceeded. The best endeavours benchmark means that SA Power Networks can still comply with these obligations despite not achieving some feeder category reliability targets. SA Power Networks has used best endeavours to meet all 16 targets.

As outlined above, SA Power Networks achieved 9 of the 16 EDC feeder category reliability targets in 2024/25, which is equal to the 10-year TSP. Of the seven targets not achieved, three targets were within the reporting threshold.

We have observed a declining trend in Long Rural restoration of supply performance, which is also causing a declining trend in Long Rural USAIDIn. The MECS details the specific actions we are taking to address this declining trend.

Our analysis demonstrates that the reliability performance at the aggregate level of the distribution system has been maintained in 2024/25 and it reflects that SA Power Networks is using best endeavours to meet the EDC reliability targets (see Figure 3 and Figure 4 on the following page). This assessment is based on the following observations:

- Trends of normalised USAIDI and USAIFI performance demonstrate that our reliability performance has been maintained in 2024/25 and over recent years. As shown in Figure 3 and Figure 4, normalised reliability is improving (i.e. historic declining trend).
- Analysis of our distribution system maintenance practices and outcomes indicates that:
    - The contribution to normalised USAIDI performance due to 'equipment failure' is stable and has no worsening trend.
    - There is no declining trend in USAIDIn for Long Rural feeders due to 'equipment failure'; and

[9] The MRC agreed high voltage feeders are in Urban centres and localities with a population of 10,000 or more as at the 2016 census, except Adelaide and Gawler.

[10] On average 12 targets of the 20 are achieved annually, with a minimum of two and a maximum of 19.

- The percentage contribution to USAIDI performance during MEDs due to 'equipment failure' is also stable.
- The reliability measures which exceeded the reporting threshold were either due to weather related interruptions or emerging systemic issues that are being addressed, where cost effective.

Figure 3: Distribution system USAIDIn and implied target

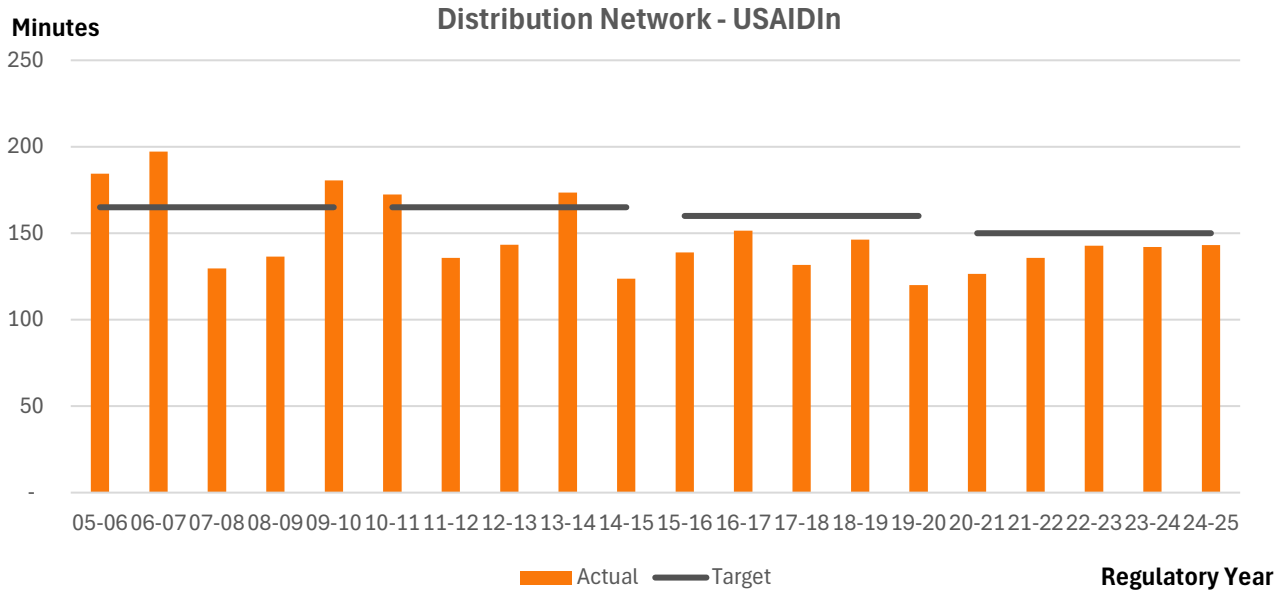
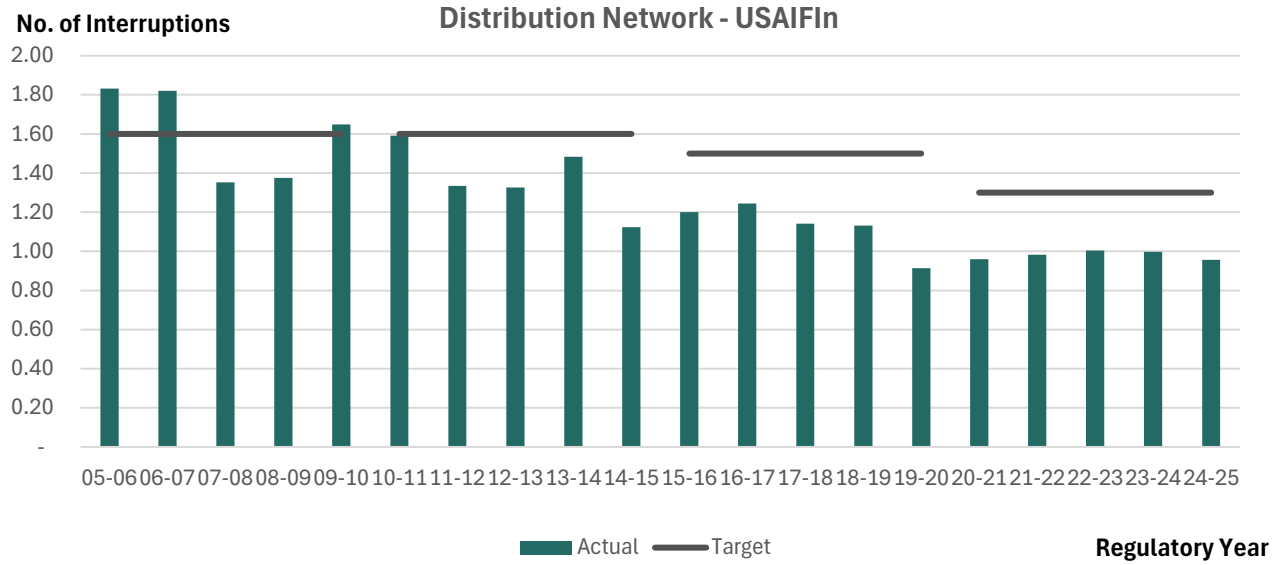


Figure 4: Distribution system USAIFIn and implied target



Our analysis demonstrates that the reliability performance at the aggregate level of the distribution system has been maintained in 2024/25 and it reflects that SA Power Networks is using best endeavours to meet the EDC reliability targets.

Emerging Issues

We are closely monitoring an emerging issue that has the potential to impact on our ongoing reliability performance. This relates to the decline in the Rural long feeder category restoration of supply performance which was highlighted in SA Power Networks' MECS.

GSL payments (clause 2.3)

SA Power Networks must pay customers a guaranteed service level (**GSL**) payment associated with:

- connection of new premises,
- repair of streetlight faults, and
- minimise the frequency and total annual duration of unplanned supply interruptions[11],

where we do not meet the service level specified in the EDC. There are conditions and exceptions associated with each of these GSL payments.

Table 5: Number of GSL payments - Historic average and for year ending June 2025

GSL Payment numbers	Historic Ave.	Year ending 30 June 2025
Connection of new premises	154	319
Repair of streetlights	1,637	3,973
Frequency of Interruptions	1,606	1,239
Long Duration interruptions	27,843	17,264

The higher number of GSL payments made associated with repair of streetlights in 2024/25 were associated with a backlog of streetlight repairs that occurred during a new contractor transition. One metropolitan contractor was underperforming and consequently had their contract terminated, with the remaining contractor taking over responsibility for the whole metropolitan region and the outstanding work.

Reconnection of electricity supply after disconnection (EDC clause 2.4)

SA Power Networks completes more than 100,000 retailer requested reconnections annually, with all reconnections except three[12] during Year ending 30 June 2025, being completed in accordance with the EDC requirements. Actions have been taken to rectify the causes associated with these three instances.

[11] Certain interruptions are excluded (eg momentary interruption, interruptions of the ElectraNet's transmission system).

[12] These eleven reconnections were due to system issues that were not within SA Power Networks control.

2. Definitions

Definitions of terms used in this report:

Term	Definition
2.5β method	The IEEE Std 1366™-2012 2.5 Beta statistical method used to calculate T_{MED}.
ABA	Adelaide Business Area – geographic area/region as defined in ESCoSA's Guideline No.1 (same as the CBD).
AER	Australian Energy Regulator
BMY	Barossa, Mid-North & Yorke Peninsula– geographic area/region as defined in ESCoSA's Guideline No.1.
CBD feeder	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.
CRoS	Customer restoration of supply – percentage of total customers who have an interruption exceeding a specific number of hours.
CRoSn	Normalised CRoS (excluding interruptions that commence on MEDs)
EDC	South Australian Electricity Distribution Code version v13.1 unless otherwise stated.
EH	Eastern Hills – geographic area/region as defined in ESCoSA's Guideline No.1.
EP	Eyre Peninsula – geographic area/region as defined in ESCoSA's Guideline No.1.
ESCoSA	Essential Services Commission of South Australia
FP	Fleurieu Peninsula – geographic area/region as defined in ESCoSA's Guideline No.1.
Feeder	means a high voltage electric powerline and associated equipment which the distributor uses to distribute electricity
GAMA	Greater Adelaide Metropolitan Area – geographic area/region as defined in ESCoSA's Guideline No.1.
IEEE	US Institute of Electrical and Electronic Engineers Inc
SWE	Significant Weather Event – a significant weather event where the contribution to USAIDIn from weather related caused interruptions has a material contribution to USAIDI of the distribution system, feeder category or a region.
Long Rural feeder	a feeder which is not a CBD or urban feeder with a total feeder route length greater than 200 km, or otherwise as agreed by SA Power Networks and ESCoSA.
MED	Major Event Day – any day where the daily USAIDI accrued on that day, exceeds a predetermined USAIDI threshold. The threshold is determined in accordance with the IEEE Std 1366™-2012 2.5 Beta statistical method.
MRC	Major Regional Centres – geographic area/region as defined in ESCoSA's Guideline No.1 (agreed high voltage feeders in Urban centres and Localities with a population of 10,000 or more at the 2016 census, except Adelaide and Gawler)
RCP	Regulatory Control Period means the period covered by a regulatory distribution determination by the AER.
RM	Riverland & Murrayland – geographic area/region as defined in ESCoSA's Guideline No.1
RT	Reporting threshold as defined in the EDC Section 2.2.1
SE	Southeast – geographic area/region as defined in ESCoSA's Guideline No.1.
Short Rural feeder	a feeder which is not a CBD or urban feeder with a total feeder route length less than 200 km, or otherwise as agreed by SA Power Networks and ESCoSA.

STPIS	The AER's Service Target Performance Incentive Scheme with provides incentive for distributors to maintain or improve reliability performance.
T_{MED}	The daily USAIDI threshold used to determine if a day will be classified as a MED.
TSP	Target Setting Period is the ten-year period ending 30 June 2019 used to establish the feeder category reliability service standard targets.
UCAIDI	Unplanned Customer Average Interruption Duration Index (ie average time taken to restore supply to customers as a result of an unplanned interruption)
UN	Upper North – geographic area/region as defined in ESCoSA's Guideline No.1.
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, or otherwise as agreed by SA Power Networks and ESCoSA.
USAIDI	Unplanned System Average Interruption Duration Index – total number of minutes, on average, that a customer is without electricity because of unplanned interruptions[13] in a year.
USAIFI	Unplanned System Average Interruption Frequency Index – average number of times a customer's supply is interrupted per year from unplanned interruptions
USAIDIn	Normalised USAIDI (USAIDI excluding interruptions that commence on MEDs)
USAIFIn	Normalised USAIFI (USAIFI excluding interruptions that commence on MEDs)

[13] Excludes interruptions where the duration is three minutes or less.

3. SA Power Networks' service standards for the 2020-25 regulatory control period

3.1 Introduction

SA Power Networks is required by its distribution licence to comply with the service standards contained in the Electricity Distribution Code (**EDC**). The EDC requires us to use 'best endeavours' to achieve the service standard targets for each year ending 30 June. The EDC clause 1.5.1 defines best endeavours as to act in good faith and use all reasonable efforts, skill and resources.

As the service standard obligation is to use best endeavours, we can still comply with a service standard, despite not achieving the target, if we can demonstrate that we have used best endeavours.

The following sections summarise the four categories of service standards and the targets (where specified) for the 2020-2025 Regulatory Control Period (**RCP** – ie 1 July 2020 to 30 June 2025).

3.2 Customer service measures and targets

3.2.a Customer service measures

There are two customer service standards defined in the EDC relating to communication with our customers:

- Time to respond to telephone calls; and
- Time to respond to written enquiries.

These standards measure how quickly we respond to customer enquiries by both telephone and written responses.

3.2.b Customer service targets

SA Power Networks is required to use best endeavours to meet the following customer service standards for each year ending 30 June.

Table 6: EDC customer service measures and targets

Category	Customer service to measure	Target
Customer service	Time to response to telephone calls	85% within 30 seconds
Customer service	Time to respond to written enquiries	95% within 5 business days after receipt of the written enquiry

Achieving the telephone response target means that for every 100 telephone calls received we must on average answer 85 or more calls within 30 seconds. This response rate applies in aggregate to five specified telephone numbers including the Faults and Emergencies number. The EDC defines what is deemed to be an answered telephone call.

Likewise, achieving the written response target means that for every 100 written enquiries we receive (includes email and Facebook enquiries) we must respond to 95 or more of those within five business days.

For the year ending June 2025, SA Power Networks achieved all its customer service targets established by the ESCoSA.

3.3 Reliability performance measures and targets

3.3.a Reliability measures

As electricity distribution systems are extremely reliable, their overall reliability is typically measured in how many minutes on average they are not able to supply customers with electricity. For example, if a distribution system was unable to supply electricity for 180 minutes in a year, then it was able to supply electricity for 525,420 minutes of that year (i.e. its availability to supply electricity was 99.97%).

The reliability measures used by the ESCoSA and the Australian Energy Regulator (**AER**) to monitor a distributor's performance are:

- USAIDIn (unplanned system average interruption duration index) — a measure of how long on average each customer is without supply in minutes for the period (typically a year) and is normalised by excluding interruptions that start on Major Event Days[14] (**MEDs**);
- USAIFIn (unplanned system average interruption frequency index) — a measure of how many times on average each customer is interrupted for the period (typically a year) and is normalised by excluding interruptions that start on MEDs; and
- In addition, ESCoSA uses two customer restoration of supply (**CRoS**) targets for each feeder category. These measure the percentage of the customers supplied by that feeder category who have an unplanned interruption exceeding a specified number of hours.

The measures are normalised because the variation in annual performance is significant with the inclusion of MEDs and masks underlying performance trends. For example, the USAIDI result for the distribution system in 2016-17 was 481 minutes with 9 MEDs, compared with 148 minutes in 2015-16 with one MED, and 132 minutes in 2017-18 with no MEDs. Most MEDs result from significant weather events that are beyond the distributor's control and are the major cause of the annual variation in reliability.

So that regulators can assess whether a distributor is maintaining the network to cope with normal weather events amongst other outage causes (e.g. animals), MEDs are excluded from the reliability measures monitored. However, it is important to monitor the performance on MEDs to ascertain if distributors are still maintaining their ability to effectively respond to the effects of MEDs on their distribution system. Distributors need to have processes and practices in place to respond to MEDs so that customers impacted on those days have their supply restored in a reasonable time. As MEDs can have different characteristics and severity, it is not possible to establish standards for performance on MEDs. For example, the USAIDI contribution of a single MED, can vary from about 6 USAIDI minutes to about 160 USAIDI minutes. Section 4.4 provides further details on MED categorisation and assessment of performance.

3.3.b Feeder categories

The EDC specifies reliability standards applying to each of the following four feeder categories:

- Central Business District (**CBD**) feeder – means a high voltage overhead powerline or underground cable in the CBD area supplying predominantly commercial, high-rise buildings, supplied by a predominantly underground distribution network containing significant interconnection between high voltage feeders;

[14] A MED is a day where the total USAIDI contribution from interruptions that commence on that day exceed a predetermined total distribution system USAIDI threshold value (Tmed). The value of Tmed is determined using a statistical process for each year based on the prior 5 years daily distribution system USAIDI data. Since 1 July 2005 there are on average about 3 MEDs pa.

- Urban feeder – means a high voltage overhead powerline or underground cable, which is not a CBD feeder, where the average15 maximum demand divided by average feeder route length is greater than 0.3 MVA/km;
- Rural Short (**RS**) – means a high voltage overhead powerline or underground cable which is not a CBD feeder or urban feeder with a total feeder route length less than 200 km; and
- Rural Long (**RL**) feeder – means a high voltage overhead powerline or underground cable which is not a CBD feeder, urban feeder or a rural short feeder.

The table below contains information about each feeder category.

Table 7: Feeder category statistics

Feeder	CBD	Urban	Rural Short	Rural Long
Areas supplied	Part of the Adelaide square mile.	Greater Adelaide Metro Area and some parts of large regional towns	Eastern Hills (50%), Fleurieu Peninsula, Riverland and parts of large and medium regional towns.	Barossa, Eastern Hills (50%), Most of Eyre Peninsula, KI, Mid-North, Murraylands, Southeast, Upper North
% of customers	1.0%	69%	15%	15%
Circuit length of powerline (km)	300	26,000	13,700	49,300
Annual Consumption (GWh)	500	6,800	1,300	1,300

3.3.c Establishment of the reliability of supply targets

The ESCoSA in its process to establish the reliability of supply standards for the 2020-25 RCP confirmed most customers were satisfied with their current electricity supply reliability and were unwilling to pay for improvements. Therefore, ESCoSA decided that the reliability service standard targets should reflect the average historic reliability performance of the four feeder categories. They decided to use the ten-year period (ie 1 July 2009 to 30 June 2019) to determine the historic average performance.

There is large annual variation in the reliability performance for each feeder category, often related to the severity of weather events in a year. For example, the Rural Short feeder category USAIDIn has varied from a best of 143 minutes (2014/15) to a worst of 283 minutes (2009/10). Therefore, the reliability service standard now includes a Reporting Threshold, which represents the normally expected variation in reliability for a feeder category. SA Power Networks must demonstrate the use of best endeavours where the reliability of a feeder category is worse than the reporting threshold. The reporting threshold has been established at a level that, with normal variation in reliability, it should typically require SA Power Networks to demonstrate the use of best endeavours once every five years.

3.3.d Jurisdictional reliability service standards

SA Power Networks is required by the South Australian EDC clause 2.2.1 to use ‘‘best endeavours[16]’’ to achieve the following reliability targets (see Table 8 and Table 9 below) for each year ending 30 June, over the 2020-25 Regulatory Control Period (**2020-25 RCP**) ie 1 July 2020 to 30 June 2025:

[15] The average maximum demand and average route length of the feeder is over the last three consecutive years, including the current reporting year.

[16] In the EDC, best endeavours, means “to act in good faith and use all reasonable efforts, skill and resources”.

SA Power Networks is required to report on how it has applied its best endeavours if its reliability performance is worse than the reporting threshold set out in Table 8.

Table 8: Feeder category reliability service standards

Measure		CBD Feeders	Urban Feeders	Rural Short Feeders	Rural Long Feeders
USAIDIn (average minutes off supply per customer per annum)	Target:	15	110	200	290
	Reporting threshold:	20	125	220	330
USAIFIn (average number of supply interruptions per customer per annum)	Target:	0.15	1.15	1.65	1.75
	Reporting threshold:	0.20	1.35	1.85	2.10

As highlighted above, these measures exclude interruptions that start[17] on MEDs. MEDs are days of significance where the organisation shifts from normal operation mode to emergency/crisis operation mode.

3.3.e Jurisdictional restoration service standards

SA Power Networks must use its best endeavours to achieve the minimum network restoration time targets. The proportion of the customers in each feeder category that experience unplanned interruptions that exceed the defined time periods, in hours, are set out in the following table for each year ending 30 June.

Table 9: Feeder category customer restoration of supply standards

Target (%)	Single interruption duration	CBD Feeders	Urban Feeders	Rural Short Feeders	Rural Long Feeders
Percentage of total customers in each feeder category per annum	Interruption equal to or greater than 1 hour	11			
	Interruption longer than 2 hours	4	27		
	Interruption longer than 3 hours		11	27	
	Interruption longer than 4 hours				30
	Interruption longer than 5 hours			8	
	Interruption longer than 7 hours				10

The EDC feeder category reliability targets were established using the average performance over the ten-year period ending 30 June 2019 (referred to as the target setting period (**TSP**)**.** The averages were then rounded to the nearest five minutes for USAIDI and the nearest 0.05 interruptions for USAIFI (ie some targets were rounded down and others up). As the targets are based on averages, there is no expectation[18] that all targets will be achieved each year. The number of targets detailed in Table 5 and Table 6 that were achieved annually during the TSP varied between 4 and 16 with an average of 9.

SA Power Networks is required to report on how it has applied its best endeavours if its performance is worse than the reporting thresholds set out in Table 10. Unlike the reporting threshold for USAIDIn and USAIFIn, which were based on the normal variation in reliability, the thresholds for the restoration of supply standards were established by adding 2.5% to the historic average, and therefore do not necessarily reflect normal variations.

Table 10: Feeder category customer restoration of supply reporting thresholds

Reporting Threshold	Interruption duration	CBD Feeders	Urban Feeders	Rural Short Feeders	Rural Long Feeders
Percentage of total	Interruption equal to or greater than 1 hour	13.5			

[17] Where an interruption begins on a day and is restored in following days its contribution to reliability performance is accrued to the day it started.

[18] SA Power Networks receives funding to maintain average historic reliability performance not to achieve all EDC reliability targets every year.

customers in each feeder category per annum	Interruption longer than 2 hours	6.5	29.5		
	Interruption longer than 3 hours		13.5	29.5	
	Interruption longer than 4 hours				32.5
	Interruption longer than 5 hours			10.5	
	Interruption longer than 7 hours				12.5

Note: These standards reflect unplanned supply interruptions on the low voltage and high voltage distribution network but exclude:

a) Any planned supply interruptions and unplanned supply interruptions with a duration no more than three minutes; and

b) Any unplanned supply interruption that starts on a day which qualifies as a MED.

ESCoSA expressed concerned that establishing service standards using feeder categories may result in some regional areas of the state experiencing a decline in reliability. Consequently, it requires SA Power Networks to report on the reliability of ten regions, to enable it to monitor if there was any longer-term decline in regional performance. See Section 8 for each region's performance.

3.4 Guaranteed service level payments

3.4.a Introduction

SA Power Networks is required to make guaranteed service level (**GSL**) payments where we do not:

- connect a new supply address on the date agreed or within six business days of the customer meeting all the necessary preconditions;
- repair a streetlight which has gone out within five business days in metropolitan areas and ten business days in non-metropolitan areas (referred to as other areas); and
- minimise the frequency (number) and the total duration of unplanned supply interruptions for the year ending 30 June.

3.4.b Connecting a new supply address

SA Power Networks is required to connect a new supply address on the date agreed or if no date is agreed within six business days, provided the customer has met all necessary pre-conditions for connection. Where this is not achieved, we will pay the customer $65 dollars per business day that we are late to a maximum of $325.

This GSL payment only applies in situations where electricity supply is available adjacent to the property and all that is required to connect the premises is to install a service or make the connection between the distribution network and the customers electrical installation. It does not include the installation of the electricity meter which is now the responsibility of retailers.

3.4.c Repair of streetlights which are out (SLO)

SA Power Networks is required to repair a streetlight out (**SLO**) within five business days within Metropolitan Areas and ten business days for non-Metropolitan (other) areas.

SA Power Networks is required to pay customers $25 for each period (five or ten business days) until the streetlight is repaired. The EDC Clause 2.3.1(b) contains the details of when day zero is determined amongst other conditions.

3.4.d Reliability GSL payments

SA Power Networks must use its best endeavours to minimise the frequency and duration of supply interruptions to a customer's supply address. If the total number of interruptions and/or the total duration of all interruptions across a regulatory year exceeds the thresholds in the following tables below, we must make payments (GSL reliability payments) to customers experiencing interruptions as set out in those tables.

Table 11: Thresholds and payment amount for frequency of interruptions

	Threshold
Number of unplanned interruptions in a regulatory year	>9
Payment (GST inclusive)	$100

Table 12: Thresholds and payment amounts for total annual duration of interruptions

	Threshold 1	Threshold 2	Threshold 3
Total annual duration (hrs) of unplanned interruptions	> 20 and ≤30	> 30 and ≤60	> 60
Payment (GST inclusive)	$100	$150	$300

Customers' electricity accounts will be credited with their eligible reliability GSL payments in the quarter following the end of the regulatory year (ie typically in August each year). Payments will be made in respect of the supply address, not the customer. The resident of the supply address will receive a SMS or letter advising them of the reliability GSL credit that has been applied to their electricity account.

The above scheme excludes:

(i) interruptions caused by the following:

  (A) transmission and generation failures

  (B) disconnection required in an emergency situation (e.g. bushfire)

  (C) single customer faults caused by that customer

(ii) momentary interruptions (ie interruptions where the duration is three minutes or less)

(iii) planned interruptions, and

(iv) partial interruptions to a supply address such as:

  (A) interruptions that affect only one or two phases of supply at a supply address with three phase supply, and/or

  (B) interruptions to one connection point where the supply address has multiple connection points.

3.5 Reconnection after disconnection

In summary, where the National Energy Retail Rules (**NERR**) require SA Power Networks to reconnect a previously disconnected customer's premises, we must:

- reconnect on the same business day in the Adelaide Business Area and the Major Metropolitan areas, provided the request is receive by us prior to 5pm on the business day; and
- use best endeavours to reconnect on the same business day in other areas and in any event on the next business day, where the request is received after 5pm.

The EDC clause 2.4 details all the possible scenarios for a customer requesting reconnection and the timeframes required for reconnection or whether a customer payment is required to achieve those timeframes.

Under the deemed standard connection contract, under which reconnections are performed, the obligation to reconnect lapses if the customer does not request a reconnection within 10 business days of their

disconnection. Therefore, the reconnection timeframes only apply if a customer has requested a reconnection of their premises within 10 business days of the disconnection.

Under the AER and National Energy Retail Law (**NERL**) compliance framework, SA Power Networks is required to report quarterly any failures with our reconnection obligations to the AER. SA Power Networks had eleven instances during 2022-23 where we failed to reconnect19 a customer within the specified timeframe. Actions have been taken to rectify the causes for these five instances.

3.6 The Australian Energy Regulator's Service Target Performance Incentive Scheme

The AER is required by the National Electricity Rules (**NER**) to develop a scheme that provides incentives for distributors, like SA Power Networks, to maintain or improve customer service including supply reliability. The AER scheme is known as the Service Target Performance Incentive Scheme (**STPIS**) which is detailed in the AER STPIS Guideline[20].

Under the reliability component of the STPIS, the AER establishes feeder category USAIDIn and USAIFIn targets for a RCP, with those targets detailed in its final distribution determination every five years. Under the STPIS regime the distributor is then annually rewarded or penalised based on the variation from those targets for each year. A positive variation is rewarded, and a negative variation penalised.

The STPIS targets are different to EDC feeder category targets as the targets are based on a 5-year average (ie 1 July 2014 to 30 June 2019). These targets have been adjusted because the incentive reward outcome was capped twice in this 5-year period and we received funding for improving some low reliability feeders. Table 13 below details the adjusted STPIS feeder category reliability targets that apply to each year of the 2020-25 RCP.

Table 13: STPIS Reliability targets (year ending 30 June) for the 2020-25 RCP

Feeder Category	USAIDIn	USAIFIn
CBD Feeders	22.5	0.185
Urban Feeders	105.1	1.057
Short Rural Feeders	181.9	1.427
Long Rural Feeders	277.9	1.526

19 SA Power Networks completes more than 100,000 reconnections annually.

20 The AER's STPIS Guideline is at https://www.aer.gov.au/system/files/AER%20-%20Service%20Target%20Performance%20Incentive%20Scheme%20v%202.0%20-%2014%20November%202018%20%28updated%2013%20December%202018%29.pdf

4. Assessment of Reliability Performance

4.1 Introduction

As outlined in Section 3, SA Power Networks is required to use best endeavours to achieve the EDC feeder category normalised reliability targets for each year ending 30 June. We can still comply with our reliability obligation when our reliability is worse than the target, provided we can demonstrate the use of best endeavours.

The EDC defines best endeavours as:

*'**best endeavours**' means to act in good faith and use all reasonable efforts, skill and resources.*

SA Power Networks is not funded to achieve the absolute performance targets each and every year, we are funded to maintain the average long-term historic performance. ESCoSA will determine whether we have used best endeavours to meet those targets.

SA Power Networks' reliability obligation in its simplest form can be expressed as "to maintain historic average reliability levels". While positive and negative variations occur, there should be no long-term worsening trend in reliability in any of the feeder categories. A worsening trend is when the performance of a reliability measure exceeds the RT in two consecutive years.

The exclusion of MEDs from the reliability service standard targets reduces the extreme variation in annual reliability. The variation in reliability comprises three components: variations in normalised performance (ie non-MEDs), and variations due to the number of MEDs (which has varied from nil to nine) and the severity of individual MEDs (which has varied between 6.0 and 161.3 USAIDI minutes).

This section explores the major influencers of the annual variation in normalised reliability and the variations in annual MED performance experienced by customers.

4.2 Reliability of the distribution network

The normalised reliability performance of the distribution network is dependent on:

- The proportion of the network that is overhead, because underground cables are not typically affected by weather;
- How the system is designed and constructed (eg meshed or radial network);
- How the system is being maintained (eg performance would decline in the long term if the network was not being appropriately maintained);
- Trees[21], vegetation debris or other objects impacting powerlines from outside the regulated 'clearance zones';
- The interruptions/failures of the network that result from local SWEs. These events have a material[22] USAIDIn impact (ie excluding MEDs) and are the result of many weather (eg lightning) caused interruptions on a single day; and
- How well a distributor responds to interruptions during MEDs, especially in terms of the time taken to restore customers' electricity supply.

[21] SA Power Networks is limited by the Electricity Act on the extent that it can clear vegetation from around powerlines. SA Power Networks must clear vegetation from around a powerline so it must not grow or bend into the clearance zone.

[22] Material impact in this context means the USAIDI attributed to the day exceeds 3% of the average annual historic performance (ie about 10 times an average day's contribution)

SA Power Networks has varying degrees of control over these individual factors. Any assessment of the use of best endeavours should only consider those factors that SA Power Networks can reasonably control/affect.

4.3 Major causes of annual variations in reliability

4.3.a Introduction

SA Power Networks is obligated to use best endeavours to meet average historic levels of normalised (ie excludes MEDs) reliability. The determination of best endeavours from analysing the reliability measures is difficult, considering the significant variations in reliability from one year to the next, despite the exclusion of MEDs.

The main causes of significant annual variations in unplanned reliability levels, in order of greatest to least, are:

- Weather (includes unknown[23]);
- Equipment failure; and
- Other (includes operational, third party (eg vandalism, car hit pole, grey-headed flying foxes) and other causes).

4.3.b Weather-caused interruptions

Weather-caused interruptions during the TSP have varied in their contribution to USAIDIn (ie normalised reliability which excludes MEDs) from a low of 63 minutes in 2017-18 to a high of 95 minutes in 2009-10, and an average of 79 minutes. The contribution to USAIDIn in 2024/25 from weather caused interruptions was 74 minutes.

Figure 5 overall shows a declining (improving) contribution to USAIDIn from weather caused interruptions. The uplift in 2024/25 was primarily attributed to lightning strikes and insulator pollution. The improved performance (compared to our historic performance) has resulted from SA Power Networks' reliability improvement initiatives.

4.3.c Equipment failure caused interruptions

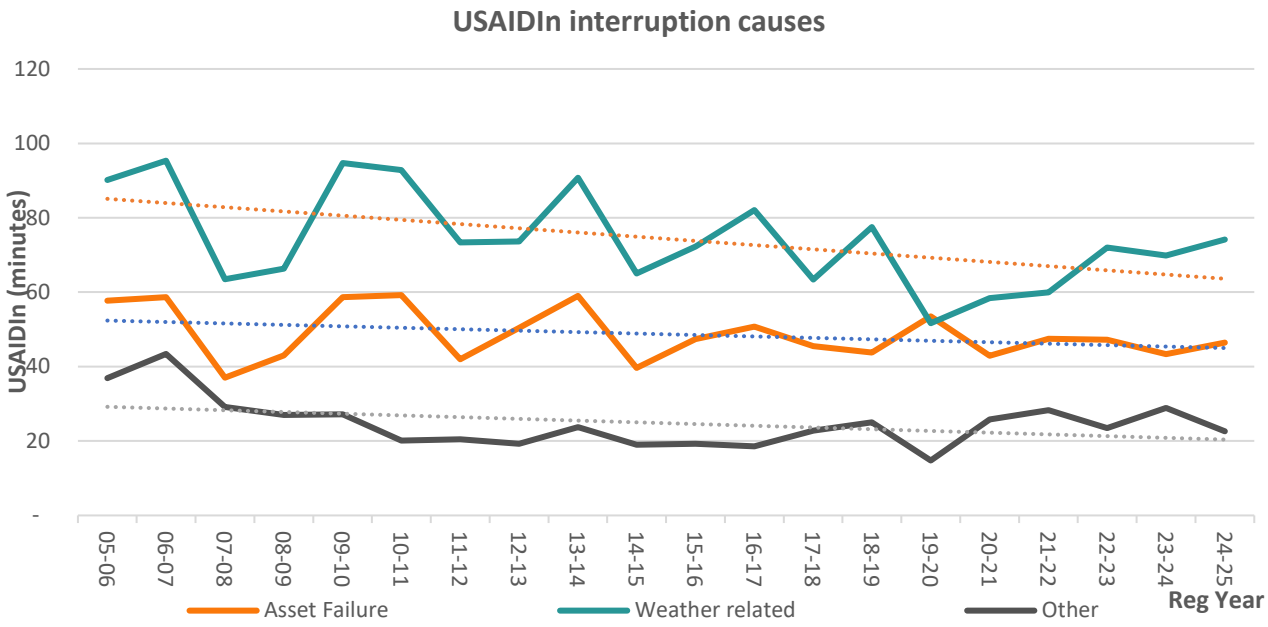
The contribution of equipment failure-caused interruptions to USAIDIn during the TSP has varied from a low of 45 minutes in 2017-18 and 2018-19, to a high of 59 minutes in 2010-11, with an average of 50 minutes. The contribution to USAIDIn in 2024/25 from equipment failure caused interruptions was 46 minutes.

Figure 5 shows a stable contribution to USAIDIn from equipment failure caused interruptions. This stability demonstrates that SA Power Networks has been appropriately maintaining the distribution system.

Figure 5 also shows some correlation in the variations in the contribution to normalised USAIDI from weather caused and equipment caused interruptions.

[23] There is a reasonably strong correlation between weather and unknown causes, so these are grouped together to simplify the analysis.

Figure 5: Annual USAIDIn contribution from interruptions caused by weather, equipment failure and other.



4.3.d Other-caused interruptions

Other-caused interruptions contribution to USAIDIn during the 10-year target setting period varied from a minimum of 19 minutes in 2015-16 to a high of 27 minutes in 200910, and an average of 22 minutes. The contribution to USAIDIn in 2024/25 from 'other' caused interruptions was 23 minutes.

Figure 5 above highlights that the contribution to USAIDIn from interruptions by 'other' causes (eg due to third parties) has been relatively stable at around 20 minutes since 2010-11. The small increase in USAIDIn since 2020/21 has been attributed to the increase in the grey-headed flying fox (fruit bats) population, which mainly affects Urban Feeders. 2024/25 saw an improved performance compared to 2023/24 which indicates the insulator shields/discs are effective.

4.3.e Conclusion

There is no worsening trend in the Asset failure and Weather-related causes and while the impact of fruit bats has contributed to a worsening trend in the 'Other' category in recent years, this has not resulted in a failure to meet targets. SA Power Networks is therefore appropriately maintaining and operating the distribution system for the benefit of customers.

4.4 Categorisation of MEDs

4.4.a Introduction

The overall annual contribution to USAIDI, at the distribution system aggregate level, from interruptions on MEDs has varied from nil to 329 minutes over the 15-year period to 30 June 2020. The significant variation is due to the:

- annual number of MEDs varying from nil to nine; and
- severity (using USAIDI as a proxy) of a single MED varying from 6.0 to 192.8 USAIDI minutes.

As highlighted previously, although excluded from the EDC reliability service standards, it is important that our performance on MEDs is still monitored. This section details how MEDs are classified and how SA Power Networks categorises them to enable comparison of our performance on similar severity MEDs.

4.4.b MED classification

A MED is determined using the US Institute of Electrical and Electronic Engineers Inc (**IEEE**) Std 1366™-2012 2.5 Beta Method (**2.5β Method**). The 2.5β Method pre-determines a MED USAIDI threshold ($\mathbf{T_{MED}}$) that applies for a reporting period (ie a year). Any day where USAIDI exceeds the threshold is classified as a MED. (See Appendix A for further details). In determining the daily USAIDI, any interruptions that commence between midnight and midnight on that day are accrued to that day.

4.4.c Factors affecting restoration of customers' electricity supply on MEDs

The other component of ESCoSA's 2020-25 RCP reliability framework is the monitoring of MED performance. The main measure of SA Power Networks' performance on MEDs is the average time taken to restore customers' electricity supply. Restoration of electricity supply times on MEDs is affected by the:

- number of interruptions;
- numbers of customers affected;
- location of interruptions/damage (eg metro vs rural and difference in the corresponding distance travelled to patrol or repair);
- extent of damage to infrastructure (eg broken insulator can be fixed by a crew and an elevated platform vehicle, but in comparison a failed Stobie pole needs a new pole, a crew, elevated platform vehicle, crane, and consequently takes significantly longer to repair and restore supply);
- crew availability;
- duration of SWE (crews cannot work beyond 16 hours in any 24-hour period and this can adversely affect MED resourcing if the event commences prior to the MED); and
- accuracy of weather forecast (ie if severe weather event isn't forecast we haven't had the ability to adequately prepare for the event).

4.4.d Categorisation of MEDs

These factors make the determination of whether SA Power Networks' response during MEDs has declined or not complex. SA Power Networks considers it essential to compare each MED with similar historic MEDs to determine if the restoration of supply times have declined or not. This categorisation is important in assessing the MED performance because since 1 July 2010 the distribution system has experienced more intense MEDs[24]. SA Power Networks has ranked the intensity of the MEDs, albeit with limited data for some MED categories, into the following four categories which are:

- Category 1 (Cat1) MED where the maximum daily USAIDI is less than nine minutes (note: more than half the MEDs fall into this category)[25];
- Category 2 (Cat2) MED where the maximum daily USAIDI is more than nine minutes and no more than 23 minutes[26];
- Category 3 (Cat3) MED where the maximum daily USAIDI is more than 23 minutes and no more than 55 minutes; and

[24] The BoM has advised SA Power Networks that it is likely that the number and intensity of SWEs will increase due to the effects of climate change.

[25] Note some MEDs that would classify as a Cat1 due to its USAIDI value (<9 minutes), are classified as Cat2 as they mainly affected rural areas, and as such the response times are longer.

[26] The 23-minute threshold was based of the IEEE Std 1366 2.5β methodology for determining MED but used a 3.5 multiplier for Beta.

- Category 4 (Cat4) MED where the maximum daily USAIDI exceeds 55[27] minutes.

SA Power Networks may assign MEDs to a higher or lower category based on other factors like:

- Extent of the damage to infrastructure (eg many pole failures versus just insulator failures);
- Locations of the interruptions to electricity supply (eg rural versus urban areas);
- Significant weather event lasts more than 24 hours; and
- Access to our infrastructure (eg preventing from accessing our infrastructure due to a bushfire, ground too wet for vehicle access).

[27] The 55 minute threshold uses the IEEE's 1366 2.5β methodology but with a 4.15 multiplier for Beta which is referred to in the IEEE's standard as a Catastrophic Event Day (**CED**). There has been one Cat4 MED, on 4 Feb 2014.

5. Reliability assessment framework and use of Best Endeavours

As outlined in Section 4, SA Power Networks is required to employ best endeavours to achieve the EDC's feeder category reliability targets for each year ending 30 June. Despite the exclusion of interruptions commencing on MEDs, ESCoSA must assess whether SA Power Networks has complied with its reliability service standards, in that it has used best endeavours where the performance is worse than the target.

The exclusion of interruptions commencing on MEDs removes the extreme variations in annual reliability performance but there can still be significant variations (eg up to 50% of the reliability target) in feeder category reliability measures. These variations are normally related to local or state-wide SWEs that do not breach the MED USAIDI threshold.

5.1 Introduction

Each year during the 2020-25 RCP ESCoSA will determine whether SA Power Networks has:

- used best endeavours to meet the normalised reliability targets;
- maintained its responsiveness to restore customers' electricity supply as soon as practical, for those customers that experience an outage on MEDs; and
- maintained the historic reliability levels for those customers in the 10 regions.

How each of these components should be determined and assessed is detailed below.

5.2 Normalised reliability

5.2.a Introduction

In determining whether best endeavours have been used to achieve the EDC reliability targets it is first necessary to consider normalised reliability (ie excluding MEDs) and determine if:

- Reliability levels are stable for the aggregate distribution system and an individual feeder category basis (ie there has been no worsening trend in performance over several years);
    - the distribution system is being appropriately maintained if there has been no declining trend in the following measures:
    - USAIDIn resulting from 'equipment failure' caused interruptions; and
    - USAIDIn resulting from weather caused interruptions; and
- any remaining significant deviations in performance are the result of local or state-wide SWEs that do not result in a MED and/or 'one-off' type events or causes.

5.2.b Normalised reliability analysis

The first step in analysing normalised reliability is to examine the performance trend over several years, as large annual variations generally result from either local SWEs or one-off events. Longer term trend performance is analysed as it may take many years before any degradation of the network can be identified from its reliability performance.

Individual feeder categories for the 10 regions can have significant variations in normalised reliability as the normalisation process is less effective at sub-system levels of the distribution system as previously explained.

A stable non-declining trend in USAIDIn, provides a good indication that SA Power Networks has used best endeavours to meet EDC reliability targets and to maintain historic regional reliability, provided any material excursions are due to weather events or one-off non-systemic events.

5.2.c Design, construction and maintenance of the network

The next step in analysing whether best endeavours have been used is to analyse the trend performance in the overall average daily USAIDIn contribution from weather caused interruptions. This measure provides an indication that:

- The distribution system is being maintained to cope with 'normal' SWEs (ie non-MED SWEs); and
- new additions to the network are appropriately designed and constructed to withstand normal weather variations.

Another indicator of whether SA Power Networks is adequately maintaining all parts of the network is to analyse the trend performance in USAIDIn that is attributed to equipment failure. A stable non-declining trend in USAIDIn from equipment failure caused interruptions indicates that SA Power Networks is appropriately maintaining the network to achieve the EDC reliability targets.

5.2.d Normalised reliability conclusion

SA Power Networks considers that the use of best endeavours is demonstrated by a stable non-declining trend performance in:

- USAIDIn and USAIFIn at the aggregate distribution system and feeder category level;
- Annual contribution USAIDIn from weather caused interruptions is not increasing; and
- USAIDIn contribution from equipment failure-caused interruptions is also not increasing.

5.3 MED Performance

5.3.a Introduction

Section 4.4 above detailed the factors that impact MED reliability performance. The common denominator that results in longer than average Unplanned Customer Average Interruption Duration Index[28] (**UCAIDI**) during a MED is the degree of the damage to infrastructure or delays in safe access to make repairs. For example, the MED on 3 January 2020, should have been categorised as a Cat 1 but was categorised as a Cat 4, as SA Power Networks was prevented from accessing infrastructure to restore supply due to raging bushfires on Kangaroo Island. Delays in restoring supply under bushfire conditions result from factors like, extended times to patrol, gain access to the fire grounds and make repairs and to ensure premises can be safely reconnected or to disconnect unsafe premises prior to restoring supply.

5.3.b Measures

SA Power Networks assesses the use of best endeavours during MEDs by analysing:

- MEDs by their category[29] (ie Cat1, Cat2, Cat3 or Cat4 as defined in Section 4.4 above);
- the equipment-failure contribution to the MED USAIDI (this should indicate if the distribution system is being appropriately maintained to cope with MEDs or Major SWEs); and
- individual MED UCAIDI by MED Category. This is a measure of SA Power Networks' processes and practices in responding to major SWEs, with MED performance the proxy. UCAIDI will normally be longer as the category increases from Cat2 to Cat4, especially when there is extensive infrastructure damage associated with the MED or there are access issues (eg flooding preventing access).

[28] UCAIDI is a measure of the average time, in minutes, that customers who experience an interruption are without supply.

[29] A Cat1 MED would normally occur every year, Cat2 every few years and Cat3 or Cat 4 once every 5 years or more.

5.3.c MED reliability conclusion

SA Power Networks considers that the use of best endeavours during MEDs can be demonstrated by achieving reasonable average restoration of supply times for:

- Cat1 UCAIDI — typically 180 minutes with expected range between 150 and 210 minutes;
- Cat2 UCAIDI — typically 330 minutes with expected range between 230 and 500 minutes:
- Cat3 UCAIDI — typically 290 minutes with expected range between 210 and 430 minutes; and
- Cat4 UCAIDI — typically 600 minutes but expected to be greater than 500 minutes and is associated with extensive infrastructure damage; and
- demonstrating no decline in trend performance in the proportion of USAIDI attributed to equipment failure.

Cat1 UCAIDI provides the best indicator of whether SA Power Networks has maintained its ability to appropriately respond to MEDs. This is because Cat1 MEDs make up at least half the MEDs, have the smallest variation in USAIDI and consequently are associated with similar intensity SWE.

6. Distribution system reliability performance during 2024/25

6.1 Overall Normalised Performance 2024/25

6.1.a Test for use of best endeavours

As detailed in Section 5.2 the test for determining if SA Power Networks has employed best endeavours in maintaining normalised reliability performance is no declining trend performance in:

- USAIDIn and USAIFIn at the aggregate distribution system and each feeder category level;
- Annual contribution to USAIDIn from weather caused interruptions is not increasing; and
- Annual contribution to USAIDIn from equipment failure caused interruptions is also not increasing.

6.1.b Aggregate distribution system reliability performance

Table 14 below shows the aggregate distribution system normalised reliability is better than the implied distribution network target.

Table 14: SA Distribution System's Unplanned Normalised Reliability Performance

	USAIDIn		USAIFIn	
	Target	**Actual**	**Target**	**Actual**
2024/25	150	143	1.30	0.94

Figure 6: Distribution system normalised reliability (excludes MEDs)

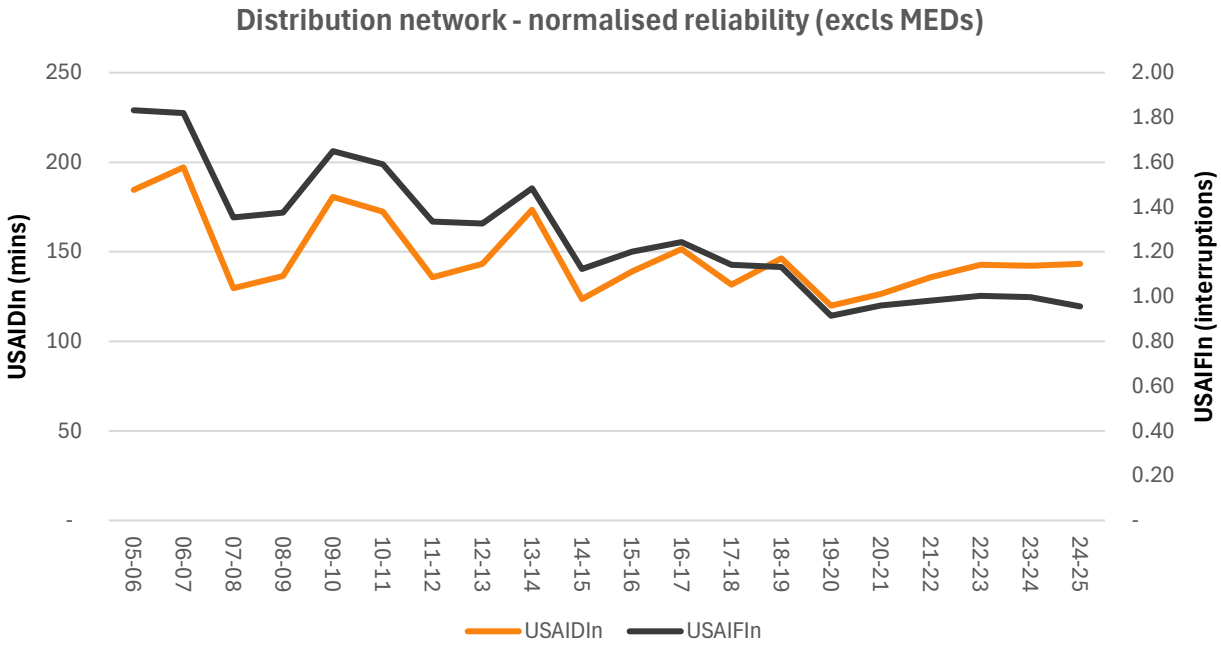


Figure 6 above demonstrates that overall there is a positive trend (i.e. customers on average are experiencing less minutes without supply and less interruption each year) in the distribution network's normalised reliability performance, as measured using USAIDIn and USAIFIn, over the past 19 years.

Figure 7: Customer restoration of supply

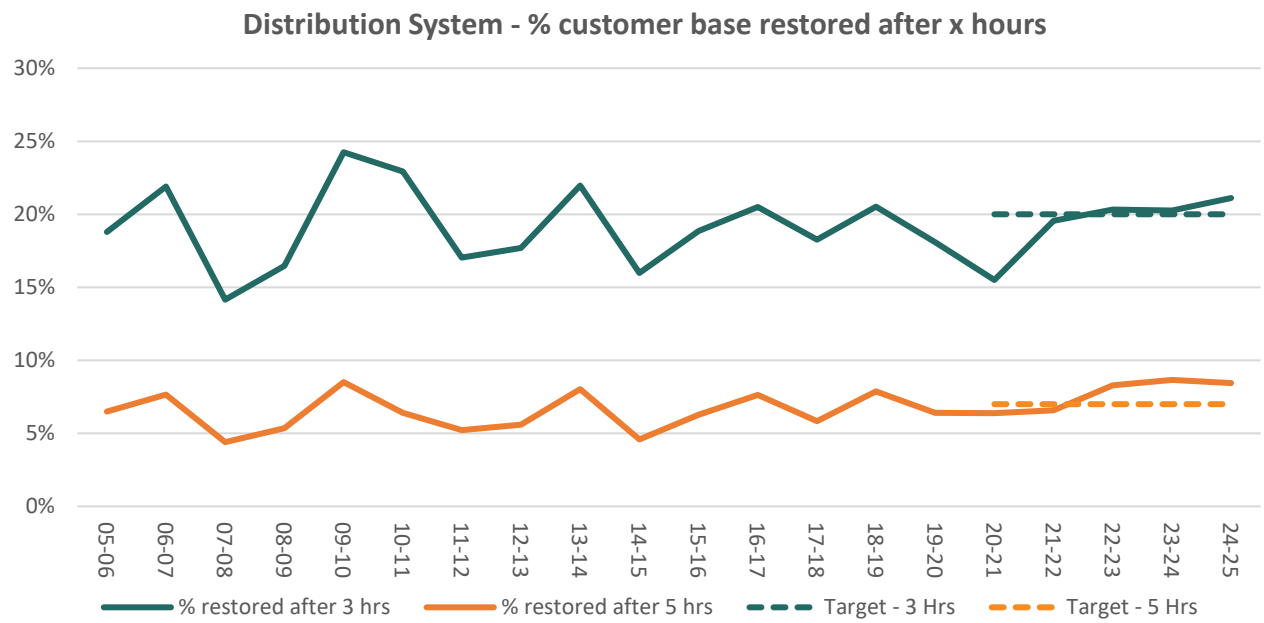


Figure 7 shows a slight increase in the percentage of customers experiencing unplanned interruptions lasting between three and five hours in 2024/25. Meanwhile, the performance for interruptions exceeding five hours has remained stable over the past two years but continues to exceed the target. The 2024/25 performance was influenced by a combination of severe weather events that either did not qualify as MEDs or occurred immediately before or after an MED, as well as the adverse impact of Solar PV on the operation of SWER sectionalisers.

6.1.c USAIDIn Cause Contribution to Normalised Performance

below illustrates that there are no clear trends in the cause categories of weather, equipment failure, or 'other' over the 19-year period. The 2024/25 normalised reliability performance contribution to USAIDIn from these categories falls within normal variation, indicating no negative trend. While there was a slight decline in weather-related performance due to lightning and insulator pollution, this is not systemic. This indicates that the distribution system is being effectively maintained to handle typical weather events and to cost-effectively manage interruptions caused by equipment failure.

Figure 8 below illustrates that there are no clear trends in the cause categories of weather, equipment failure, or 'other' over the 19-year period. The 2024/25 normalised reliability performance contribution to USAIDIn from these categories falls within normal variation, indicating no negative trend. While there was a slight decline in weather-related performance due to lightning and insulator pollution, this is not systemic. This indicates that the distribution system is being effectively maintained to handle typical weather events and to cost-effectively manage interruptions caused by equipment failure.

Figure 8: Normalised USAIDI contribution due to weather and equipment failure

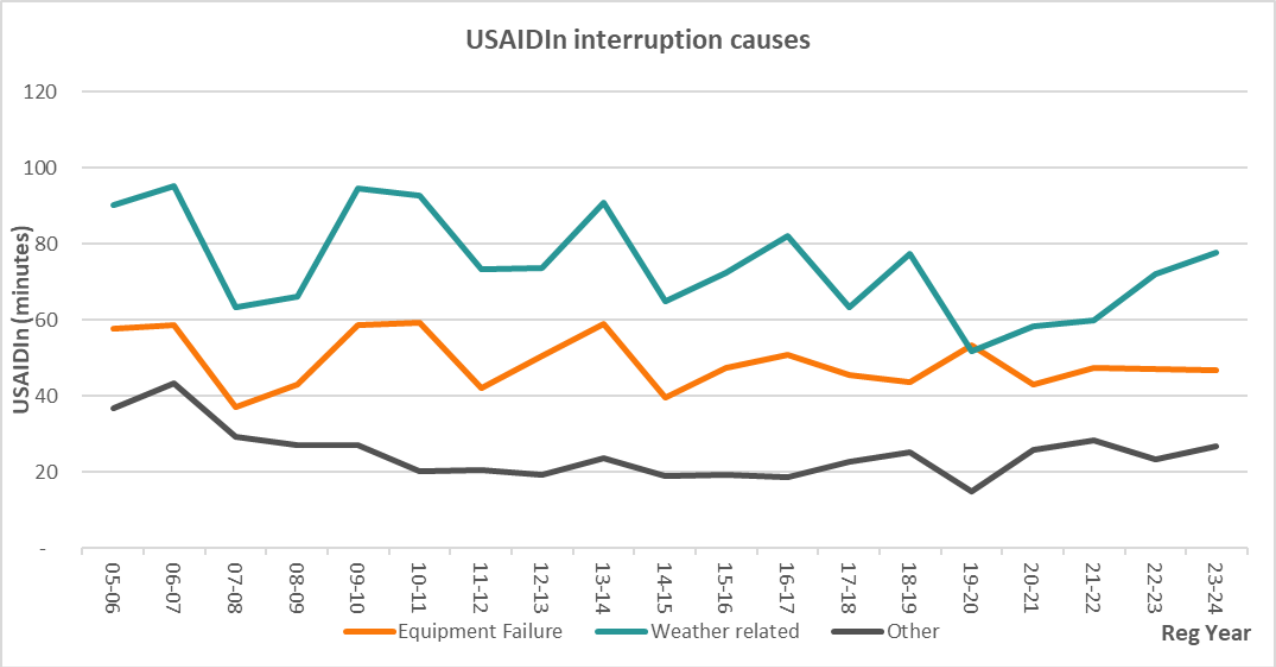


Table 15: Distribution system USAIDIn cause contributions

USAIDIN	WEATHER	ASSET FAILURE	OTHER
2024/25	74	46	23
TSP	79	50	22

Table 15 above shows that all causes except Other had a lower contribution to USAIDIn in 2024/25 compared to the TSP. The USAIDIn from cause Other was slightly above average for the TSP and was primarily related to third party impact.

6.1.d Conclusion – normalised reliability performance 2024/25

The overall normalised reliability performance during 2024/25 has shown:

- no decline in normalised performance;
- the normalised reliability performance achieved the implied targets;
- no decline in performance due to any specific cause including 'equipment failure'; and
- no decline in the network's resilience to cope with non-MED SWEs.

Consequently, we consider that we have employed best endeavours to maintain normalised reliability performance in 2024/25, to achieve the EDC reliability targets.

6.2 MED Performance 2024/25

6.2.a Test to determine if performance during MEDs has been maintained

Section 5.3 outlined the test for determining if SA Power Networks has maintained its responsiveness to restoring supply to customers interrupted during MEDs.

6.2.b MED Performance during 2024/25

In 2024/25 there were a total of five Cat1 MEDs contributing 31.06 minutes to USAIDI. Table 16 below details the date of these MEDs and their USAIDI and USAIFI contributions and the UCAIDI on the day.

Table 16: Details of MED exclusions during 2023-24

Event #	MED Category	Dates	USAIDI	USAIFI	UCAIDI	Comment
1	Cat 1	19 July 24	5.78	0.0278	208	Severe weather event
2	Cat 1	17 Oct 24	8.44	0.0181	467	Severe weather event
3	Cat 1	10 Mar 25	5.36	0.0084	642	Severe weather event
4	Cat 1	26 May 25	6.55	0.0396	165	Severe weather event
5	Cat 1	7 Jun 25	4.93	0.0255	193	Severe weather event
Total		**5 days**	**31.06**	**0.1194**		

6.2.b.1 Cat1 MED on 19 July 2024 wind event

From Friday, 19 July 2024, through to the evening of Saturday, 20 July 2024, a severe wind event swept across South Australia, causing significant localised damage to the electricity network. The areas most affected were coastal parts of the Adelaide Metro, Fleurieu Peninsula, and the Mt Lofty Ranges. Compounding the challenges of the storm, a global IT outage disrupted corporate IT systems and their integration with the Advanced Distribution Management Systems (ADMS) outage services.

The strongest winds were recorded at Mt Crawford and Cummins weather stations, both reaching 106 km/h on the evening of Friday, 19 July. The severe conditions resulted in 680 separate outage jobs, affecting approximately 50,000 customers over the two days. Despite the widespread impact, no more than 3,000 customers were without power at any one time during the event. The combination of rolling interruptions, wire-down incidents, and the IT outage created a complex restoration effort for both metropolitan and regional customers.

SA Power Networks launched a comprehensive organisational response, with crews immediately mobilised to restore power. Customers were progressively reconnected throughout the event, with the majority of outages resolved by the evening of 20 July. In total, the storm left 26,299 customers without supply on 19 July (the classified MED).

This event required a significant effort from teams across the business to manage the widespread damage and ensure power was restored as quickly and safely as possible.

Figure 9: Fallen tree in metropolitan Adelaide bought down many spans of powerline.

6.2.b.2 *Cat1 MED on 17 October 2024.*

On Thursday, 17 October 2024, an extreme weather event swept through South Australia, primarily impacting the Mid North and Flinders Ranges. The event brought stormy conditions and damaging wind gusts of up to 100 km/h.

The strong winds caused significant damage to several transmission network towers, disrupting power supply to Leigh Creek, Quorn, Hawker, and surrounding towns. In response, SA Power Networks swiftly mobilised crews and deployed mobile generators to provide power to the affected communities.

A total of 17,089 customers across the state were impacted during the event. Alongside the strong winds, intense lightning activity was recorded, with up to 160 ground strikes per minute. Adding to the challenge, teams also had to contend with an Extreme Fire Danger warning issued by the CFS.

The response to this event spanned several days and involved extensive efforts from many SA Power Networks staff, including those who travelled from across the state to assist.

6.2.b.3 *Cat1 MED 10 March 2025 storm event*

From Monday, 10 March, through to the evening of Tuesday, 11 March 2025, a thunderstorm with significant lightning activity swept across South Australia, impacting the distribution network in the Yorke Peninsula, Mount Lofty Ranges, and the South East.

A total of 7,904 customers experienced outages due to impacts on both the distribution and transmission networks. The Yorke Peninsula and South East were the hardest-hit areas. On the Yorke Peninsula, an ElectraNet line tripped, affecting the majority of SA Power Networks customers in the region. In the South East, a dry lightning storm triggered a Force Majeure declaration and sparked several small bushfires. Adding to the challenges, the CFS declared a Total Fire Ban for the Lower South East on Tuesday, 11 March.

The event required a coordinated response to manage the widespread impacts and ensure the safety of affected communities.

6.2.b.4 Cat1 MED 26 May 2025 storm event

On 26 May 2025 parts of South Australia saw the first burst of wet weather in months, accompanied by strong winds and dust storms in the lead up to the front. A total of 37,489 customers experienced outages across the state. The highest impacted region was the greater Adelaide metropolitan area.

6.2.b.5 Cat1 MED 7 June 2025 storm event

On 7 June 2025 parts of South Australia saw strong winds and heavy rainfall. A total of 24,109 customers experienced outages across the state. The highest impacted regions were the greater Adelaide metropolitan area and the major regional centres.

6.2.c Equipment failure component of MEDs

Another indicator of whether SA Power Networks is appropriately maintaining the distribution system is the proportional contribution to USAIDI on MEDs that result from equipment failure outages, being cognisant that as the MED USAIDI increases so does the absolute value of USAIDI due to equipment failure (i.e. as intensity of the MED increases there are more interruptions due to electricity infrastructure damage and consequently longer restoration times).

Figure 10 below shows the contribution to MED USAIDI from weather (and unknown), equipment failure and other.

Figure 10: MEDs USAIDI contribution from causes weather and equipment failure

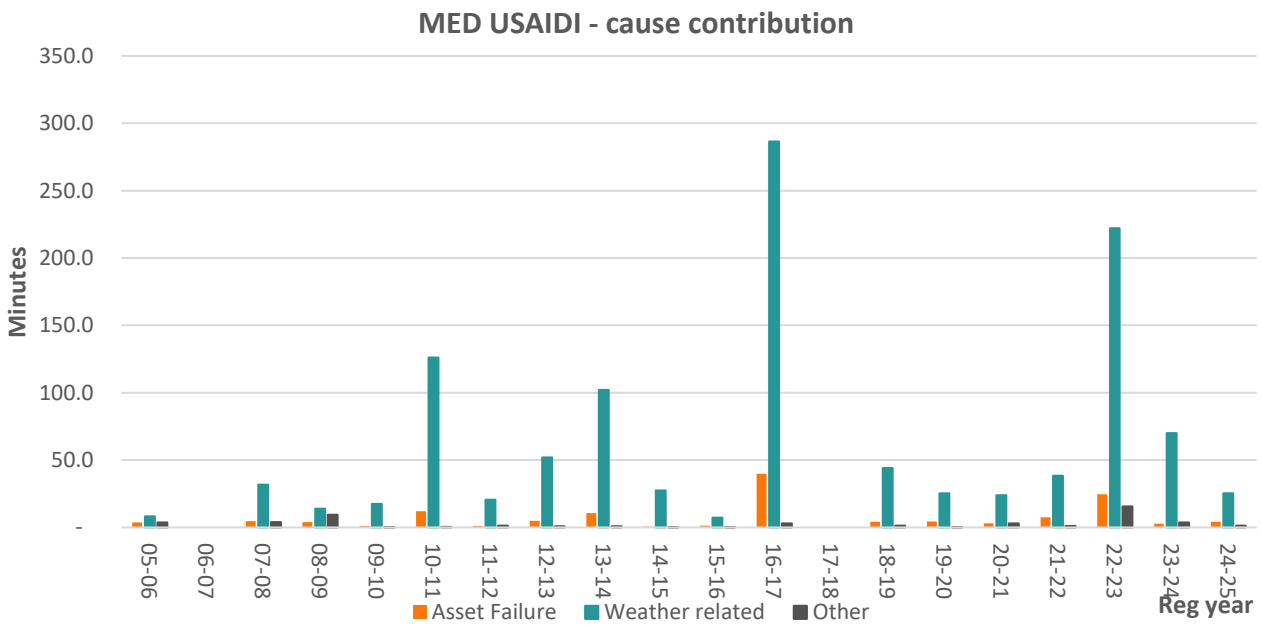


Figure 10 shows the contribution from 'equipment failure' during MEDs in 2024/25 was 4.3 minutes which is less than the 10-year TSP historic average of 7.6 minutes. The *USAIDIn* contribution from equipment failure

was 47 minutes, 3 minutes lower than the TSP where the average was 50 minutes. Consequently, we conclude that the proportion of USAIDI contribution during MEDs from 'equipment failure' is relatively stable.

The stability in our equipment failure performance reflects the priority given to addressing the highest risk defects identified from our asset inspection program.

6.2.d MED performance conclusion

SA Power Networks considers that average restoration of supply times performance did not decline in 2024/25. In addition, the proportional contribution to MED USAIDI from equipment failure-caused interruptions is within the normal range in 2024/25. This provides evidence that the distribution system is being appropriately maintained to achieve the EDC reliability targets. Consequently, SA Power Networks concludes that our responsiveness to restore customers who experience interruptions during MEDs in 2024/25 has been maintained.

6.3 Conclusion – overall reliability outcome for 2024/25

The distribution system's reliability was maintained during 2024/25 and SA Power Networks' response during MEDs has been maintained. In particular,

- The normalised reliability of the distribution system has been maintained;
- The USAIDIn contribution due to equipment failure-related interruptions is stable;
- The USAIDIn contribution from weather related interruptions is not increasing;
- The average restoration of supply times MEDs have been maintained; and
- The equipment failure percentage contribution to USAIDI during MEDs has been stable.

SA Power Networks has therefore complied with its reliability obligations at a distribution system level in 2024/25.

7. EDC Feeder Category reliability performance

7.1 Introduction

In the sections to follow, SA Power Networks assesses each of the feeder categories' reliability performance in three steps:

- Determining if the normalised performance achieves the reliability targets.
- Determining if over the last few years there has been any declining trend in performance.
- Where the normalised performance is worse than the EDC normalised targets, explaining that performance by removing the effects of local SWEs, other one-off type events and analysing the annual USAIDIn cause contributions.

Note:

- Where a feeder category's normalised performance meets the service standard target, no further comment will be made except to determine if the performance was consistent with historic performance.
- The normalisation process, as explained earlier, does not work equally well for all feeder categories' performance.

7.2 CBD feeder category normalised performance

7.2.a Introduction

The feeders within the CBD category supply 1% of customers, using 0.4% of the distribution system. These feeders supply the Adelaide CBD and immediate surrounds. Due to the very low customer numbers and low targets, the performance of the CBD feeders is very sensitive and can be significantly impacted by a single interruption.

7.2.b Normalised reliability performance

SA Power Networks did not achieve any of the CBD performance targets however we were within three out of four reporting thresholds. We did not meet the CRoSn ≥ 1hour reporting threshold for the CBD Feeder category in 2024/25. The main cause for not achieving the CRoSn ≥ 1hour target was the impact from third parties damaging our equipment (Other) and an asset failure relating to a switching cubicle and a cable fault.

Table 17: CBD reliability by interruption cause

	Asset failure	Weather	Other	Total
USAIDIn				
2024/25	11.2	2.9	5.8	19.8
TSP Ave	13.0	2.1	1.2	16.2
Reporting Threshold	14.2	4.1	1.9	20.2
Target				15
USAIFIn				
2024/25	0.116	0.011	0.053	0.180
TSP Ave	0.099	0.029	0.019	0.147
Reporting Threshold	0.115	0.051	0.034	0.200
Target				0.15

Table 17 above compares the cause contributions to USAIDIn and USAIFIn for 2024/25 against the TSP average, the reporting threshold and the target. It highlights that the CBD USAIDIn and USAIFIn performance differed by cause from the TSP average and reporting threshold. However, overall, USAIDIn and USAIFIn remained below the reporting threshold but did not achieve the target as can be seen in Figure 11 and Figure 12.

Figure 11: CBD feeder category USAIDIn

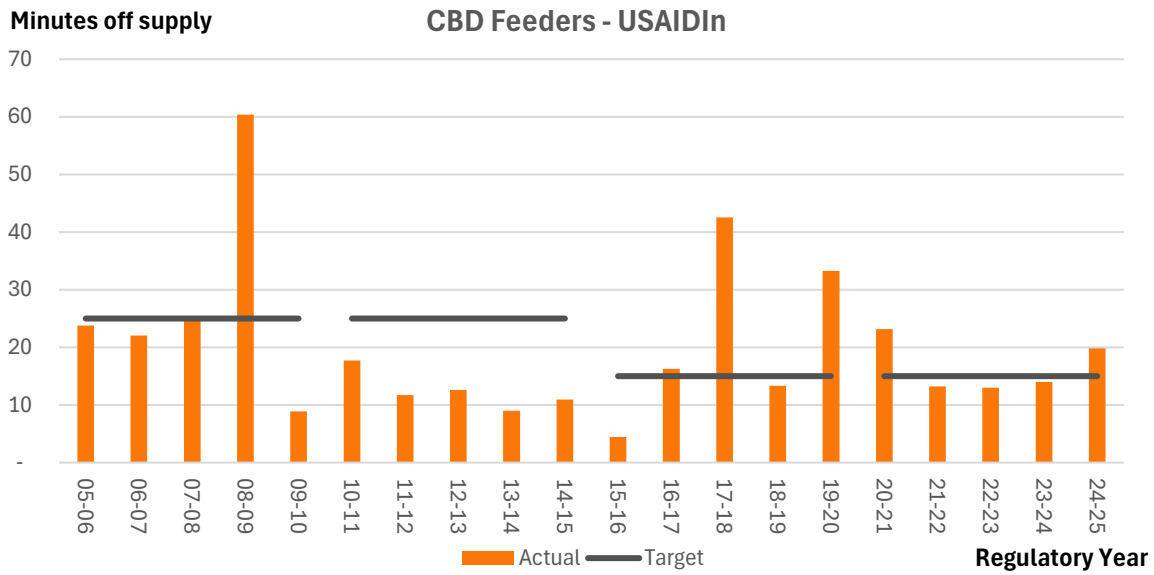


Figure 12: CBD feeder category USAIFIn

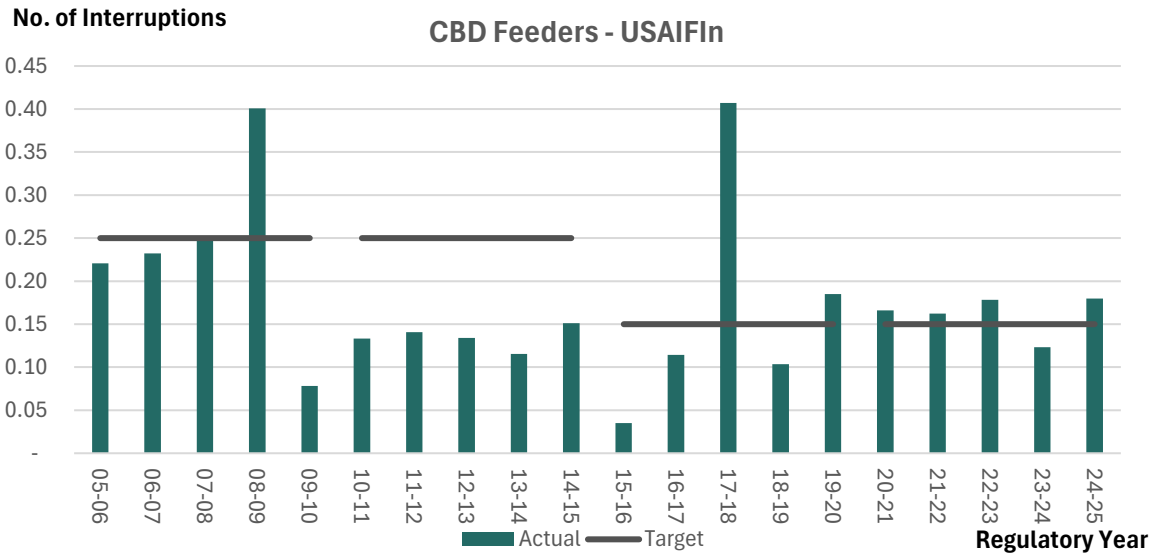
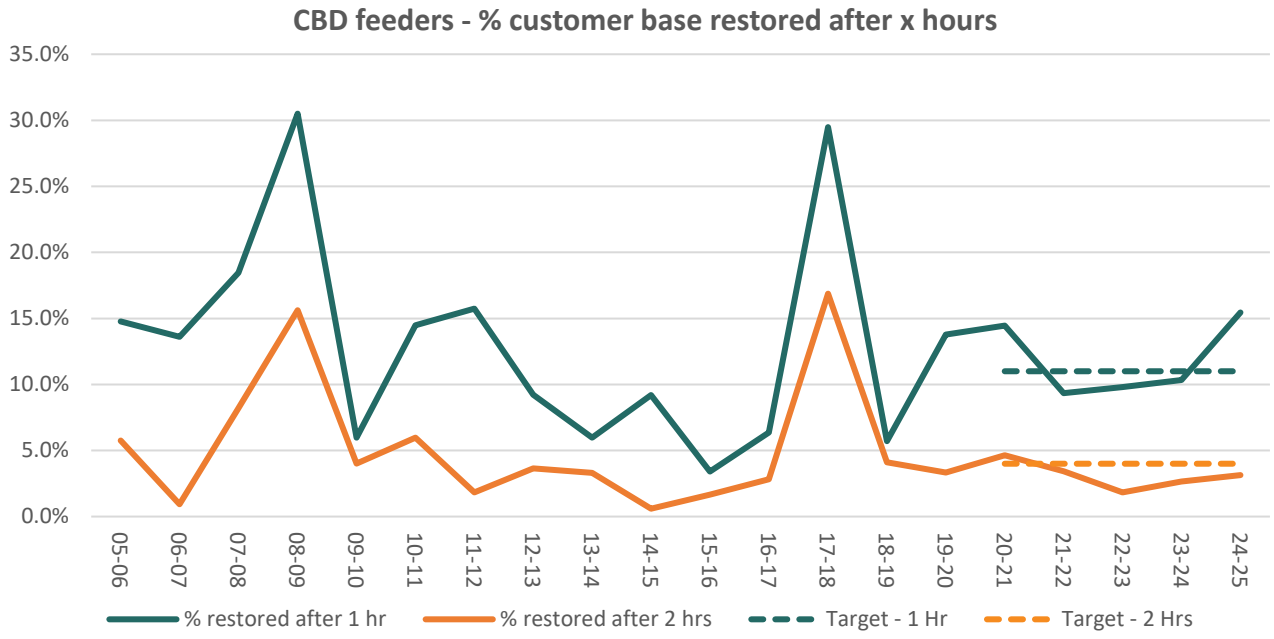


Figure 13 indicates that the feeder restoration target for outages exceeding 2 hours was met; however, the target for restoring feeders within one hour was not achieved.

Figure 13: CBD feeder category CRoSn (≥ 1hour and > 2hours)



7.2.c Conclusion

While only one out of four CBD feeder category targets were achieved in 2024/25, three categories were within the reporting threshold. As explained above, due to the very low customer numbers and low targets, the performance of the CBD feeders is very sensitive.

SA Power Networks believes it has employed best endeavours to meet the CBD feeder category targets during this period. Vandalism on assets contributed 3.27 minutes. A decline in the performance of some older cables within the CBD has been observed and a program to replace the most at risk cables has commenced.

7.3 Urban feeder category normalised performance

7.3.a Introduction

The Urban feeders supply about 69% of customers utilising about 29% (i.e. 24,535 route kms) of the distribution system. They supply the Adelaide Metropolitan area (excluding part of the Adelaide CBD and some major regional towns (e.g. Mt Gambier and Pt Augusta).

7.3.b Normalised reliability performance

The 2024/25 Urban network performance achieved expectations for USAIDIn and USAIFIn, demonstrating strong reliability. Notably, only 23% of customers were not restored within 2 hours, which is better than the target of 27%. Additionally, the percentage of customers restored within 3 hours met the target of 11%.

Table 18: Reliability performance of the Urban feeder category

Urban feeders	USAIDIn	USAIFIn	% Restored 2 Hrs	% Restored 3 Hrs
2024/25	92.1	0.76	23	11
Target	110	1.15	27	11
Reporting threshold	125	1.35	29.5	13.5

Figure 14: Urban feeder category USAIDIn

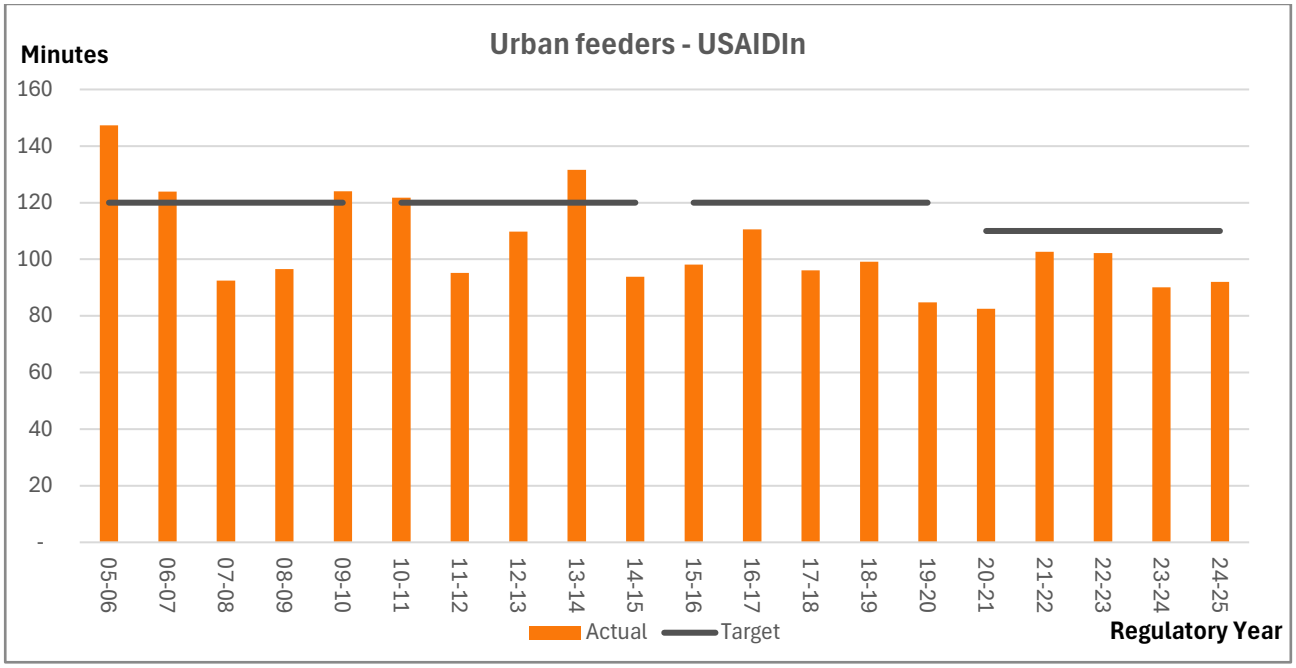


Figure 15: Urban feeder category USAIFIn

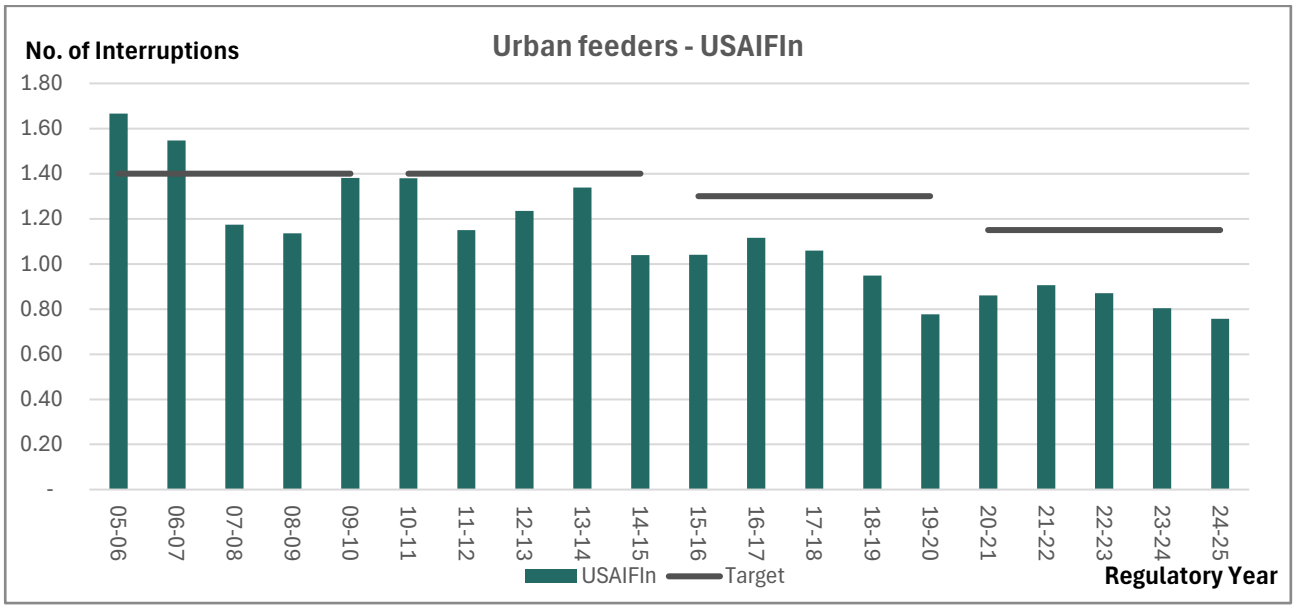
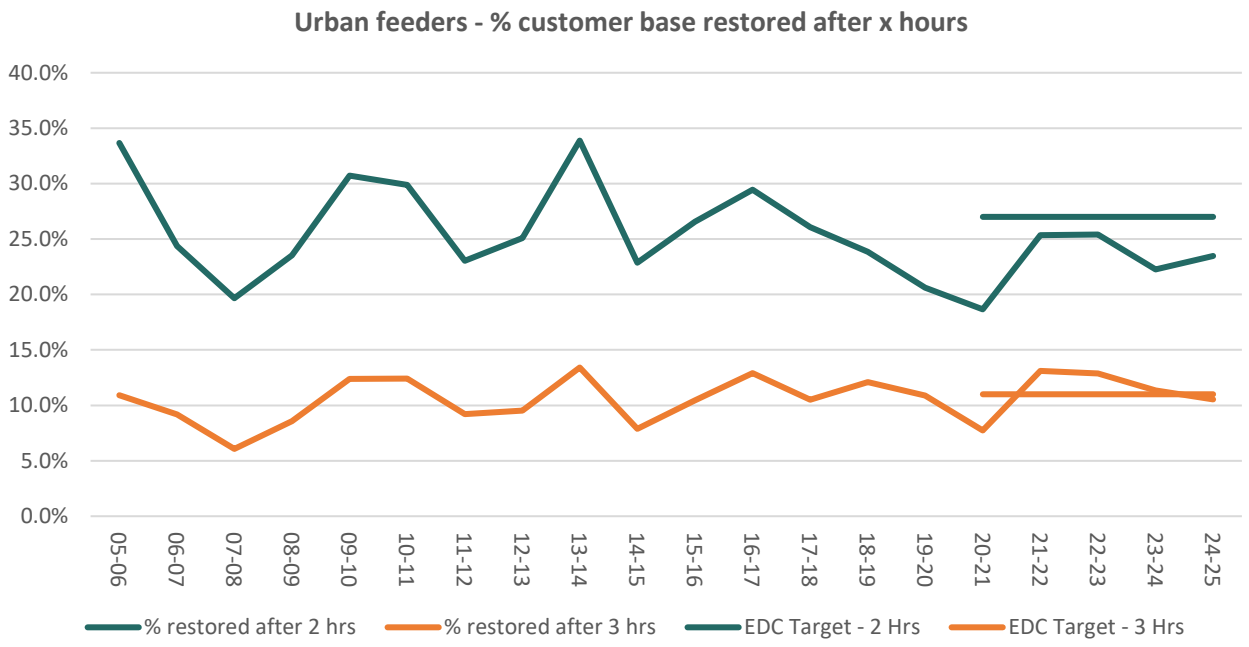


Figure 16: Urban feeder category CRoSn (> 2hours and > 3hours)



7.3.c Conclusion

All four reliability targets were achieved in 2024/25, with no evidence of a declining trend in reliability measures. This demonstrates that best endeavours have been applied to meet the EDC's Urban feeders targets for USAIDIn, USAIFIn, and customer restoration of supply during 2024/25.

7.4 Rural Short feeder category normalised performance

7.4.a Introduction

The Rural Short (**RS**) feeders supply about 15% of customers utilising about 15% (i.e. 12,587 route kms) of the distribution system. These feeders supply customers in the fringe areas of the Adelaide Metropolitan area and most regional towns (e.g. Victor Harbor).

7.4.b Normalised reliability performance

SA Power Networks met all four Rural Short feeder category targets for 2024/25. Table 19 shows the actual performance when compared with the target and the reporting threshold (i.e. normal bounds of the variation in performance). Figure 17, Figure 18 and Figure 19 demonstrates there has been a gradual improvement in historic reliability performance and that there has been no decline in networks restoration performance for > 3 hours and > 5 hours.

Table 19: Rural short performance (normalised)

Rural Short feeders	USAIDIn	USAIFIn	% Restored 3 Hrs	% Restored 5 hrs
2024/25	143	1.10	22	7
Target	200	1.65	27	8
Reporting threshold	220	1.85	29.5	10.5

Figure 17: Rural short feeder category USAIDIn

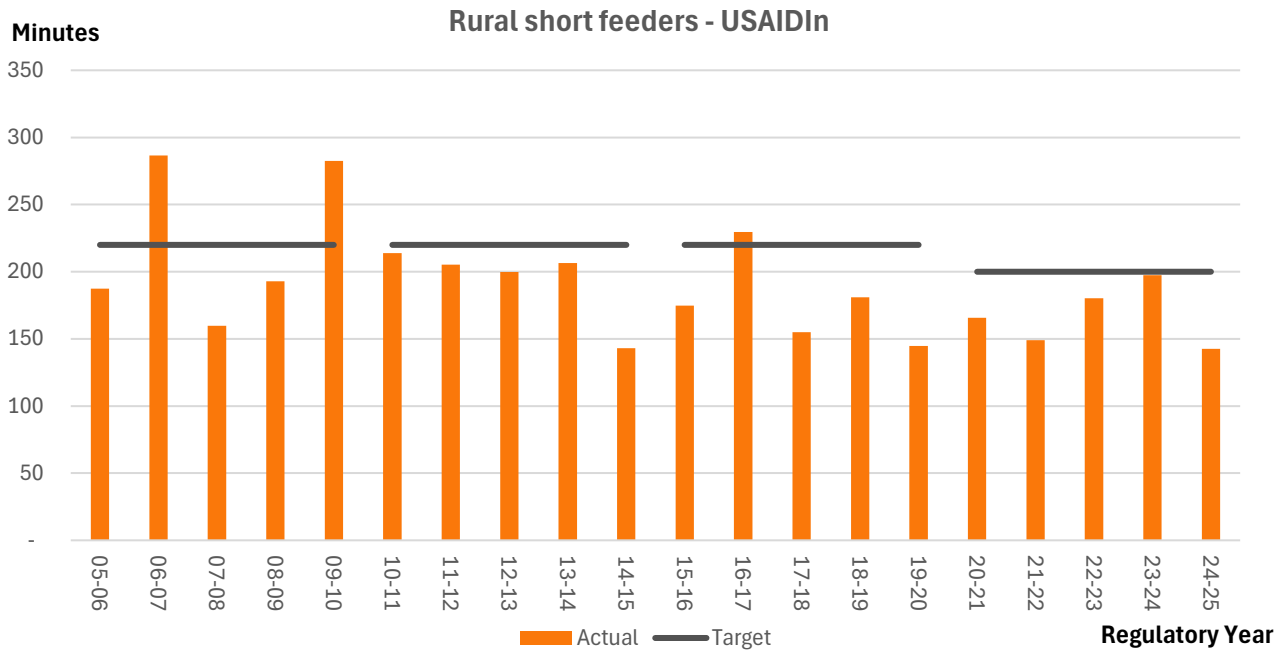


Figure 18: Rural short feeder category USAIFIn

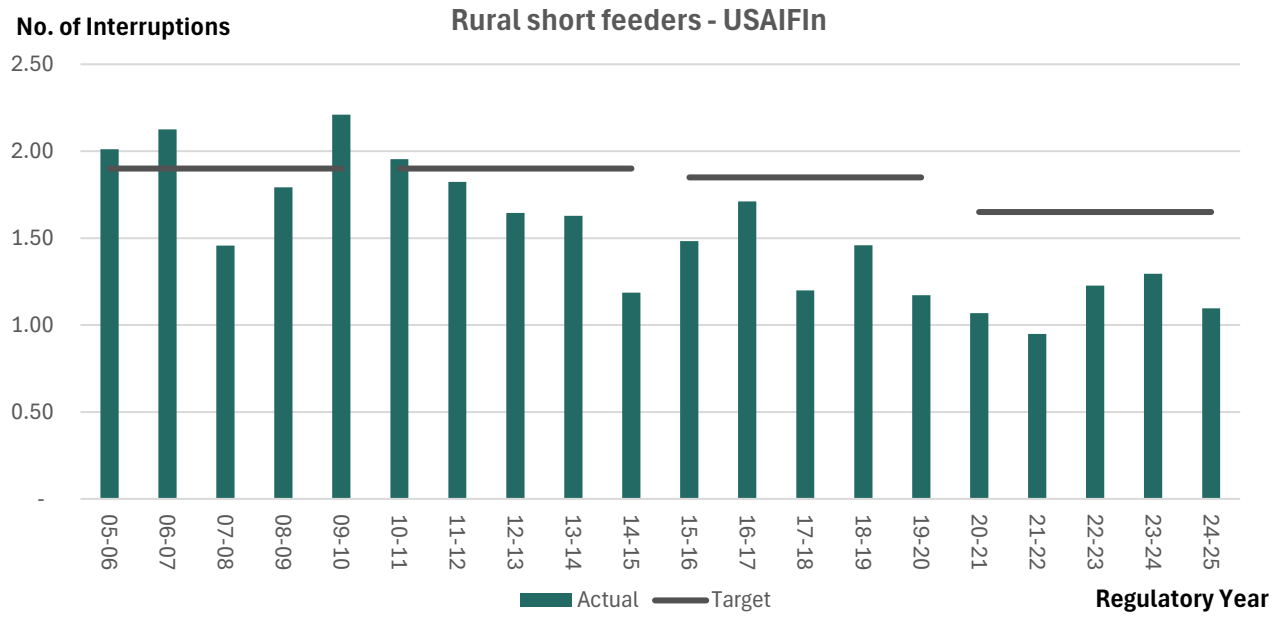
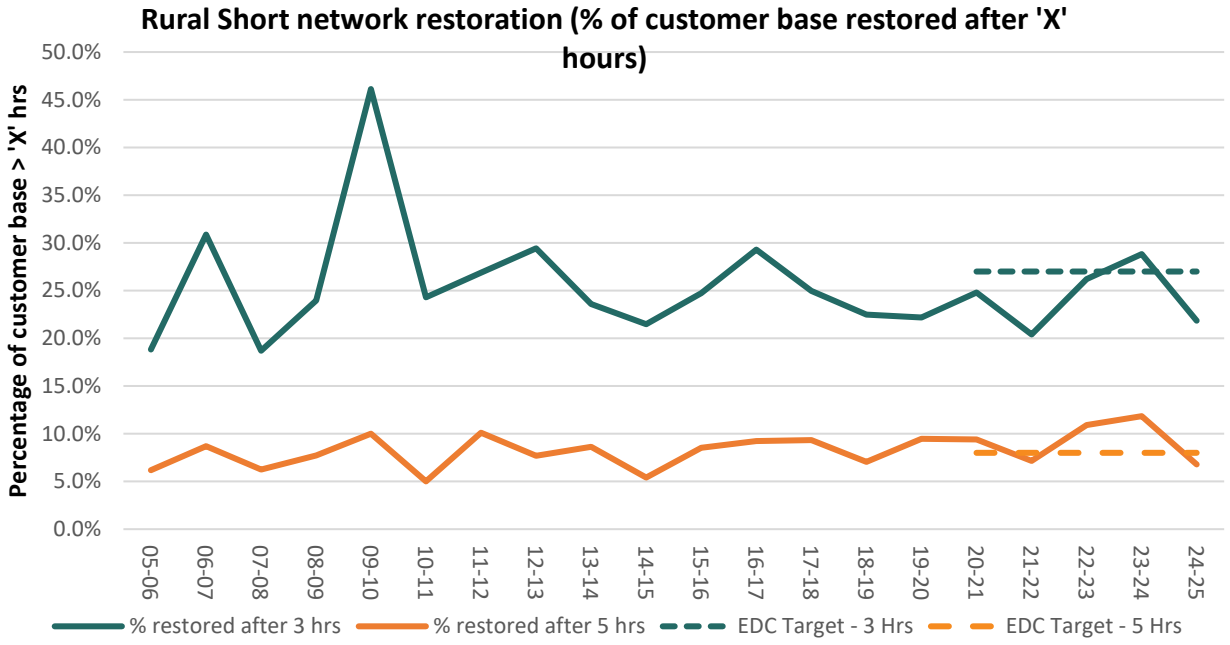


Figure 19: Rural short feeder category CRoSn (> 3hours and > 5hours)



7.5 Rural Long feeder category normalised performance

7.5.a Introduction

Rural Long (RL) feeders serve approximately 15% of customers while utilising around 55% of the distribution network, equivalent to 49,277 route kilometres, primarily supplying rural areas.

7.5.b Normalised reliability performance

SA Power Networks achieved one out of the four Rural Long (RL) feeder category targets for 2024/25, as outlined in Table 20. USAIFIn was the only measure that remained below (i.e. was better than) the target.

Table 20: Rural long feeder performance (normalised)

Rural Long feeders	USAIDIn	USAIFIn	% Restored 4 Hrs	% Restored 7 hrs
2024/25	389	1.71	44	18
Target	290	1.75	30	10
Reporting threshold	330	2.10	32.5	12.5

Figure 20 illustrates USAIDIn performed poorly in 2024/25 compared to the EDC target and our historical reliability performance.

Figure 20: Rural long feeder category USAIDIn

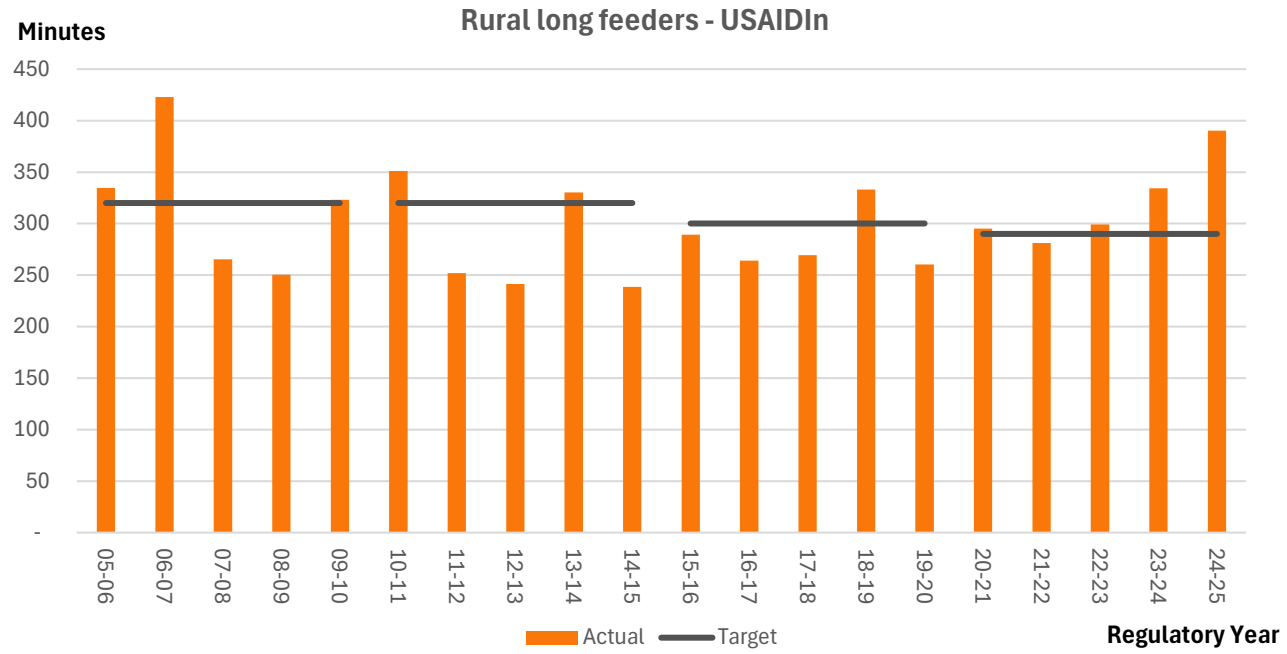


Figure 21 identifies that in 2024/25 our USAIFIn performance was comparable to the EDC target and is better than our historic average performance.

Figure 21: Rural long feeder category USAIFIn

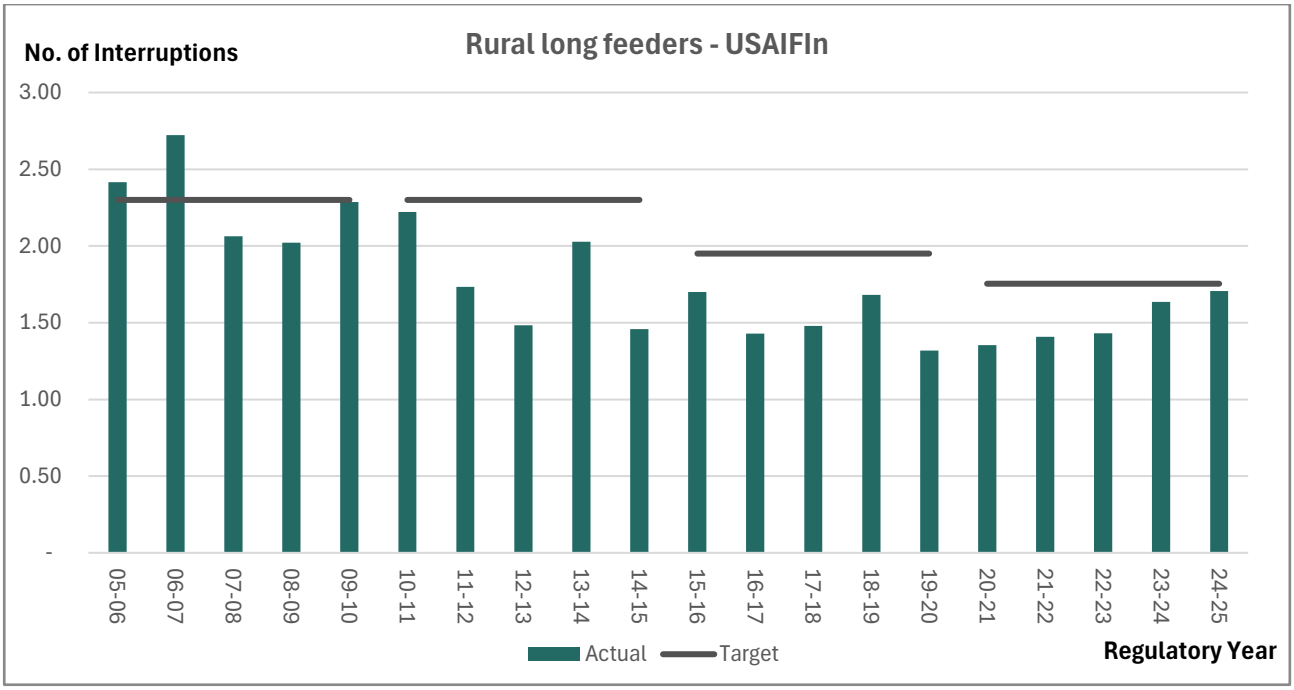
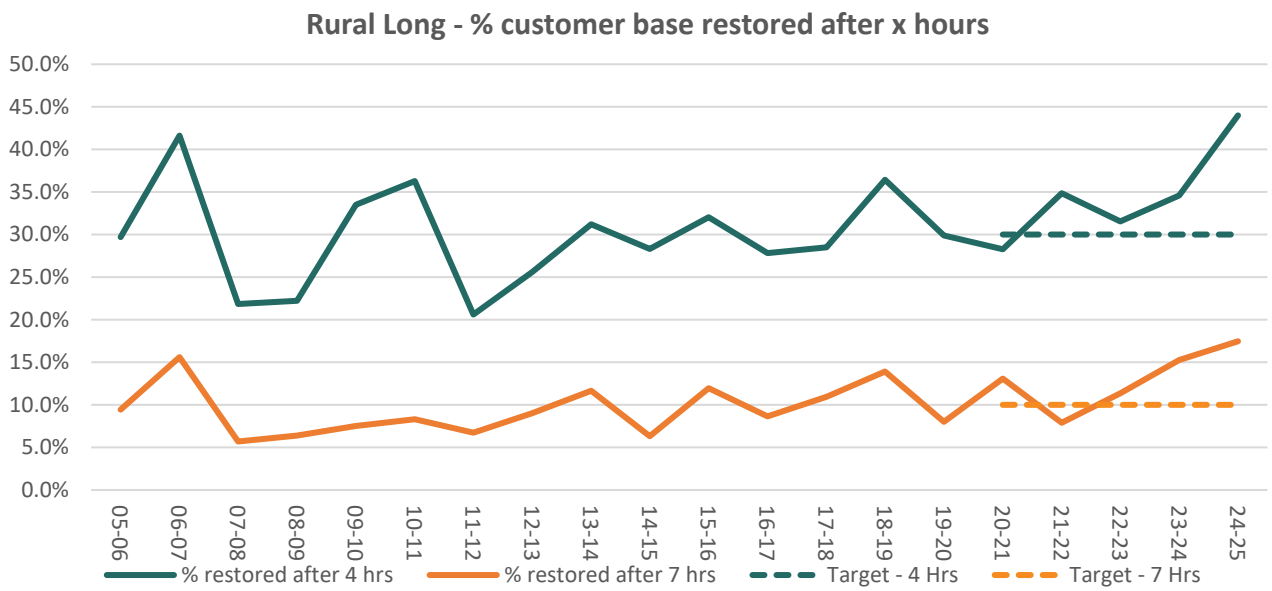


Figure 22 shows that our CRoS performed poorly compared to the EDC target and our historic performance.

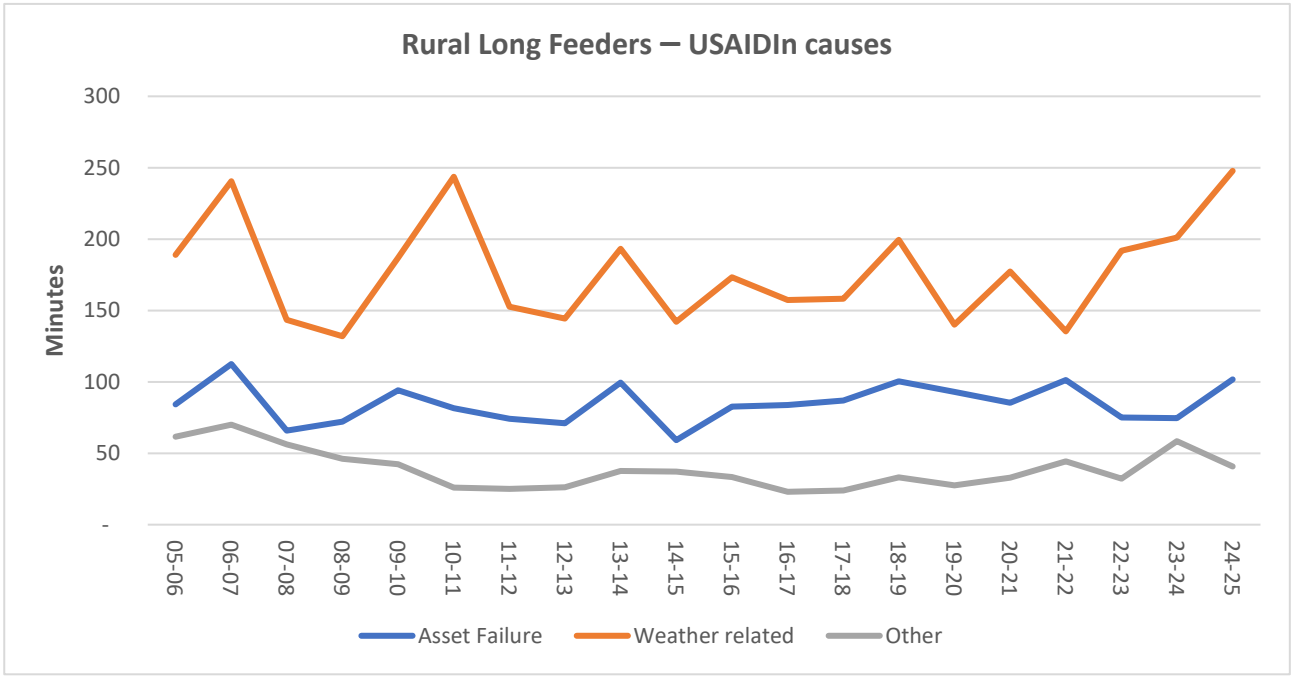
Figure 22: Rural long feeder category CRoSn (> 4hours and > 7hours)



Major factors influencing RL reliability performance

The above-target (poor) USAIDI performance for Rural Long feeders was primarily driven by a significant increase in weather-related interruptions, including storm events and insulator pollution, contributing approximately 47 minutes, along with an additional 27 minutes from asset failure interruptions, as shown in Figure 23. This USAIDIn performance aligns with the challenges in supply restoration (CRoSn) on 19kV SWER feeders, which is further detailed below.

Figure 23: Long Rural USAIDIn interruption causes



There are a number of contributors to the poor USAIDIn and restoration of supply performance of our Rural Long feeders over 2024/25. The major causes for the increase contribution to USAIDIn were:

1. An increase in weather related interruptions which is caused by a notable increase in lightning activity in the 2020-25 RCP, and in 2024/25 our performance was impacted by environmental factors (e.g.

no rain permitted dust and salt build up on insulators) which led to significant increase in unplanned outages;
2. The decline in the performance of 19kV SWER feeders. Sectionalisers are not operating due to the feed in voltage from solar pv; and
3. An increase in animal and vegetation related interruptions in 2024-25.

The decline in both USAIDIn and UCAIDIn in Rural Long 19kV SWER feeders is due to several factors which include:

1. The proliferation of Solar PV now connected to the rural network which results in our sectionalisers being ineffective during daylight hours which leads to extended timeframes to locate and repair the fault on long lines[30];
2. Ageing of the 19kV SWER network which is now 50-60 years old; and
3. Operational and safety factors which are delaying the restoration of supply.

There are a number of operational and other factors which are delaying restoring customer supplies on long feeders, which include:

- Greater damage to infrastructure requiring more work, and consequently longer to restore supply.
- Long feeders now require a full patrol of the feeder versus previously part patrols, mainly during the fire danger season, to prevent fire starts.
- Customers locking gates/access points or requiring phone calls prior to enter, which is extending the duration of patrols and consequently delaying restoring customers electricity supply.
- Installation of SCADA on SWER feeders reclosers which identifies immediately when supply is lost. Previously, customers would typically wait until the morning to advise that they had lost electricity supply (i.e. crews were already available to respond). The mobilisation of crews to respond delays restoration time compared to crews being at work and available to respond.

Noting the decline in rural long feeder performance, in 2024 we established a project team to investigate the cause of our declining rural long (SWER) feeder performance. To address this decline we have commenced the implementation the following measures over 2025 and 2026:

- Replacing 180 SWER sectionalisers with reclosers;
- Installing SWER fault indicators at 776 locations;
- Installing lightning resilient insulators on 3,400 poles;
- Installing 11kV mid-line reclosers at 27 locations; and
- Installing 33kV mid-line reclosers at 10 locations (in 2026).

Given the extensive reach of the Rural Long network, spanning 49,277 route kilometres across a vast area, implementing all of these measures will take time. Barring any unforeseen external factors, we anticipate a gradual improvement in performance starting from 2025/26.

7.5.c Conclusion

In summary, only one of the four Rural Long (RL) reliability targets was within the reporting threshold. The poor performance was primarily driven by weather impacts and asset failures. However, as highlighted above and in our MECS, we are concerned that this represents an emerging trend. In response, we have initiated a remediation program. With this in mind, we believe that best efforts have been made to meet the EDC's reliability targets for the Rural Long feeder category in 2024/25. Looking ahead, we anticipate a gradual improvement in performance over the coming years.

[30] This is explained in more detail in our MECS.

7.6 Overall conclusion

Table 21 compares the reliability measures achieved in 2024/25 against the best year, worst year, and the average performance over the target-setting period. It shows that the 2024/25 performance was comparable to the average performance over the target setting period.

Table 21: Overall performance

	2024/25	Average TSP	Best (2014/15)	Worst (2010/11)
Targets achieved	10	9	16	3
> target & < RT	2	4	0	7
> RT	4	3	0	6

The above feeder category analysis highlights that there is no declining trend except in the Rural Long feeder category. SA Power Networks has significantly increased its expenditure and resources to address this declining performance. Consequently, SA Power Networks has used best endeavours to achieve all the reliability targets in 2024/25. Consequently, SA Power Networks has complied with its EDC reliability service standard obligations.

8. EDC Region reliability performance

8.1 Introduction

ESCoSA is concerned that establishing reliability standards solely based on the four feeder categories may mask a decline in performance in regional areas. Consequently, ESCoSA requires us to report on nine geographic areas and another segmentation that comprises feeders in all the major rural townships. The ten regions are:

- Adelaide Business Area (**ABA** - same as those feeders classified as CBD);
- Greater Adelaide Metropolitan Area (**GAMA**);
- Major regional centres (**MRC** – includes the townships of Pt Lincoln, Whyalla, Pt August, Pt Pirie, Murray Bridge, Mt Gambier, Stirling-Aldgate, Mt Barker and Victor Harbour)
- Barossa and Mid-North (BMN);
- Eastern Hills (**EH**);
- Eyre Peninsula (**UNE**);
- Fleurieu Peninsula (**FP** – includes Kangaroo Island);
- Riverland and Murraylands (**RM**);
- Southeast (**SE**); and
- Upper North (**UN**).

The following sections detail the assessment criteria that SA Power Networks will use to determine if the historic reliability performance of the ten regions has been maintained. These criteria will then be used to assess whether or not each region's reliability performance has been maintained.

8.2 Assessment criteria for determining if a region's reliability has been maintained.

The two measures used to monitor reliability performance of a distribution system due to unplanned interruptions are:

- USAIDIn (the average time customers are without supply in minutes per annum); and
- USAIFIn (the average number of interruptions experienced per annum).

These measures are normalised to exclude interruptions that start on a MED, as these can significantly impact on the reliability performance of a region. Once MEDs are excluded from a region's USAIDI and USAIFI result, the remaining variability is generally due to either:

- Localised or state-wide SWEs that don't result in a MED; or
- one off, non-systemic interruptions.

In the sections to follow, SA Power Networks assesses whether each region's reliability performance is being maintained by examining the long-term trend, over several years, in:

- normalised USAIDI (ie USAIDIn which excludes MEDs); and
- normalised USAIFI (ie USAIFIn which excludes MEDs)

Where the performance is outside normal variation[31] we will detail the reasons for the excursion and, if not systemic, conclude that reliability performance is being maintained.

The process to determine if reliability has been maintained for a region will involve assessing the following two criteria:

- Is the historic reliability performance[32] being maintained (i.e. is there no long-term decline in performance and performance is better than the equivalent reporting threshold); and
- Is the non-achievement of the target related to one-off type events or SWE (i.e. not a systemic issue).

Where the first criterion is achieved, it means that the performance in that year is better than the historic average, consequently, it is appropriate to conclude that reliability for that region has been maintained. Also, if the second criterion is met, in that there is no declining trend, then the reliability for that region has been maintained. Consequently, where either of these two criteria are met the reliability for the region has been maintained.

8.3 Summary of regional performance

The information, tables and charts provided below demonstrate that there has not been a notable decline in any of the 10 region's reliability performance. The poorer than historic performance for the SE and BMY regions was mostly due to one-off failures, SWEs and insulator pollution. However, one more systemic issue concerns rural long feeders where sectionalisers are failing to operate under high solar generation scenarios. This issue was identified in our MECS as an emerging trend and, as outlined above in section 7.5, SA Power Networks has commenced a program to replace sectionalisers with reclosers to address this issue.

[31] Outside normal variation means that it is outside the reporting threshold as introduced by ESCoSA for the 2020-25 RCP.

[32] Historic average is the average reliability performance over the 15-year period from 1 July 2005 to 30 June 2020.

8.4 Adelaide Business Area

The Adelaide Business Area feeder category feeders supply 1% of customers[33], using 0.3% of the distribution system. These feeders supply the Adelaide CBD and surrounds. Due to the very low customer numbers and low targets, the performance of the CBD feeders can be significantly affected by one-off interruptions.

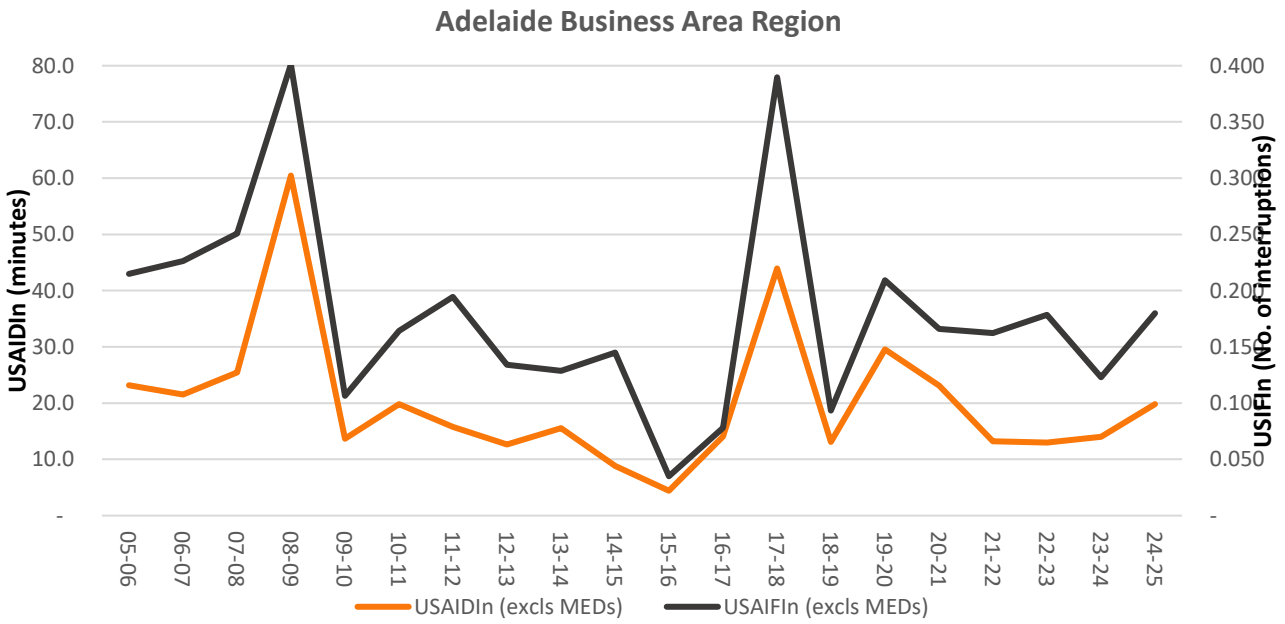
Table 22 highlights the Adelaide Business Area USAIDIn and USAIFIn performance for 2024/25, the historic 15-year period 1 July 2005 to 30 June 2020 average performance and the reporting threshold.

Table 22: Adelaide business area historic performance comparison

Adelaide business area	2024/25	Historic Ave.	Reporting threshold
USAIDIn	20	21	25
USAIFIn	0.18	0.18	0.23

Figure 24 shows that USAIDIn and USAIFIn have increased compared to 2023/24, however the performance is comparable to the historic average.

Figure 24: Adelaide Business Area reliability performance



Conclusion

The historic performance of the Adelaide Business Area has been maintained as both the USAIDIn and USAIFIn are comparable to the average historic performance and there is no long-term declining trend in either of the two measures. As explained in section 7.2, we have identified a worsening performance of older cables in the CBD and have received funding to replace CBD cables. Detailed planning is underway to replace more than 25km of CBD cables (forecast to cost more than $40m over the 2025-30 period, with initial works scheduled to commence in 2026.

[33] In addition, there are about 100,000 people living and working in the CBD each day.

8.5 Greater Adelaide Metropolitan Area

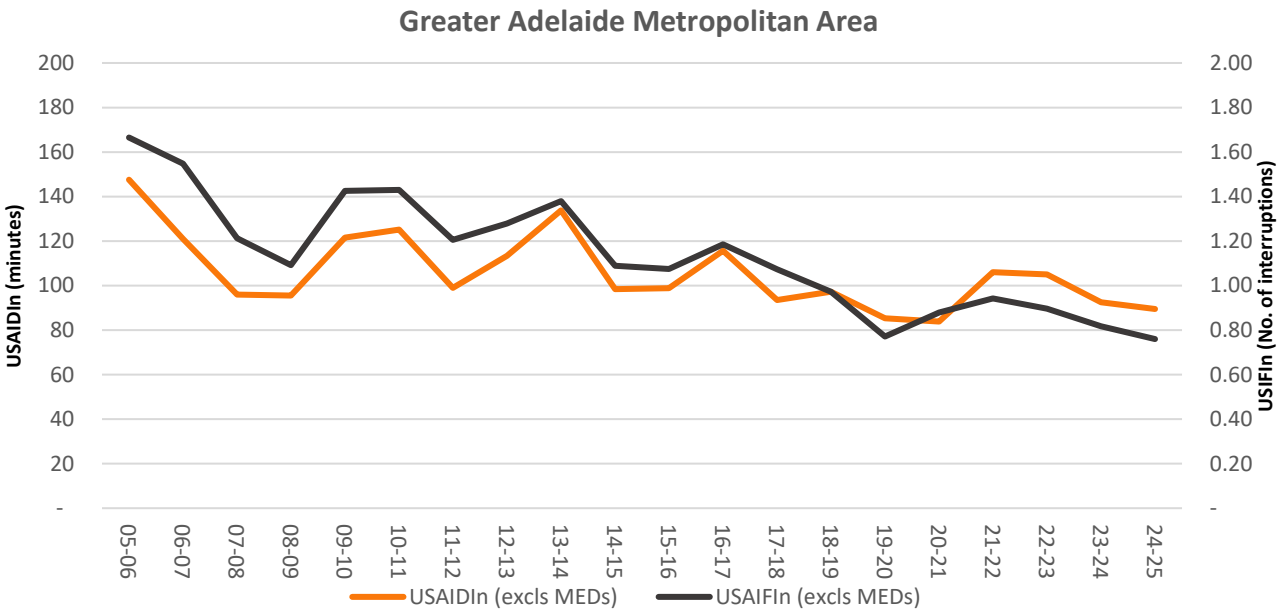
The Greater Adelaide Metropolitan Area supplies about 622,600 customers representing about 65.7% of total customers. Figure 25 shows that the reliability performance has gradually improved since the 2005/06 regulatory year.

Table 23 highlights the performance of USAIDIn and USAIFIn for 2024/25, the historic 15-year period 1 July 2005 to 30 June 2020 average performance and the reporting threshold.

Table 23: Greater Adelaide metropolitan area reliability performance

Greater Adelaide metropolitan area	2024/25	Historic Ave.	Reporting threshold
USAIDIn	89	109	121
USAIFIn	0.76	1.23	1.43

Figure 25: Greater Adelaide Metropolitan Area reliability performance



Conclusion

The historic performance of the Greater Adelaide Metropolitan Area has been maintained as USAIDIn and USAIFIn performance for the 2024/25 regulatory year were better than the historic average performance and there is a gradual improvement in reliability performance since the 2005-06 regulatory year.

8.6 Major Regional Centres

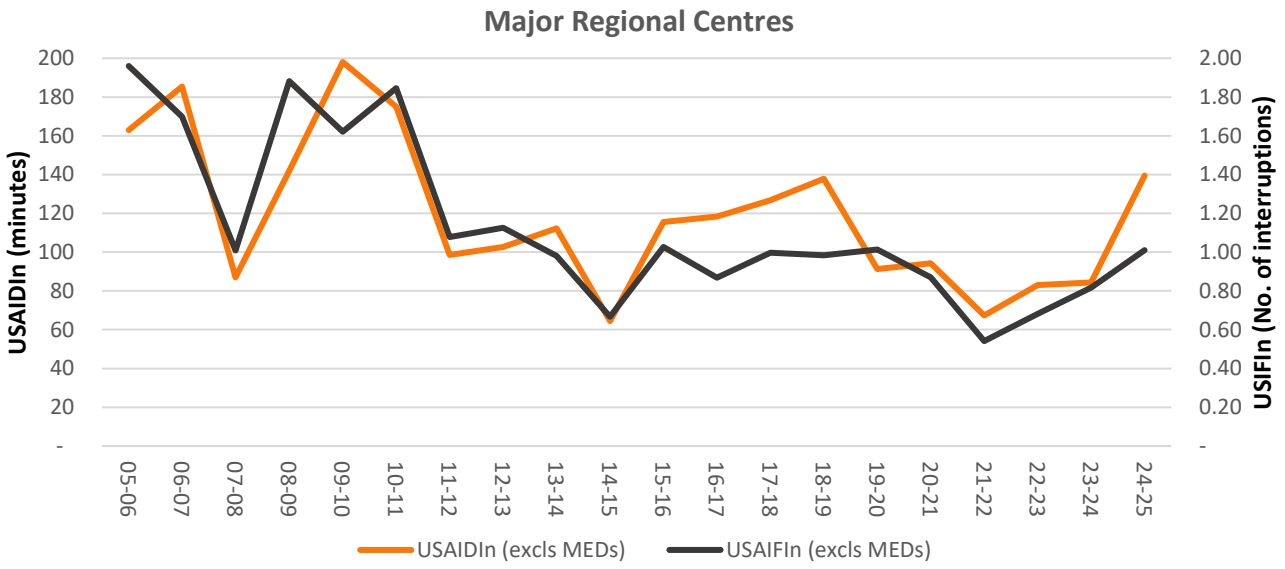
Approximately 89,600 customers, representing 9.5% of the state's total, are supplied in the major regional cities that form the Major Regional Centres.

Table 24 highlights the performance of USAIDIn and USAIFIn for 2024/25, the historic 15-year period 1 July 2005 to 30 June 2020 average performance and the reporting threshold. It shows that overall the reliability performance has improved since the 2005/06 regulatory year, however USAIDI and USAIFI have declined in recent years.

Table 24: Major regional centres reliability performance

Major Regional Centres	2024/25	Historic Ave.	Reporting threshold
USAIDIn	140	128	147
USAIFIn	1.00	1.25	1.70

Figure 26 - Major regional centres reliability performance



Conclusion

The performance of the Major Regional Centres declined during the 2024/25 period, with the USAIDIn results for the 2024/25 regulatory year exceeding the historic average performance. However, both USAIDI and USAIFI remain within the reporting threshold. This decline is primarily attributed to an increase in lightning events and insulator pollution.

8.7 Barossa, Mid-North and Yorke Peninsula Region

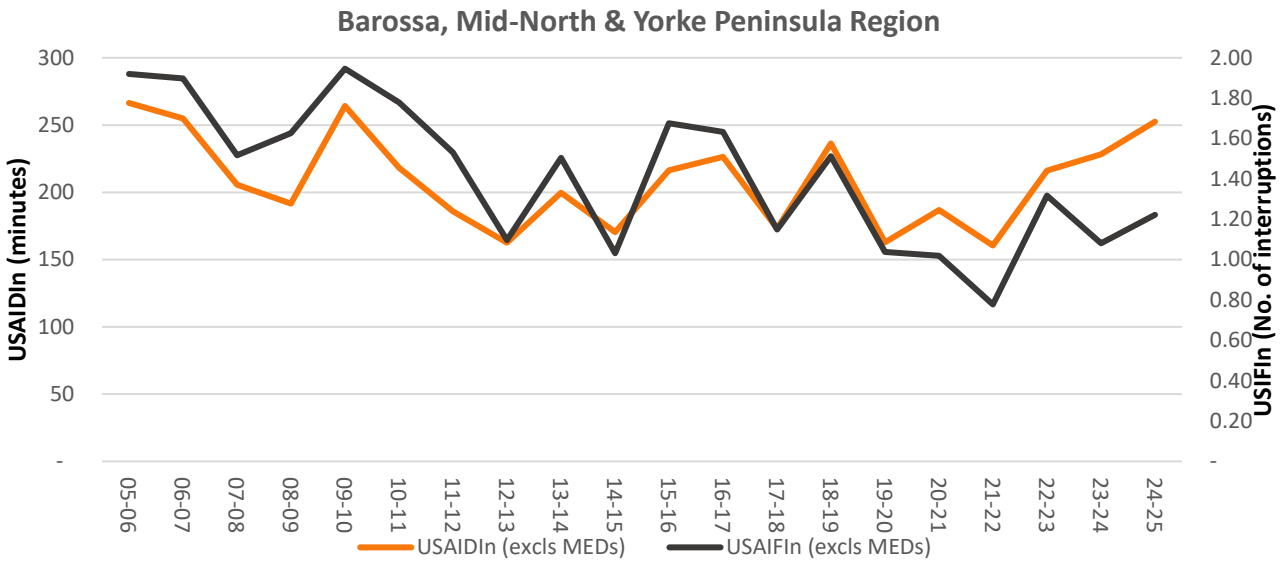
Approximately 60,400 customers, or 6.4% of the total, are supplied in the Barossa, Mid-North, and Yorke Peninsula region.

Table 25 below highlights the performance of USAIDIn and USAIFIn for 2024/25, the historic 15-year period 1 July 2005 to 30 June 2020 average performance and the reporting threshold.

Table 25: Barossa, Mid-North and Yorke Peninsula reliability performance

Barossa, Mid-North and Yorke Peninsula	2024/25	Historic Ave.	Reporting threshold
USAIDIn	253	209	236
USAIFIn	1.22	1.52	1.78

Figure 27 - Barossa, Mid-North & Yorke Peninsula region reliability performance



Conclusion

Over the past year, USAIDIn and USAIFIn has experienced a decline in performance compared to its historical average. Although the frequency of events has risen during 2024/25, it remains below both the historical average and the reporting threshold.

This decline in performance is primarily due to an increase in lightning activity, insulator pollution, and the impact of higher solar penetration on our SWER lines, which has affected sectionaliser performance. To address these issues, mitigation measures are being rolled out across the state over the 2025–30 period.

8.8 Eastern Hills Region

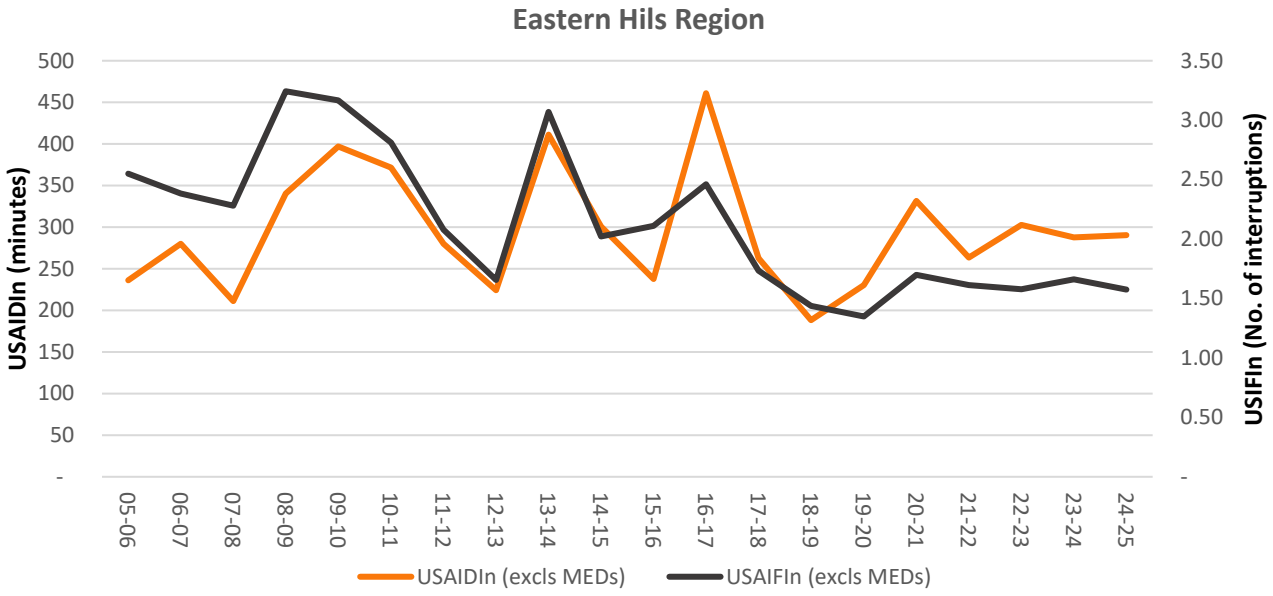
About 33,000 (3.5% of the states) customers are supplied in the Eastern Hills region (which exclude customers in Stirling/Bridgewater and Mt Barker townships areas). Figure 28 below shows that the reliability performance has had significant variation and there has been no decline since the 2005/06 regulatory year.

Table 26 below highlights the performance of USAIDIn and USAIFIn for 2024/25, the historic 15-year period 1 July 2005 to 30 June 2020 average performance and the reporting threshold.

Table 26: Eastern Hills region reliability performance

Eastern Hills	2024/25	Historic Ave.	Reporting threshold
USAIDIn	290	295	371
USAIFIn	1.57	2.29	2.81

Figure 28 - Eastern Hills Region reliability performance



Conclusion

The historic performance of the Eastern Hills Region has been maintained. USAIDIn and USAIFIn performance for the 2024/25 regulatory year were better than the historic average performance and there is a gradual improvement in reliability performance since the 2005-06 regulatory year.

8.9 Eyre Peninsula Region

About 16,300 (1.7% of the states) customers are supplied in the Eyre Peninsula region which excludes selected HV feeders[34] in the cities of Pt Lincoln and Whyalla.

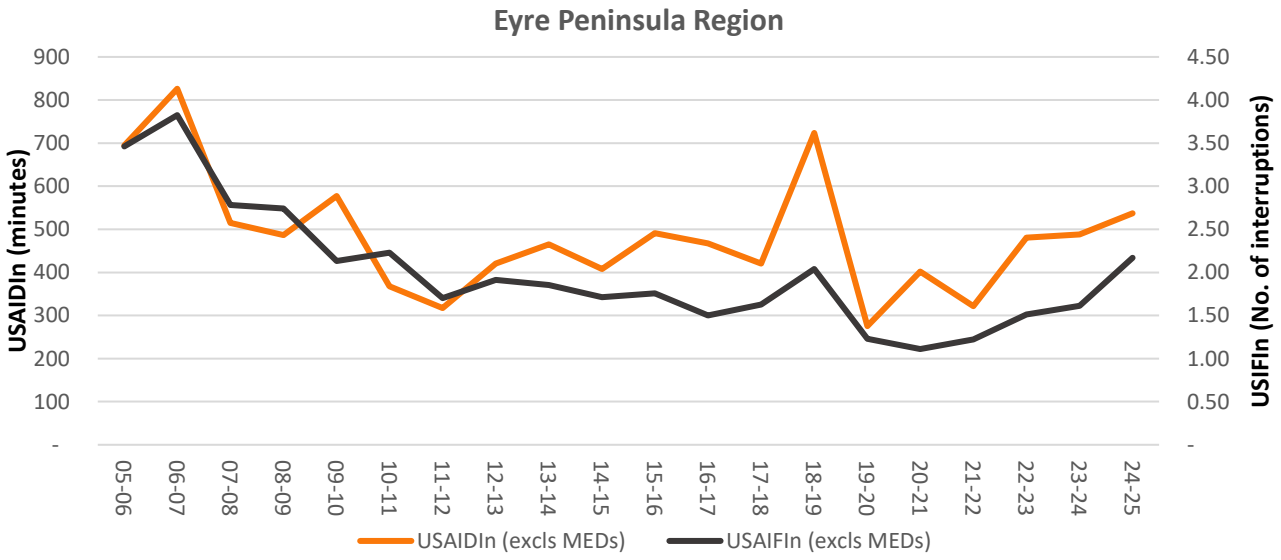
Table 27 below highlights the performance of USAIDIn and USAIFIn for 2024/25, the historic 15-year period 1 July 2005 to 30 June 2020 average performance and the reporting threshold.

Table 27: Eyre Peninsula region reliability performance

Eyre Peninsula	2024/25	Historic Ave.	Reporting threshold
USAIDIn	538	497	577
USAIFIn	2.17	2.17	2.74

Figure 29 indicates that while reliability performance has improved since the 2005-06 regulatory year, there has been a decline since 2019/20. This drop in USAIDIn and USAIFIn is largely due to a significant rise in weather-related interruptions and substantial impacts from insulator pollution over the past year. These factors have collectively increased USAIDIn by approximately 49 minutes.

Figure 29 - Eyre Peninsula Region reliability performance



Conclusion

Overall the historic performance of the Eyre Peninsula has been maintained as the USAIDIn and USAIFIn performance for the 2024/25 regulatory year is below the reporting threshold and there has been a gradual improvement in reliability performance since the 2005-06 regulatory year.

[34] Selected HV feeders in the Cities of Pt Lincoln and Whyalla are included in MRC.

8.10 Fleurieu Peninsula

About 36,200 (3.8% of the states) customers are supplied in the Fleurieu Peninsula region (including Kangaroo Island).

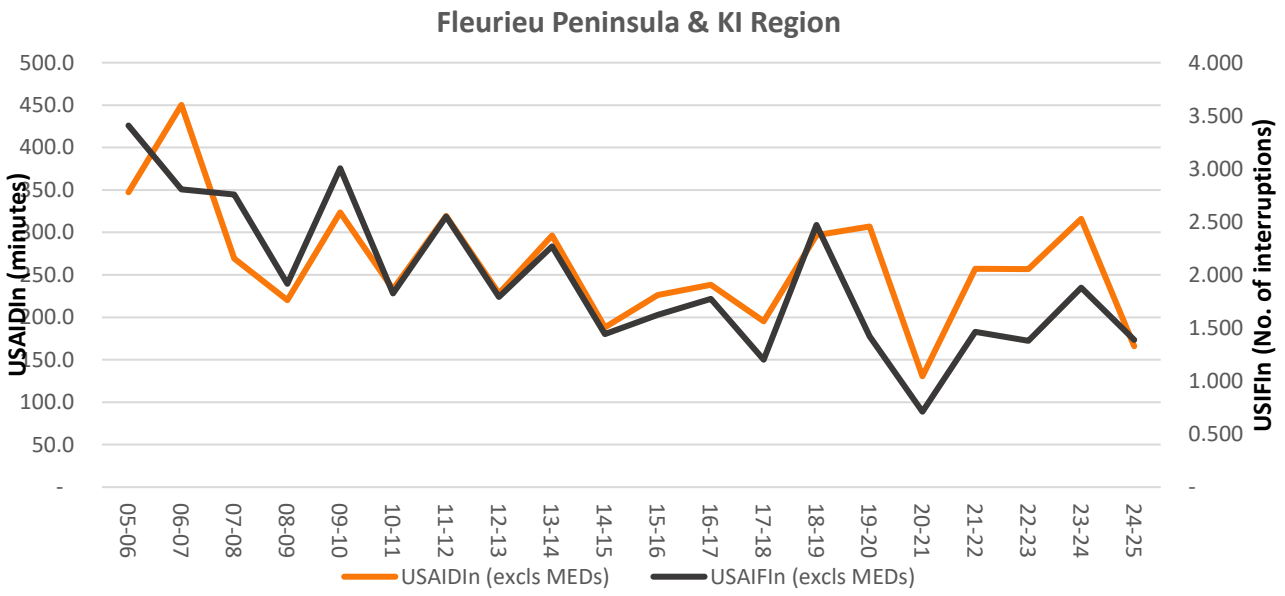
Table 28 highlights the performance of USAIDIn and USAIFIn for 2024/25, the historic 15-year period 1 July 2005 to 30 June 2020 average performance and the reporting threshold.

Table 28: Fleurieu Peninsula reliability performance

Fleurieu Peninsula	2024/25	Historic Ave.	Reporting threshold
USAIDIn	164	276	319
USAIFIn	1.33	2.15	2.76

Historically the year-to-year performance for the Fleurieu Peninsula and Kangaroo Island region can be significantly affected by weather events. Figure 30 shows that the USAIDIn and USAIFIn performance in 2024/25 improved considerably compared to the 2023/24, and is better than the historic average.

Figure 30 - Fleurieu Peninsula & KI Region reliability performance



Conclusion

The Fleurieu Peninsula has maintained its historic performance, with the USAIDIn and USAIFIn results for the 2024/25 regulatory year slightly better than the historic average and remaining below the reporting threshold.

8.11 Riverland and Murrayland Region

About 39,500 (4.2% of the states) customers are supplied in the Riverland and Murrayland region, which excludes selected HV feeders[35] in the City of Murray Bridge.

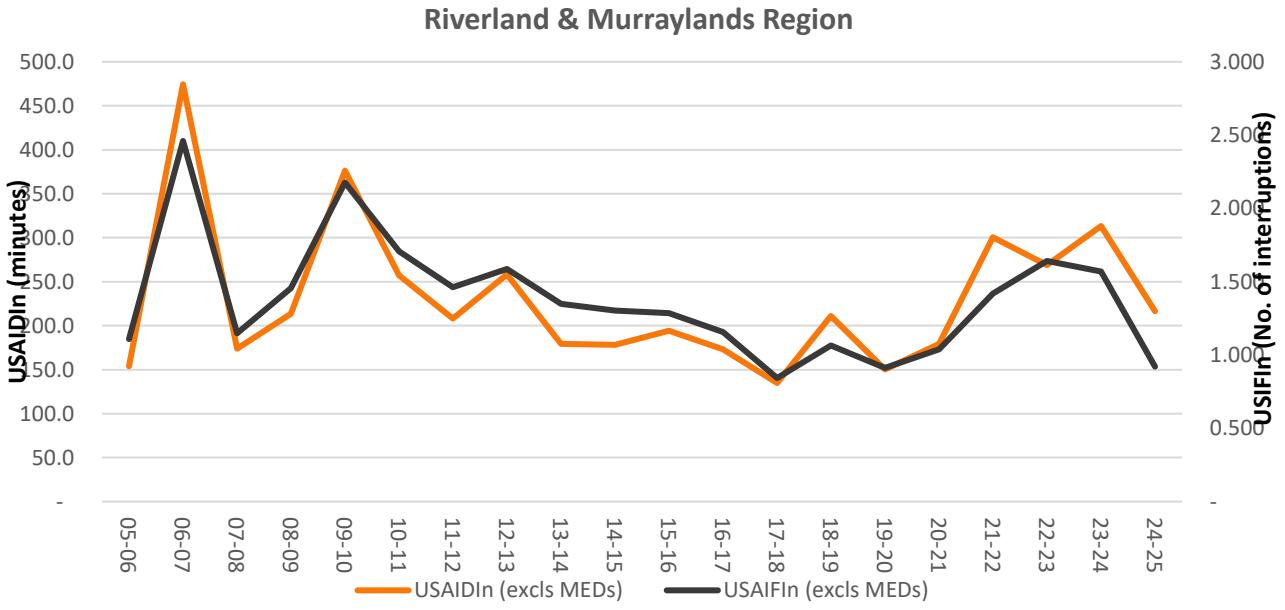
Table 29 highlights the performance of USAIDIn and USAIFIn for 2024/25, the historic 15-year period 1 July 2005 to 30 June 2020 average performance and the reporting threshold.

Table 29: Riverland and Murrayland region reliability performance

Riverland & Murrayland	2024/25	Historic Ave.	Reporting threshold
USAIDIn	219	222	257
USAIFIn	0.94	1.40	1.59

Figure 31 below shows the USAIDIn and USAIFIn performance from 2005-06. The reliability performance in 2024/25 improved compared to 2023/24 and is comparable to the historic average.

Figure 31 - Riverland & Murraylands Region reliability performance



Conclusion

The Riverland and Murraylands region has maintained its historic performance, with the USAIDIn and USAIFIn results for the 2024/25 regulatory year aligning with the historic average and remaining below the reporting threshold.

[35] Selected HV feeders in the City of Murray Bridge are included in MRC.

8.12 Southeast region

Approximately 29,900 customers, representing 3.2% of the state's total, are supplied in the Southeast region. This excludes certain high-voltage feeders within the City of Mount Gambier[36] .

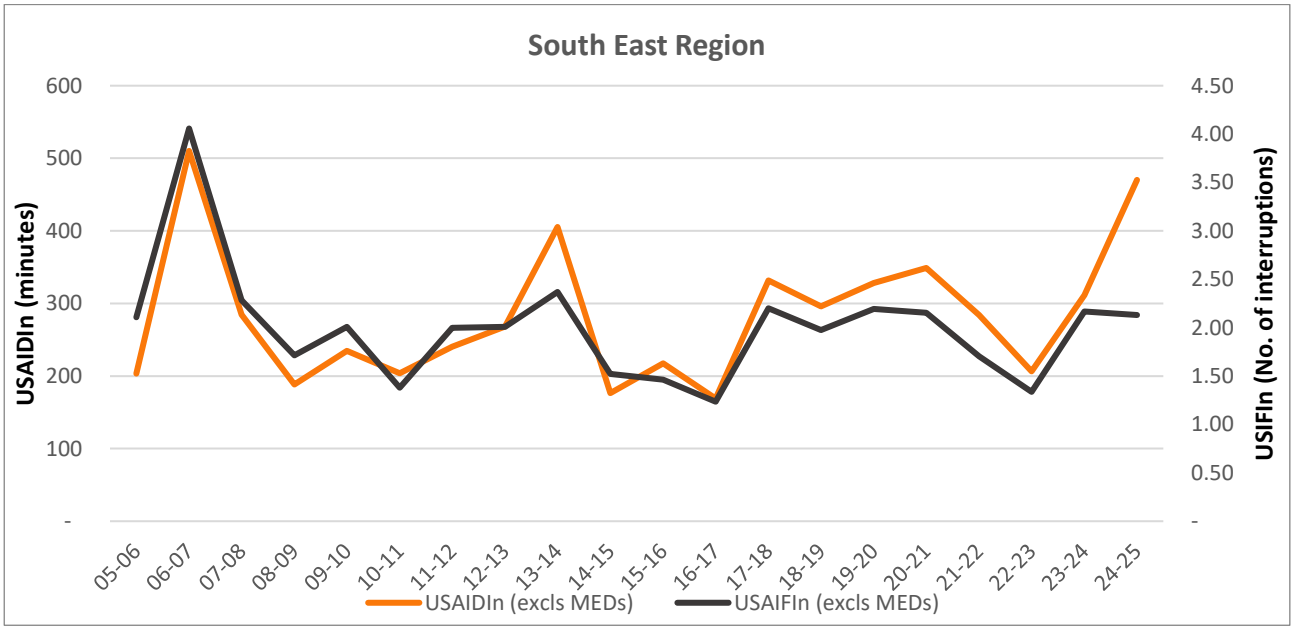
Table 30 highlights the performance of USAIDIn and USAIFIn for 2024/25, the historic 15-year period 1 July 2005 to 30 June 2020 average performance and the reporting threshold.

Table 30: Southeast region reliability performance

Southeast	2024/25	Historic Ave.	Reporting threshold
USAIDIn	472	271	328
USAIFIn	2.15	2.03	2.20

The decline in USAIDIn and USAIFIn performance is primarily due to a rise in weather-related interruptions (around 280 minutes) and the substantial impact of insulator pollution, combined with asset failures contributing approximately 144 minutes. Notably, the performance of our rural long feeders has worsened, as sectionalisers have proven ineffective during periods of high solar generation. This has amplified the impact of asset failures, with more customers affected and longer fault location timeframes. The frequency of outages has remained stable. Collectively, these factors have led to an approximate 49-minute increase in USAIDIn.

Figure 32 - South East Region reliability performance



Conclusion

Overall best endeavours have been applied to maintain the historic performance levels for the South East for the 2024/25 regulatory year. USAIDIn has exceeded the reporting threshold due to weather and other external impacts on our rural long network. Measures are being implemented to improve our future performance as explained in our MECS. USAIFIn is below the reporting threshold and is comparable to our historic reliability performance.

[36] There are selected HV feeders in Mt Gambier included in the MRC.

8.13 Upper North Region

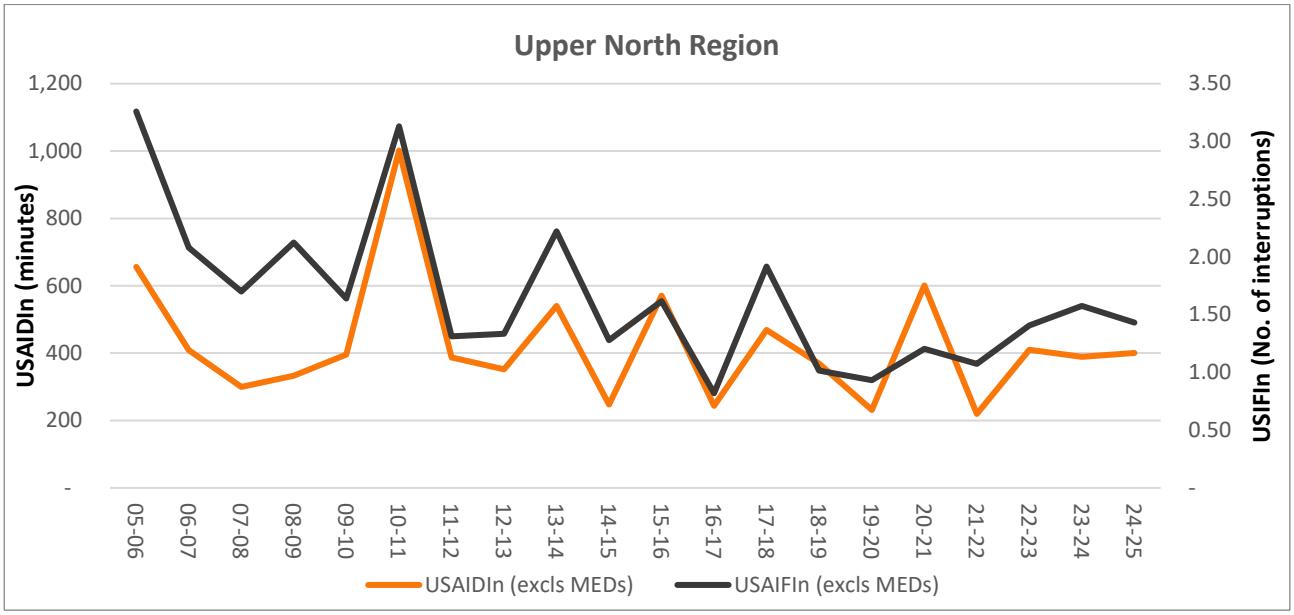
Approximately 11,900 customers, accounting for 1.3% of the state's total, are supplied in the Upper North region. This excludes specific high-voltage feeders in the cities of Port Augusta and Port Pirie.

Table 31 highlights the performance of USAIDIn and USAIFIn for 2024/25, the historic 15-year period 1 July 2005 to 30 June 2020 average performance and the reporting threshold.

Table 31: Upper North region reliability performance

Upper North	2024/25	Historic Ave.	Reporting threshold
USAIDIn	403	434	540
USAIFIn	1.51	1.76	2.12

Figure 33 - Upper North Region reliability performance



Conclusion

The historic performance of the Upper North has been maintained as both the USAIDIn and USAIFIn were better than the historic average in 2024/25. The figure above highlights that there is a gradual improvement in the performance of the Upper North Region.

9. Reliability Improvements

SA Power Networks prepares a Reliability Management Plan annually, with the aim of maintaining reliability performance and achieving the EDC reliability targets. The Plan details the initiatives that SA Power Networks undertakes to maintain reliability performance, and where cost effective, to improve reliability, in response to the AER's STPIS. Further it aims to minimise customer inconvenience and reliability GSL payments.

SA Power Networks has a Reliability Operational Group which:

- Reviews interruptions on a daily basis to identify areas of poor performance or potential systemic causes of interruptions to initiate actions to remedy where warranted; and
- Annually prepares reliability improvement projects for the following calendar year.

The reliability improvement actions contribute to two basic outcomes which are:

- Reducing the number of interruptions experienced by customers by:
    - Installing mid-line reclosers and sectionalisers (which reduces the numbers of customers affected by a fault);
    - Installing spur fuses (meaning that only a small proportion of a feeder's customers experience a sustained interruption arising from some faults);
    - 'No Cause Found' patrols for interruptions affecting more than 500 customers (which reduce in some cases future interruptions);
    - 'Reclose' Patrols for switchgear reclose events affecting more than 1,000 customers (which reduce in some cases future interruptions);
    - Replacing lightning-damaged insulators in lightning prone areas (including adjacent insulators in the area) with improved lightning resistant insulators;
    - Removing trees (where possible) that result in multiple interruptions;
    - Installing powerline covering where outages are caused by tree limbs and debris; and
    - Implementing a 'Switched on whilst switching' campaign (which highlights the importance of employees being attentive whilst switching to avoid interruptions that result from switching errors);
    - Implementing a targeted CBD cable replacement program over the 2025-30 RCP; and
- Improving response times of field crews to interruptions by:
    - Implementing 'find the cause' training, tools and performance reporting for field crews;
    - Network protection training;
    - Application of an 'Isolate and Restore Half First' policy (which requires crews to isolate the affected section of the network before restoring supply to customers supplied from the unaffected section of the network); and
    - Promotion of 'Time to Arrive' reporting and focus (being the time taken for crews to arrive at the location of the outage and commence patrols, permitting us to assess both the time to arrive and the time taken to then restore supply, to better determine if further improvements can be identified and implemented).

Appendix A – Classifying Major Event Days

Section 3.5 of IEEE 1366™-2012 states:

"3.5 Major Event Day classification"

The following process—2.5 Beta Method—is used to identify Major Event Days (MED), provided that the natural log transformation of the data closely resembles a Gaussian (normal) distribution. Its purpose is to allow major events to be studied separately from daily operation, and in the process, to better reveal trends in daily operation that would be hidden by the large statistical effect of major events. For more technical detail on derivation of the methodology, refer to Annex B.

A MED is a day in which the daily system SAIDI exceeds a threshold value, T_{MED}. The SAIDI index is used as the basis of this definition since it leads to consistent results regardless of utility size and because SAIDI is a good indicator of operational and design stress. Even though SAIDI is used to determine the MEDs, all indices should be calculated based on removal of the identified days.

In calculating daily system SAIDI, any interruption that spans multiple days is accrued to the day on which the interruption begins.

The MED identification T_{MED} value is calculated at the end of each reporting period (typically one year) for use during the next reporting period, as follows:

a) Collect values of daily SAIDI for five sequential years, ending on the last day of the last complete reporting period. If fewer than five years of historical data are available, use all available historical data until five years of historical data are available.

b) Only those days that have a SAIDI/Day value will be used to calculate TMED (do not include days that did not have any interruptions).

c) Take the natural logarithm (ln) of each daily SAIDI value in the data set.

d) Find α (Alpha), the average of the logarithms (also known as the log-average) of the data set.

e) Find β (Beta), the standard deviation of the logarithms (also known as the log-standard deviation) of the data set.

f) Compute the MED threshold, T_{MED}

$$T_{MED} = e(\alpha + 2.5\beta)$$

g) Any day with daily SAIDI greater than the threshold value T_{MED} that occurs during the subsequent reporting period is classified a major event day.

Activities that occur on days classified as major event days should be separately analysed and reported.