



Economic Regulation Authority

Annual data report 2022/23

Energy distributors

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2022/23 observations

The Economic Regulation Authority administers the licensing schemes for the distribution of gas and electricity across Western Australia. The ERA reports annually to the Minister for Energy on trends in the energy markets and indicators of energy distributors' performance, with a focus on reliability and customer service.

Performance reporting obligations apply only to distributors supplying small use customers. These are residential and small business customers consuming less than 160 megawatt hours of electricity or one terajoule of gas a year.¹

Electricity

- Over 44,300 Western Power customers experienced a 12-hour or longer electricity supply outage, which is 46.5 per cent fewer customers than in the previous year.
- 16,206 new customers were added to the electricity distribution network, contributing to a total of 1.259 million total connections.
- In rural areas, Western Power reported a 54.5 per cent decrease in customers experiencing at least 16 electricity supply outages (2,528 customers compared to 5,558 in 2021/22).
- Western Power reported multiple outages caused by severe weather events:
 - In August 2022 a storm damaged the network across the metropolitan area, South-West and Peel regions.
 - In March 2023, pole top fires interrupted supply in the metropolitan area, South-West and Wheatbelt.
- 1,329 Horizon Power customers experienced outages of 12 hours or longer, compared to 522 in the previous year.
 - 41 per cent of these customer outages were due to Ex-Tropical Cyclone Ellie affecting customers in Broome, Derby, Halls Creek and Fitzroy Valley between December 2022 and January 2023.
- Customer complaints to Western Power and Horizon Power fell by 29 per cent and 51 per cent respectively from 2021/22.

Gas

- More than 13,450 new gas customers were connected to the distribution network.
- Very few customers experienced a supply interruption lasting more than 12 hours.
- Complaints to ATCO reached a six year high as ATCO cleared a backlog of invoices.
- Customers in Esperance transitioned to electricity as their main source of energy.

Streetlights

- Streetlight faults in the metropolitan area fell by 6.6 per cent from the previous year.
- Significantly fewer regional street light faults were reported by Rottnest Island Authority, falling from 87 in 2021/22 to 3 at June 2023.
- Horizon Power reported 22.5 per cent fewer streetlight faults compared to 2021/22.

¹ The distributors are Western Power, Horizon Power, Rottnest Island Authority and Peel Renewable Energy who supply electricity, and ATCO Gas Australia and Wesfarmers Kleenheat Gas for gas.

This report provides data for a series of indicators over the past six years, covering the COVID-19 pandemic period. Care should be taken when drawing comparisons between the years. The short-term effect of factors such as weather events, disconnections moratoriums or additional concession payments from Government may skew longer term trends. To provide a more comprehensive view of energy market trends, the ERA is considering how to enhance future data reporting.

ERA is following Western Power's performance through ongoing monitoring activities, funding reviews and its access arrangement. The ERA will focus on rural reliability, new customer connections and streetlights, following the March 2023 revenue determination for Western Power's 2022 to 2027 funding.

1. Market overview

Main points

- Total electricity connections increased from 1.240 million in 2021/22 to 1.259 million in 2022/23.
- More than 16,200 new customers were added to the electricity network, slightly lower than 2021/22 (down 12.5 per cent).
- 13,450 new gas customers were connected, 8.1 per cent more than 2021/22.
- Customer reconnections to electricity and gas have increased since 2020/21

This section provides an overview of the energy distributors market in Western Australia, with a focus on the:

- number of licensed distributors supplying small use electricity and gas customers²
- number of small use electricity and gas customer connections, new and reconnected.

1.1 Electricity distributors

Electricity distribution licensees that supply small use customers are:³

- Horizon Power
- Peel Renewable Energy Pty Ltd
- Rottnest Island Authority
- Western Power.

1.2 Electricity connections

Table 1 shows the number of customer connections on each electricity distributor's system.

Table 1: Electricity connections by distributor on 30 June 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Horizon Power	48,981	50,635	48,243	51,951	52,311	53,190
Peel Renewable Energy	n/a	n/a	n/a	5	8	10
Rottnest Island Authority	528	529	529	529	529	529
Western Power	1,141,308	1,152,904	1,162,601	1,175,528	1,187,153	1,205,535
Total	1,190,817	1,204,068	1,211,373	1,228,013	1,240,001	1,259,535

² A small use electricity customer is a customer who consumes less than 160 megawatt hours of electricity per year and a small use gas customer is a customer who consumes less than 1 terajoule of gas per year.

³ Throughout the report a 'small use customer' will be referred to as a 'customer' and the term 'customer' can also mean 'customer connection' depending on the context of its application.

At 30 June 2023, the total number of customer connections to an electricity distribution network increased by 1.5 per cent (19,263) from the previous year. Horizon Power's connections increased by 879 and Western Power's by 18,382 over 2022/23. As this is a point in time estimate, connections include new connections to the network and reconnections, as well as customers connected during 2022/23 but subsequently disconnected.

Table 2 shows the number of new customer connections on each electricity distributor's system. Overall connections by new customers to the electricity distribution system dropped by 12.5 percent compared to 2021/22. Western Power connected 15,788 new customers and Horizon Power 412. As more remote Aboriginal and town-based communities transition to being supplied by Horizon Power, new customer connections will grow in future years.

Table 2: New customer electricity connections by distributor at 30 June 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Horizon Power	381	264	200	331	336	412
Peel Renewable Energy	n/a	n/a	n/a	5	4	4
Rottnest Island Authority	0	1	0	0	0	2
Western Power	19,406	16,107	14,232	17,811	18,196	15,788
Total	19,787	16,372	14,432	18,147	18,536	16,206

Table 3 shows the number of customer reconnections on each electricity distributor's system. Horizon Power and Western Power reconnected a combined total of 32,431 customers to respective distribution systems, 8.2 per cent fewer than the previous year.⁴

Table 3: Electricity reconnections by distributor at 30 June 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Horizon Power	9,084	9,024	6,797	4,769	7,836	7,405
Peel Renewable Energy	n/a	n/a	n/a	0	0	0
Rottnest Island Authority	0	0	0	0	0	0
Western Power	30,485	49,224	34,557	8,689	27,500	25,026
Total	39,569	58,248	41,354	13,458	35,336	32,431

1.3 Gas distributors

With Esperance Power Station surrendering its gas distribution licence on 1 April 2023, there are two holders of gas distribution licences:⁵

- ATCO Gas Australia
- Wesfarmers Kleenheat Gas.

⁴ Horizon Power reported that reconnections included all re-energisation service orders, including non-payment.

⁵ ERA, Notice, 'Esperance Power Station Pty Ltd and surrendering its gas distribution licence ([online](#))'.

1.4 Gas connections

Table 4 shows the number of customer connections on each gas distributor's system.

Table 4: Gas connections by distributor at 30 June 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
ATCO	760,355	769,597	772,861	781,436	792,130	804,033
Esperance Power Station	385	375	376	376	355	0 ⁶
Kleenheat	1,048	1,071	1,103	1,176 ⁷	1,185	1,220
Total	761,788	771,043	774,340	782,987	793,670	805,253

In 2022/23, the total number of gas connections was the highest in the six years reported, increasing by 1.4 per cent since 2021/22. ATCO reported that its network connections as at 30 June 2023 had increased by 1.5 per cent with 11,903 more customer connections. Kleenheat's customer connections increased by 2.9 per cent since 2021/22.

Table 5 shows the number of new customer connections on each gas distributor's system.

Table 5: New customer gas connections by distributor at 30 June 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
ATCO	13,555	12,758	11,334	11,040	12,418	13,432
Kleenheat	44	27	23	22	20	18
Total	13,599	12,785	11,357	11,062	12,438	13,450

In 2022/23, 13,450 new customers were connected to either ATCO or Kleenheat's networks, an 8.1 per cent increase from the previous year. ATCO attributes the increase of new connections to the completion of new dwellings, combined with post COVID-19 incentives and the release of new subdivisions.

Table 6 shows the number of customer reconnections on each gas distributor's system.

Table 6: Gas reconnections by distributor at 30 June 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
ATCO	12,324	11,850	9,964	1,510	754	2,246
Kleenheat	5	1	2	0	0	8
Total	12,329	11,851	9,966	1,510	754	2,254

⁶ Esperance Power Station ceased operating on 31 March 2023 and its customers were transitioned by Horizon Power, from gas to electricity.

⁷ Kleenheat advised that it had underreported the number of connections in previous years. Before 2020/21, Kleenheat counted duplexes as one connection instead of one connection for each individually metered supply point in the duplex.

During 2022/23, 2,254 customers were reconnected to the gas distribution system. This was a 198.9 per cent increase compared to the previous year. ATCO reports the high number of reconnections was driven by gas retailers processing disconnections that had previously been suspended due to the COVID-19 pandemic.

2. Electricity distribution system reliability

Main points

- In 2022/23, 44,314 of Western Power's customers experienced an extended outage (12 hours or longer), which is 46.5 per cent lower than 2021/22. A storm in August 2022 and pole top fires in March 2023 contributed to many of the extended outages.
- The average length of outage experienced by Western Power's Perth CBD and urban customers increased slightly from 49 minutes to 57 minutes (Perth CBD) and 305 minutes to 327 minutes (Urban), due to severe weather events.
- There was a 41 per cent reduction in rural customers experiencing 16 or more outages (2,528 Western Power customers and 843 Horizon Power customers).
- Rottnest Island Authority met the outage duration standard for rural systems for the first time. Horizon Power met this standard for the past five years.
- 41 per cent of multiple and extended outages experienced by Horizon Power customers were caused by Ex-Tropical Cyclone Ellie.
- Reporting against reliability benchmark measures provides visibility of distributors' performance, particularly in respect of electricity supply outages.

Electricity distributors are required to report on the reliability of electricity supply under two regulatory frameworks:

- *Electricity Industry (Network Quality and Reliability of Supply) Code 2005* (NQ&R Code).⁸
- The ERA framework based on the Institute for Electrical and Electronic Engineers standard 1366-2012 (IEEE 1366), which is described in the ERA's *Electricity Distribution Licence Performance Reporting Handbook*.⁹

2.1 NQ&R Code specific reliability measures

The NQ&R Code requires distributors to report on the duration and frequency of supply interruptions, including:

- The number of customer premises that have had interruptions that exceed 12 hours continuously (referred to as an extended interruption).
- The number of customer premises that have had more than:
 - Nine interruptions per year in the Perth Central Business District (CBD) and urban areas.¹⁰
 - 16 interruptions per year in all other areas of Western Australia.

To maintain consistency in this section of the report the term 'customer premises' has been replaced by 'customer connections' in the discussion on NQ&R Code reliability measures.

The NQ&R Code's reliability measures include all supply interruptions regardless of their cause. Some interruptions are caused by factors that are within the control of the distributor, such as

⁸ *Electricity Industry (Network Quality and Reliability of Supply) Code 2005* ([online](#)).

⁹ ERA's *Electricity Distribution Licence Performance Reporting Handbook* ([online](#)).

¹⁰ The CBD is the area supplied by the Milligan Street Zone Substation and the Hay Street Zone Substation, both operated by Western Power.

asset failures caused by inadequate maintenance practices and not replacing ageing or poorly performing assets in a timely manner.

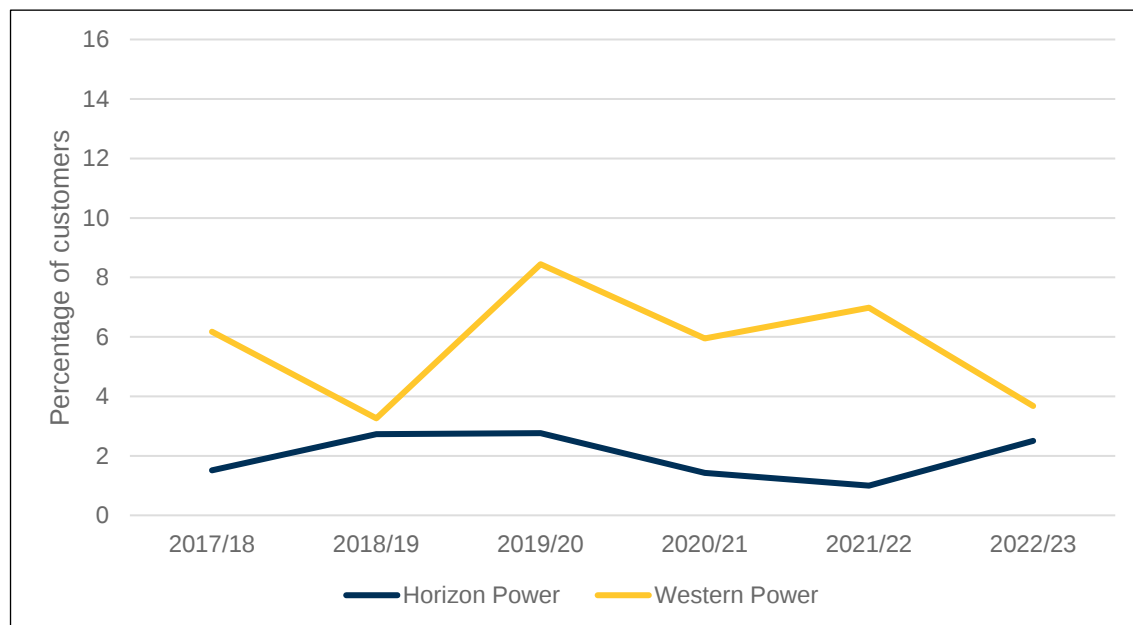
Other supply interruptions are caused by factors outside the reasonable control of the distributor, such as severe weather, transmission outages and generation outages. Including all supply interruptions means that the distributor is reporting on the actual customer experience.

2.1.1 Extended interruptions

Environmental emergencies are prevalent across the State and can cause extended interruptions to the supply of energy, affecting many customer connections. These can include cyclones, floods, fires, severe heatwaves and storms.¹¹

Figure 1 shows the percentage of customer connections on the Horizon Power and Western Power's distribution systems that had extended interruptions, which exceeded 12 hours continuously.

Figure 1: Horizon Power and Western Power's extended interruptions 2018 to 2023 (%)



In 2022/23, 1,329 Horizon Power customers, or 2.5 per cent, had extended outages of 12 hours or more, an increase of 154.5 per cent (807 more customers) from the previous year. Horizon Power attributed 41 per cent of the extended outages to Ex-Tropical Cyclone Ellie, which affected electricity supplies to 555 customers living in Broome, Derby, Halls Creek and Fitzroy Valley between December 2022 and January 2023.

Western Power reported 44,314 customers had experienced a 12-hour outage or longer in 2022/23, compared to 82,939 in 2021/22, 46.5 per cent lower than the previous year.¹² Western Power attributed some of the extended outages of 12 hours or longer to:

- August 2022 - storm damage to overhead network assets across the metropolitan area, South-West and Peel regions, affected almost 61,500 customers.

¹¹ For example, Australian Government, Bureau of Meteorology, *Ex-Tropical Cyclone Ellie continues to bring heavy rainfall to Western Australia*, 2 January 2023, ([online](#)).

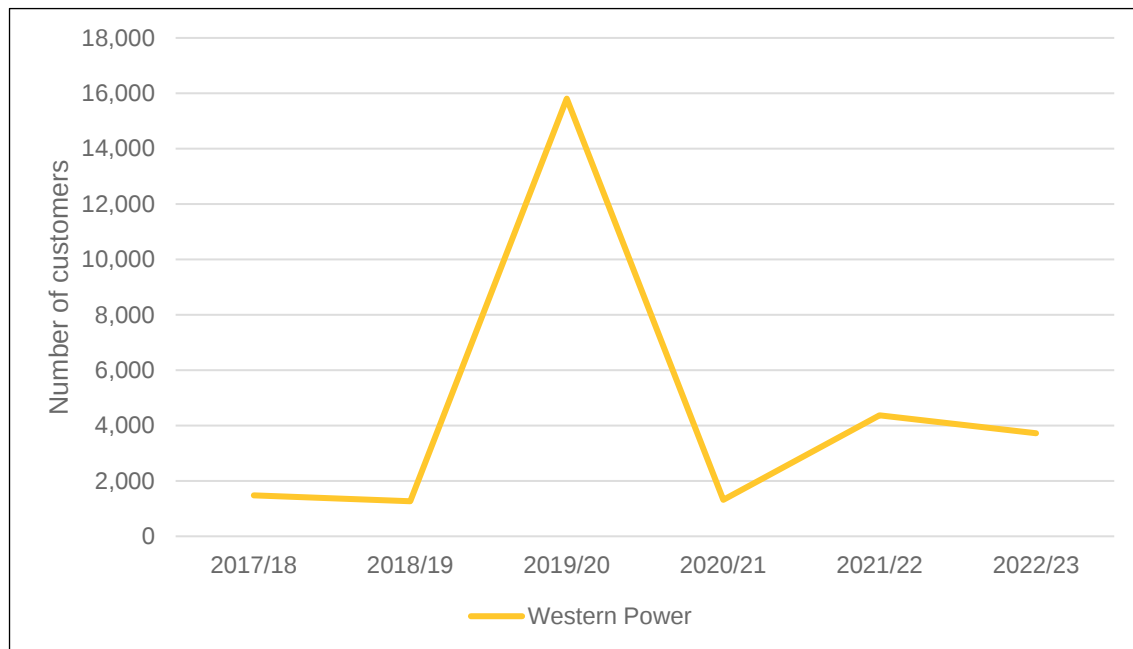
¹² Western Power reports that there were 1,803 incidents resulting in 44,314 customers experiencing on or more outage for more than 12 hours or more. 44,314 is 3.6 per cent of Western Power's customer base (on 30 June total was 1,205,535).

- March 2023 – pole top fire in the metropolitan area and South-West and Wheatbelt regions, affected around 43,000 customers.

2.1.2 Multiple interruptions

Figure 2 reports the number of customer connections that had more than the nine interruptions in the Perth CBD and urban areas as required in the NQRS code.

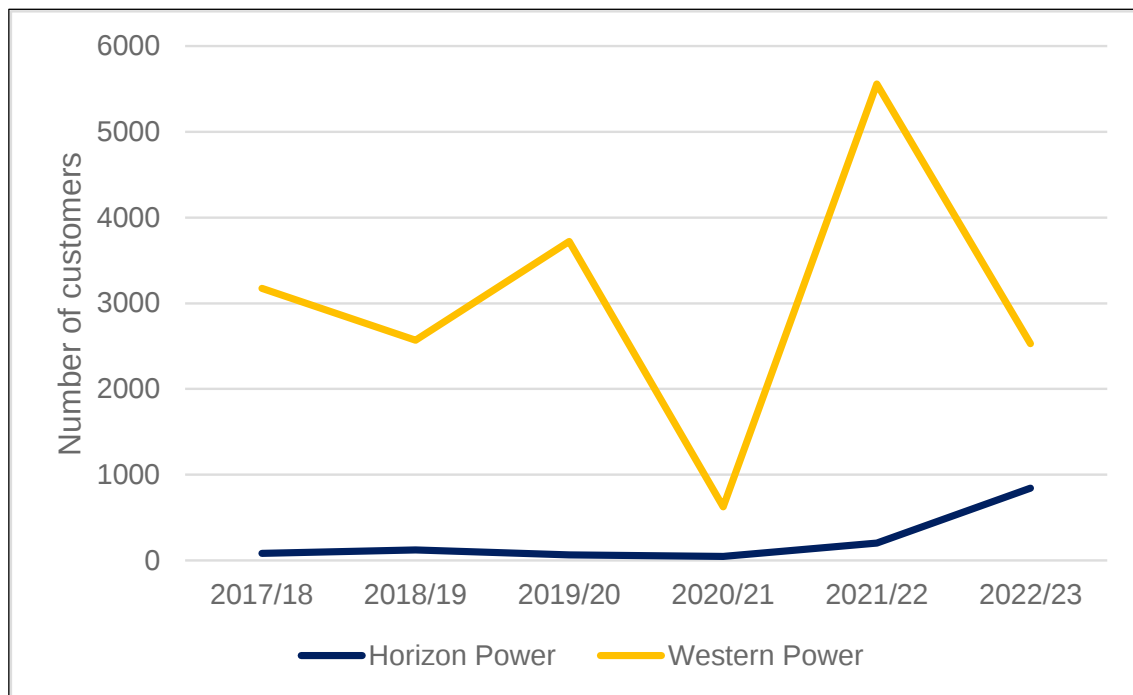
Figure 2: Multiple supply interruptions on electricity distribution systems – CBD and Urban 2018 to 2023



In 2022/23, 3,719 Western Power customers experienced more than nine interruptions: 14 per cent lower than the previous year (4,364 customers) but 180 per cent more than 2020/21.

Figure 3 shows the number of customer connections that had more than the reportable number of interruptions (16) in rural areas.

Figure 3: Multiple supply interruptions on electricity distribution systems - rural 2018 to 2023



Overall, there were fewer rural customers that experienced more than 16 electricity supply interruptions during 2022/23, when compared to the previous year. A total of 3,371 rural customers had 16 or more electricity supply interruptions during 2022/23, which is 41 per cent lower than 2021/22.

Horizon Power's increase in multiple supply interruptions was due to Ex-Tropical Cyclone Ellie affecting the service supply to 555 customers in Broome, Derby, Halls Creek and Fitzroy Valley between December 2022 and January 2023.

Western Power reported a 54.5 per cent decrease in the number of customers experiencing 16 or more supply interruptions in 2022/23 when compared to 2021/22.¹³ However, in 2021/22, Western Power's distribution network was significantly affected by bushfires in the Mid-West and Goldfields regions and pole top fires that increased the number of reportable outages.

2.2 Common reliability measures

The ERA's reliability performance framework, based on the IEEE 1366 standard, and the framework under the NQ&R Code both measure distribution system reliability through two main performance indicators:¹⁴

- System Average Interruption Duration Index (SAIDI): the average total duration of supply interruptions across all customer connections on the distribution system.
- System Average Interruption Frequency Index (SAIFI): the average number of supply interruptions across all customer connection on the distribution system.

¹³ In 2022/23, Western Power reports that 2,528 rural customers experienced more than 16 supply interruptions. This is a reduction from 5,558 customers reported in 2021/22.

¹⁴ The NQ&R Code does not use the terms SAIDI and SAIFI. See Appendix 3 for information about the NQ&R Code measures of reliability.

Section 13(2) of the NQ&R Code includes standards for the average total duration of interruptions in the three defined areas of the State:

- Perth CBD – 30 minutes
- Urban areas other than the Perth CBD – 160 minutes¹⁵
- Any other area of the State (rural areas) – 290 minutes.

The standard for each area takes account of the level of interconnection and available capacity factored into the design of the distribution systems. Distributors are required to comply with the NQ&R Code as a condition of their electricity distribution licence.

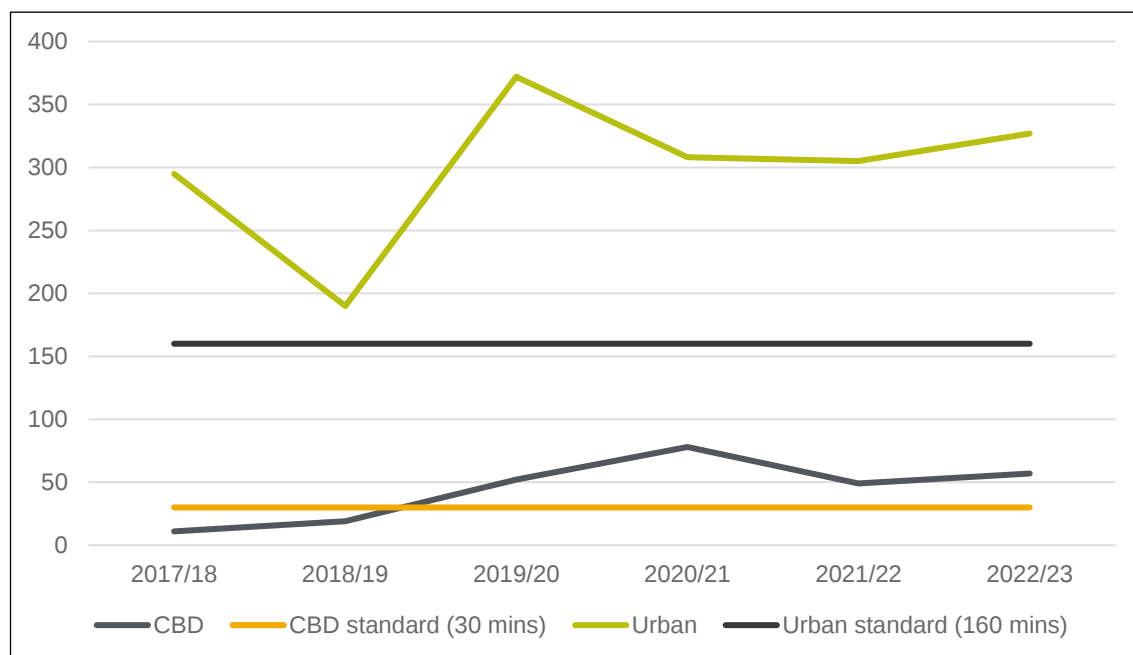
Western Power is also subject to reliability performance standards other than the NQ&R Code, which are set in its access arrangement service standard benchmarks. Further information on distribution system reliability measures is in Appendix 3.

2.3 System reliability – NQ&R Code

2.3.1 SAIDI

Western Power is the predominate distributor that supplies customer connections in the Perth CBD and urban areas. Figure 4 shows the average total duration of interruptions per connection (SAIDI) and compares them to the applicable standards in section 13 of the NQ&R Code.

Figure 4: Average total duration of interruptions per connection (SAIDI) in CBD and urban areas 2018 to 2023 (minutes)



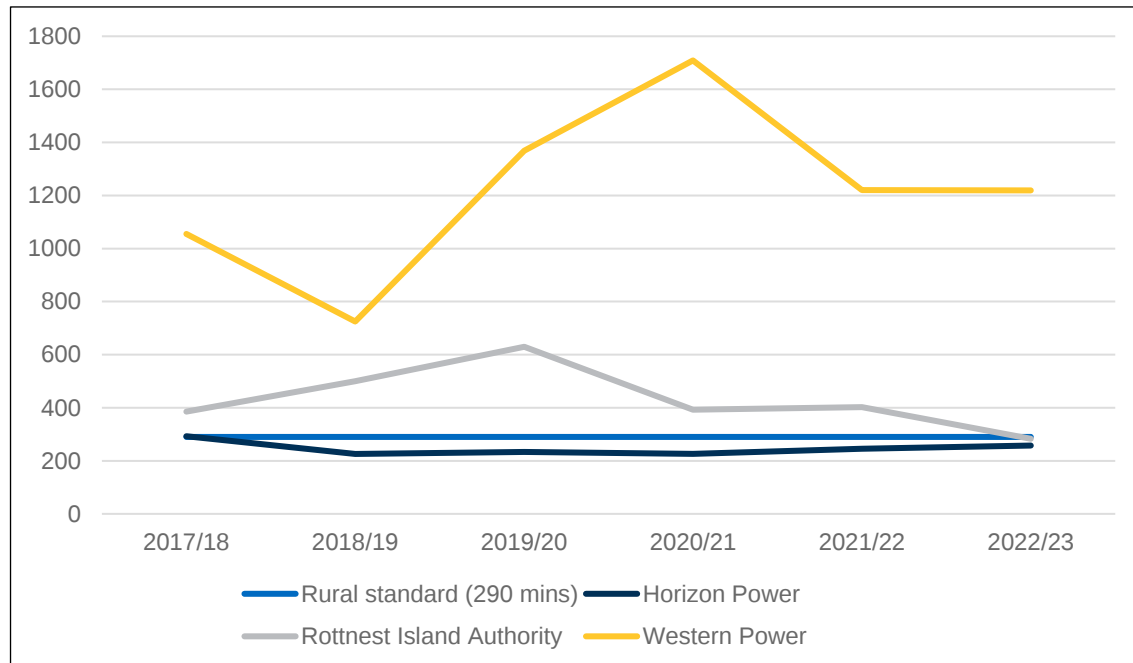
This is the fourth consecutive year that Western Power did not meet the NQ&R Code's CBD SAIDI standard of 30 minutes, or the NQ&R Code's SAIDI standard of 160 minutes for urban areas, in any of the six years reported. Western Power identifies several environmental events that caused lengthy outages in August 2022 (severe storm affecting customers across the

¹⁵ These areas are defined in section 3 of the NQ&R Code and include the Perth metropolitan region, Albany, Bunbury, Geraldton, Kalgoorlie and Mandurah.

metropolitan, South-West and Peel regions) and March 2023 (pole top fires affecting 43,000 customers across the metropolitan, South-West and Peel regions).

Figure 5 shows the average total duration of interruptions per connection (SAIDI) on distribution systems located in rural areas for each distributor.

Figure 5: Average total duration of interruptions per connection (SAIDI) in rural areas 2018 to 2023 (minutes)



Western Power's SAIDI performance in rural areas remains constant at 1,219 minutes in 2022/23, higher than the 290 minutes prescribed in the NQ&R Code.

Horizon Power met the NQ&R Code's SAIDI standard for rural systems for the fifth consecutive year. Its average length of interruptions was 258 minutes, which was 12 minutes longer than the previous year (246 minutes).

Rottnest Island Authority's SAIDI performance met the NQ&R Code's SAIDI standard for rural systems of 290 minutes, for the first time in six years. Rottnest Island Authority's SAIDI improved reaching 283 minutes in 2022/23, down from 402 minutes in 2021/22.

2.4 System reliability – ERA licensing framework

The ERA's system reliability framework is based on IEEE standard 1366 and requires distributors to report on overall supply interruptions (which captures all interruptions regardless of cause) and normalised supply interruptions.

The benefit of reporting on overall supply interruptions is discussed in section 2.1.

The normalised supply interruptions measurement removes all unplanned supply interruptions such as generation outages and transmission system outages caused by third-party events. The normalised supply interruptions measurement does not remove force majeure events and other transmission system outages not caused by third-party events.

It is industry practice to use normalised reliability data to assess the reliability performance of distributors, particularly when comparing distributor performance within or across jurisdictions.

The definitions of overall and normalised interruptions under the ERA's system reliability framework are discussed further in Appendix 3.

2.4.1 SAIDI

SAIDI measures the average total duration of supply interruptions (in minutes) across all customer connections on a distribution system. The total network SAIDI is a weighted average value. The weighting is based on the proportion of total customer connections served by each of the distribution system feeder classification types.

Table 7 shows the overall and normalised SAIDI values by feeder class for each distributor for 2022/23.

Table 7: Overall and normalised SAIDI by electricity distributor for 2022/23

Overall SAIDI (minutes per annum)					
	Total network	CBD	Urban	Short rural	Long rural
Horizon Power	280	n/a	120	261	1,279
Peel Renewable Energy	16	n/a	16	n/a	n/a
Rottnest Island Authority	42	n/a	n/a	42	0
Western Power	350	49	269	417	910
Normalised SAIDI (minutes per annum)					
	Total network	CBD	Urban	Short rural	Long rural
Horizon Power	202	n/a	107	185	912
Peel Renewable Energy	0	n/a	0	n/a	n/a
Rottnest Island Authority	0	n/a	n/a	0	n/a
Western Power	186	19	132	207	599

n/a – The distributor does not operate feeders of this type.

Figures 6, 7, 8 and 9 compare the past six years of overall and normalised SAIDI values for the CBD, urban, short rural and long rural feeder classes, respectively, for Horizon Power and Western Power.¹⁶

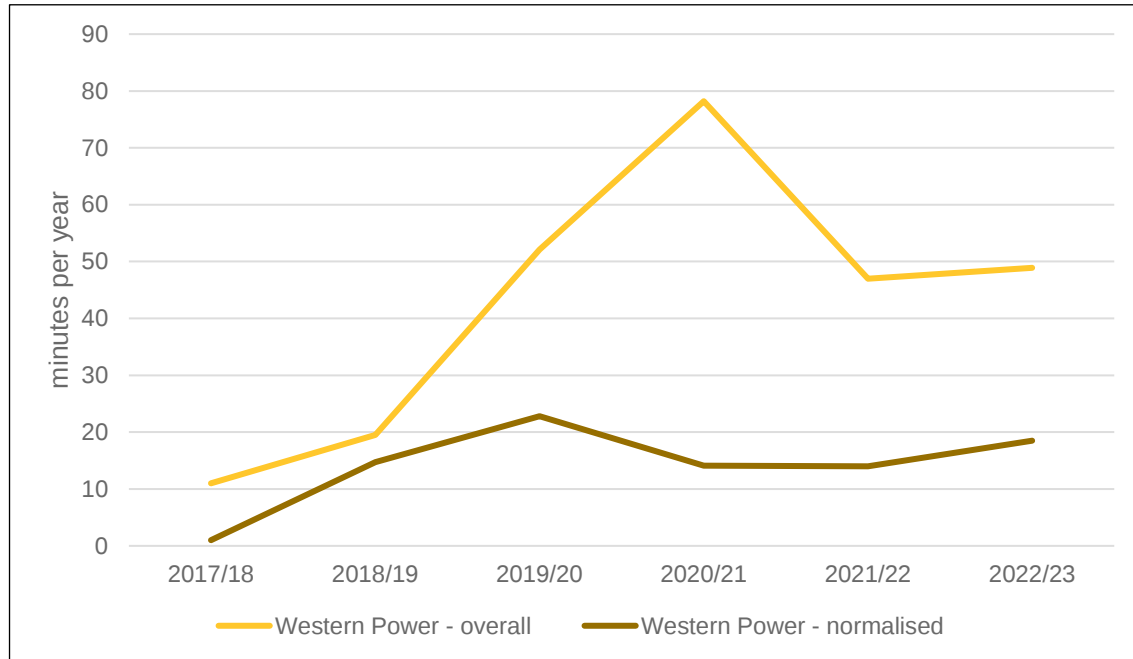
The value of the SAIDI for each class of feeder is influenced by the level of redundancy in the distribution system for that class, and the remoteness of the location. Long and short rural feeders tend not to have any redundancy, and are often in remote locations, which increases the time to repair faults and hence the length of the outage.

The normalisation process has resulted in the values of normalised SAIDI being lower than the overall SAIDI for all classes of feeder operated by the four distributors that reported SAIDI for 2022/23. This is because the normalised SAIDI removes some unplanned supply interruptions, including interruptions caused by severe weather, generation outages and transmission system

¹⁶ Data for Figures 6, 7, 8 and 9 is in the energy distributor dataset published by the ERA. See Economic Regulation Authority, Energy Distributor Dataset – 2018 – 2023, Network Reliability (online)

outages caused by third-party events. Further information on the normalisation process is in Appendix 3.

Figure 6: Overall and normalised SAIDI by electricity distributor – CBD 2018 to 2023



The normalised SAIDI for Western Power (Figure 6) excludes unplanned supply interruptions, like severe weather events. Figure 6 also shows a slight incline in outage minutes per year for the CBD, from 14 minutes in 2021/22 up to 19 minutes in 2022/23. Western Power attributes this to cable failures during June 2023.

The overall and normalised SAIDI for Western Power's urban (Figure 7), short rural (Figure 8) and long rural (Figure 9) feeders were all lower than the previous year.

In 2022/23, Horizon Power's network experienced longer duration outages in both overall and normalised SAIDI urban, short rural and long rural feeders (Figures 7, 8 and 9).

Figure 7: Overall and normalised SAIDI by electricity distributor – urban 2018 to 2023

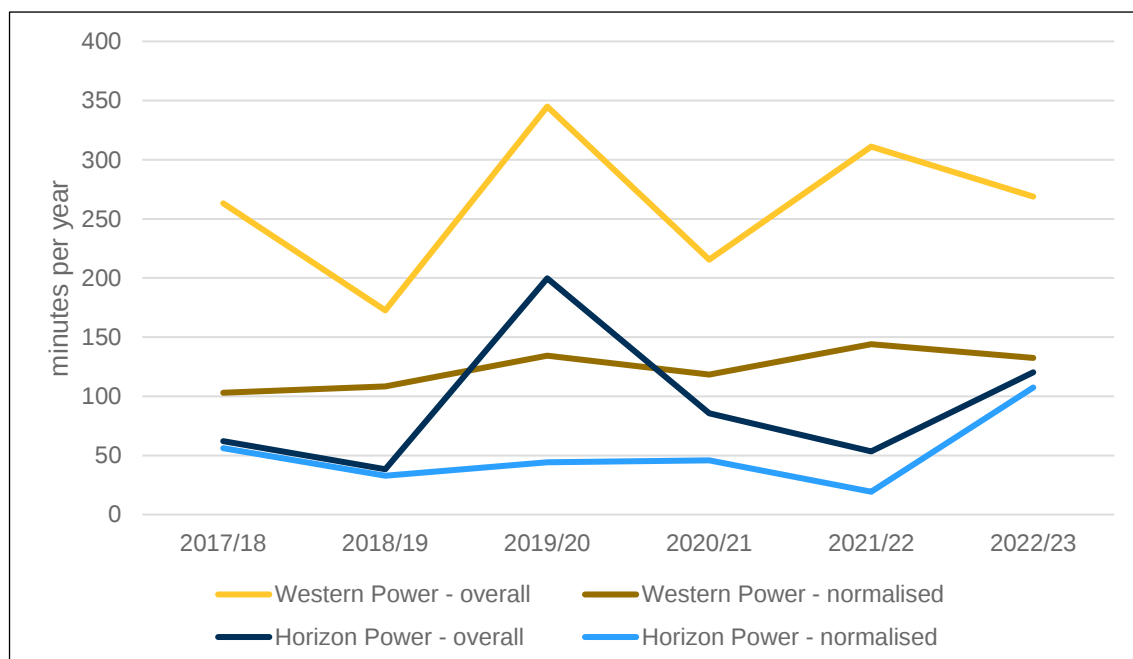
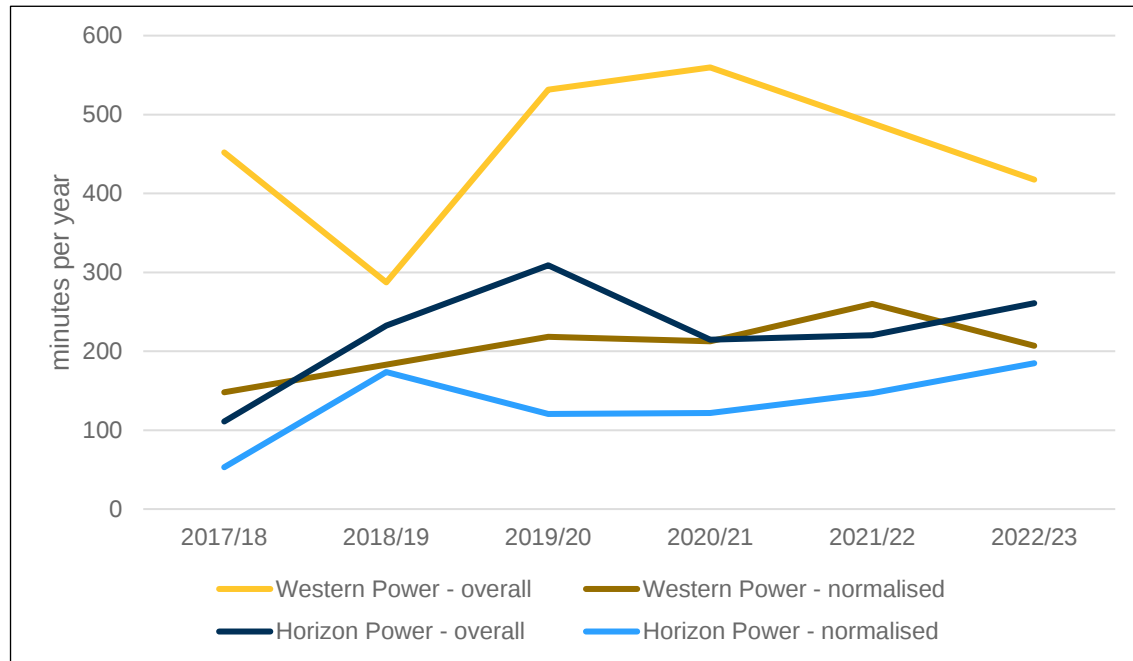
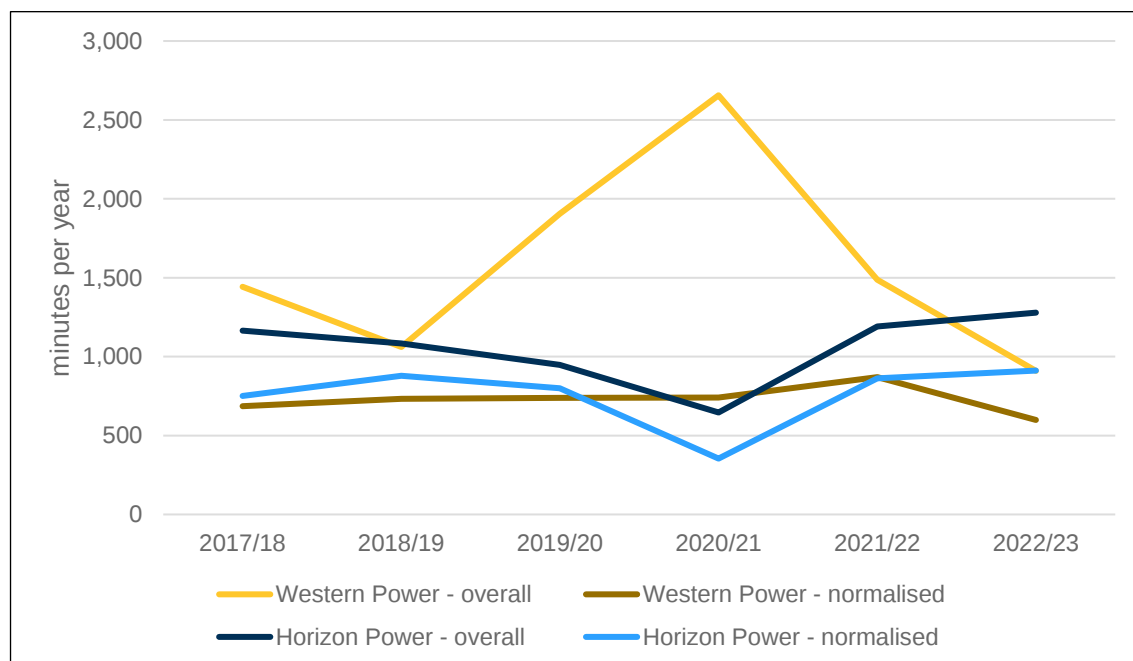


Figure 8: Overall and normalised SAIDI by electricity distributor – short rural 2018 to 2023**Figure 9: Overall and normalised SAIDI by electricity distributor – long rural 2018 to 2023**

2.4.2 SAIFI

SAIFI measures the average number of supply interruptions across all customer connections. The total network SAIFI is a weighted average value, with the weighting based on the total customers served by each of the distribution system feeder classification types.

Table 8 shows the overall and normalised SAIFI values by feeder class for each distributor in 2022/23.

Interruptions that are excluded from the calculation of normalised SAIDI are also excluded from the calculation of normalised SAIFI.

Table 8: Overall and normalised SAIFI for each electricity distributor in 2021/22

Overall distribution network – SAIFI (per year)					
	Total network	CBD	Urban	Short rural	Long rural
Horizon Power	3.35	n/a	1.28	3.26	12.96
Peel Renewable Energy	10.0	n/a	10.0	n/a	n/a
Rottnest Island Authority	3.6	n/a	n/a	3.6	n/a
Western Power	2.46	0.34	1.80	3.39	5.94
Normalised distribution network – SAIFI (per year)					
	Total network	CBD	Urban	Short rural	Long rural
Horizon Power	2.84	n/a	1.20	2.71	11.60
Peel Renewable Energy	0.00	n/a	n/a	0.00	n/a
Rottnest Island Authority	0.00	n/a	n/a	0.00	n/a
Western Power	1.88	0.24	1.35	2.66	4.66
<i>n/a – No feeders of this type are operated by the distributor</i>					

Figures 10, 11, 12 and 13 compare the past six years of overall and normalised SAIFI values for the CBD, urban, short rural and long rural feeder classes, respectively, for Horizon Power and Western Power.

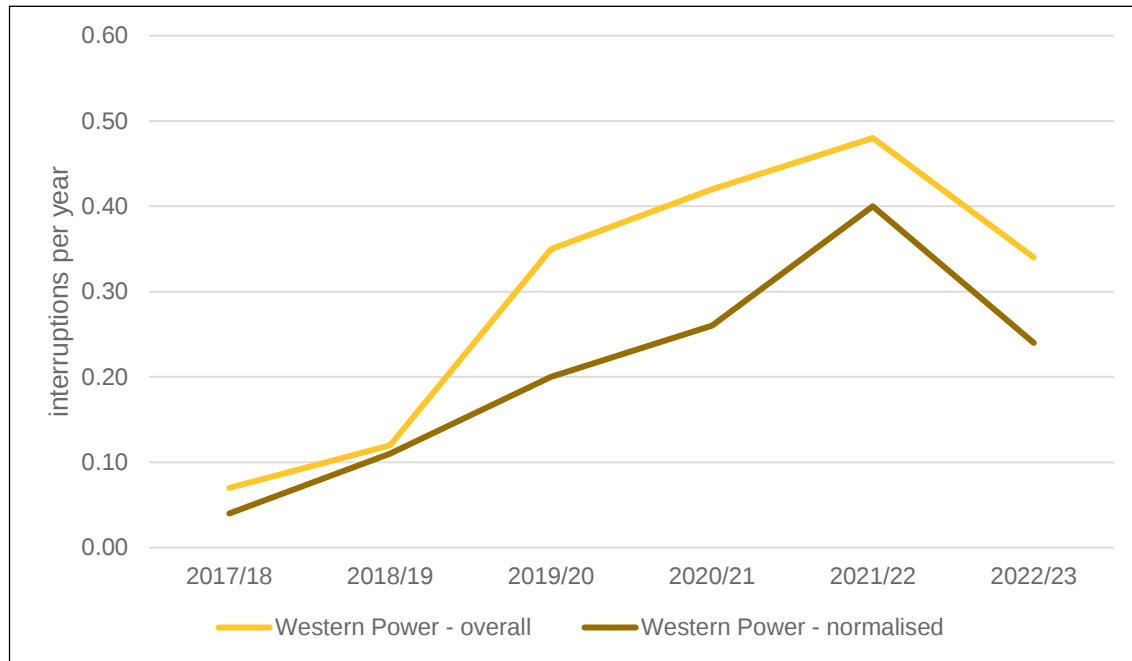
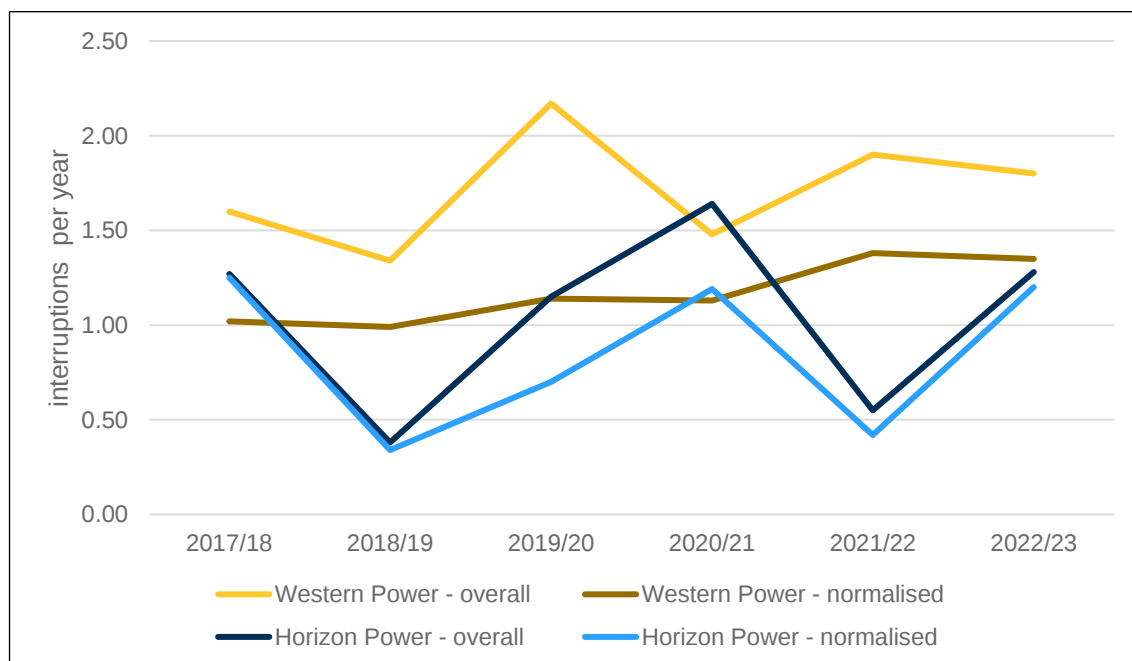
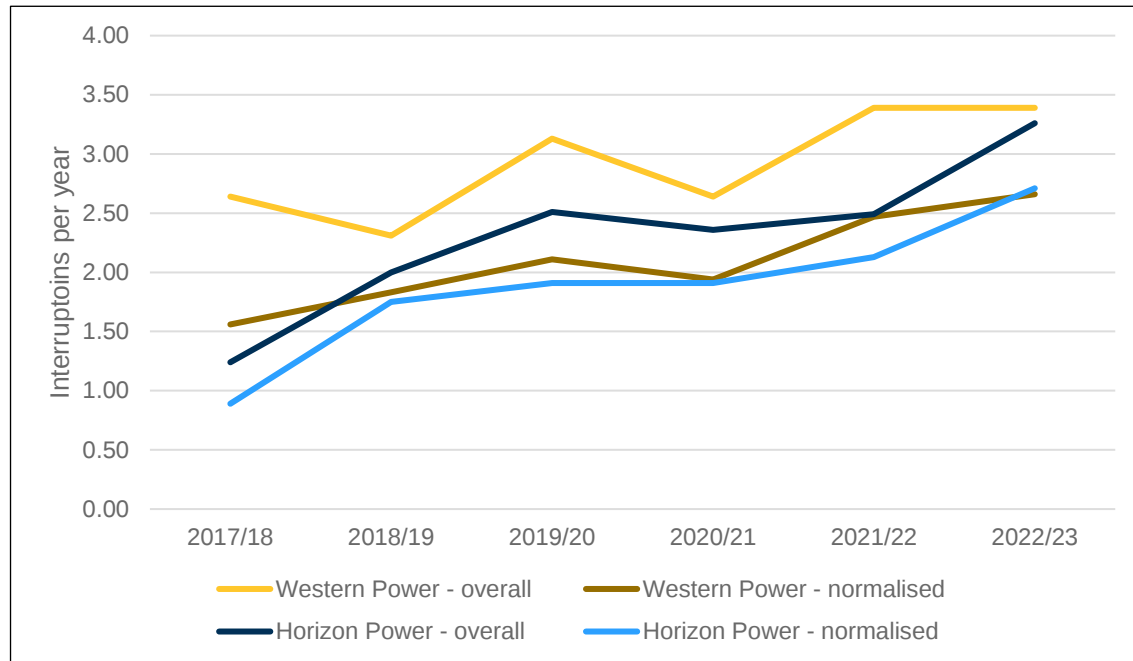
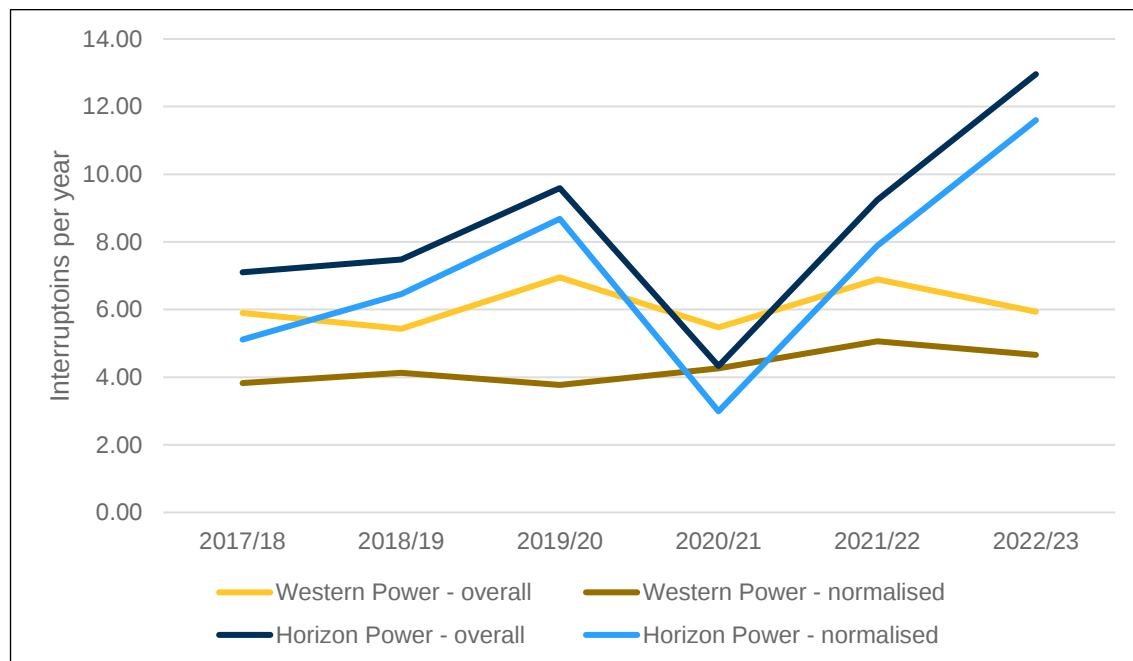
Figure 10: Overall and normalised SAIFI by electricity distributor – CBD 2018 to 2023**Figure 11: Overall and normalised SAIFI by electricity distributor – Urban 2018 to 2023**

Figure 12: Overall and normalised SAIFI by electricity distributor – Short rural 2018 to 2023**Figure 13: Overall and normalised SAIFI by electricity distributor – Long rural 2018 to 2023**

The change in the values of SAIFI each year mostly follows the same pattern as the corresponding SAIDI values. The result is to be expected, because the removal of an interruption from the total interruptions under the SAIDI normalisation process results in the removal of the corresponding SAIFI from the total SAIFI. Figure 13 demonstrates this result, showing that the normalised performance for both Horizon Power and Western Power is better than each entity's overall performance and the performance reported under the NQ&R Code.

The ERA is also required to monitor Western Power's reliability performance against the service standards benchmarks in its access arrangement. Western Power submits its Service Standard

Performance Report to the ERA every year under the *Electricity Networks Access Code 2004*.¹⁷ Western Power did not meet the service standard benchmarks for CBD SAIFI and rural short SAIFI.

¹⁷ ERA, 14 December 2023, Notice. Western Power 2022/23 Service Standard Performance Report ([online](#)).

3. Gas distribution system reliability

Main points

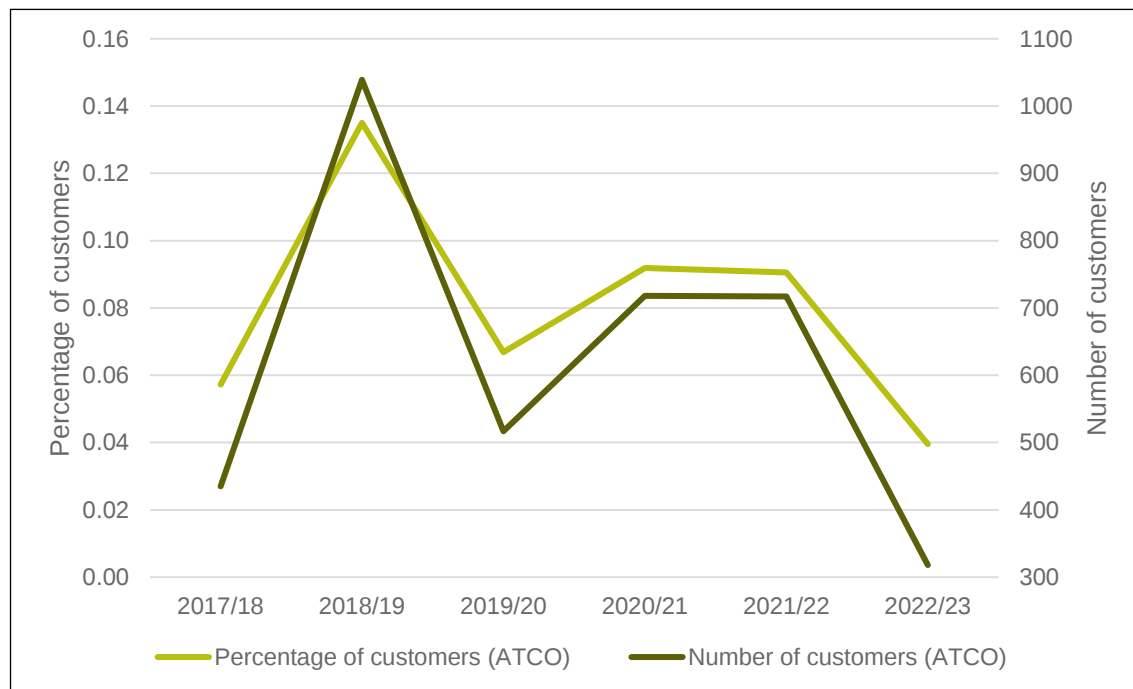
- Very few (0.04 per cent) of all gas customers experienced a supply interruption lasting more than 12 hours in 2022/23.

Obligations in gas distributors licences require them to report on the number of customer connections with interruptions that exceed 12 hours continuously. These are referred to as extended interruptions.

3.1 Extended interruptions

Figure 14 shows the number and percentage of ATCO customer connections that had an extended interruption.

Figure 14: ATCO extended interruptions 2018 to 2023



In 2022/23, 318 fewer customers (55 per cent) experienced a supply interruption lasting more than 12 hours in 2022/23 compared to the previous year.

ATCO reported that interruptions were mostly caused by four events where water ingress affected over 30 customers. Another interruption caused by a burst water main, disrupting gas supply to 42 customers in the metropolitan area. ATCO noted that gas supply interruptions can be caused by third-party damage.

Since 2020/21, Kleenheat has not reported any extended gas supply interruptions.

4. Energy delivered

Main points

- In 2022/23, there was a 5.3 per cent increase in electricity delivered across the urban network by Western Power.
- Energy consumption by Rottnest Island Authority customers was at an all time high due to major capital works and an increase in tourists.
- Horizon Power delivered 15 per cent more electricity to its urban customers.
- Energy delivered by Kleenheat increased by 20.4 per cent due to customer gas heating consumption.

Gas and electricity distributors report on the amount of energy delivered to customer connections on their distribution systems, measured as gigajoules of gas and gigawatt-hours (GWh) of electricity, respectively.

4.1 Energy delivered by electricity distributors

Data is provided separately for:

- Horizon Power
- Peel Renewable Energy
- Rottnest Island Authority
- Western Power.

Figure 15 shows the amount of energy delivered to Western Power's customers, by feeder class.

Figure 15: Energy delivered by Western Power by feeder type 2018 to 2023

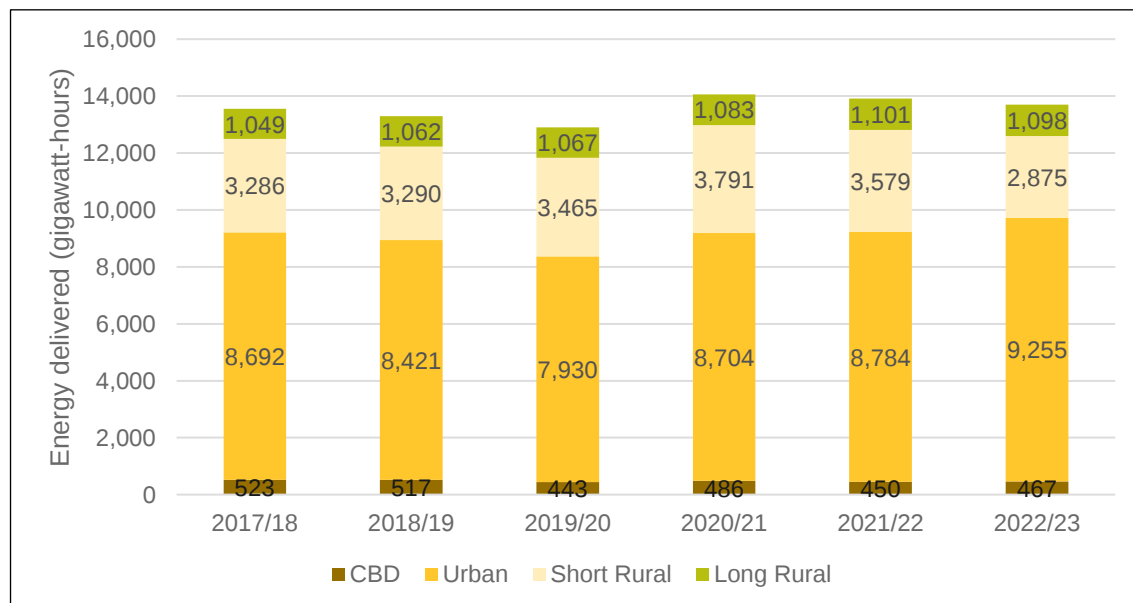
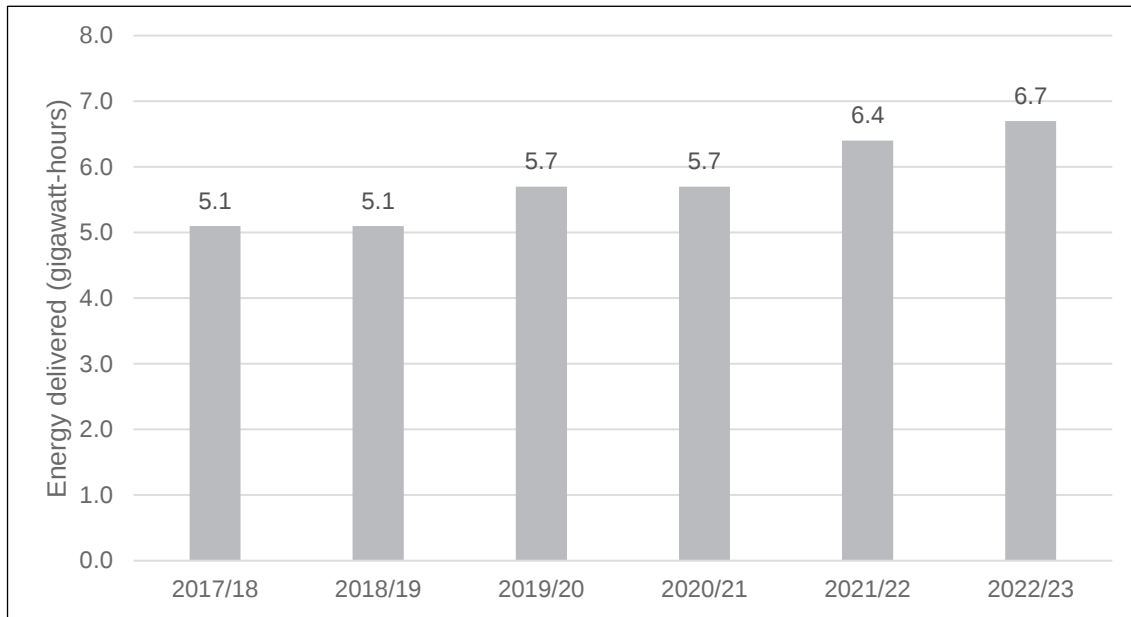
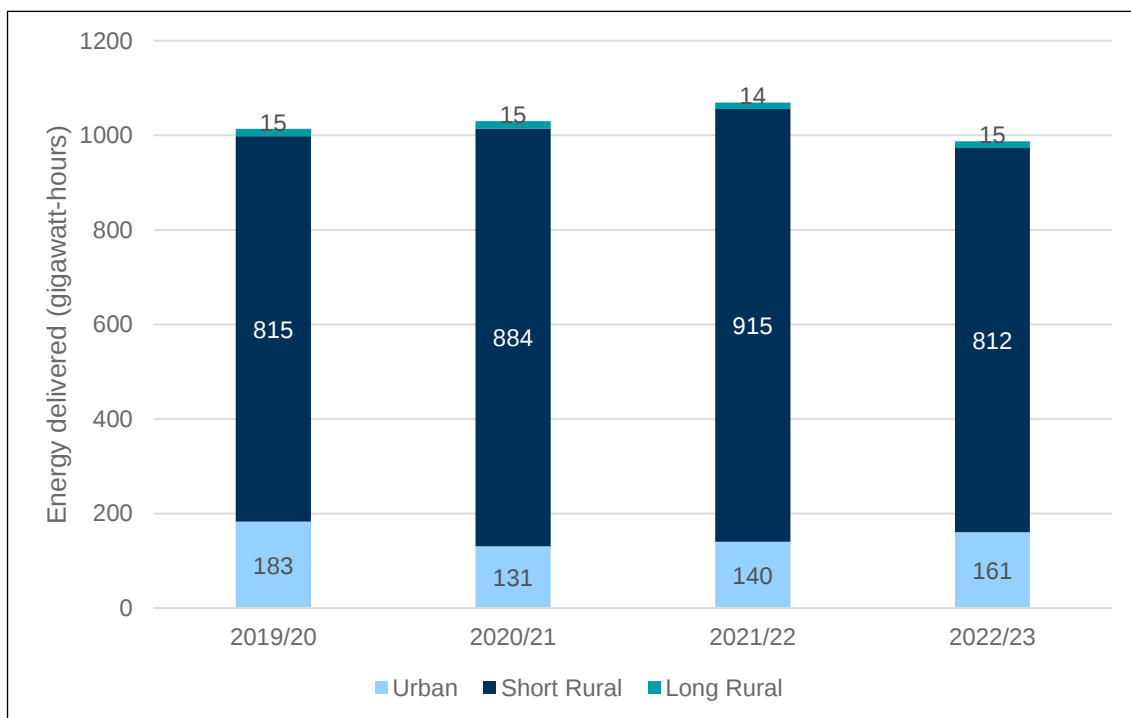


Figure 16 shows the amount of energy delivered to customer connections on the Rottnest Island Authority's short rural feeders.

Figure 16: Energy delivered by Rottneest Island Authority 2018 to 2023

The total electricity delivered to customer connections on the Rottneest Island Authority's distribution system in 2022/23 is the highest in the six years reported at 6.7 GWh. Rottneest Island Authority attributed the 4.6 per cent increase to major capital works projects and an increase in tourists visiting the Island in 2022/23.

Figure 17 shows the amount of energy delivered to Horizon Power's customer connections, by feeder class.

Figure 17: Energy delivered by Horizon Power 2020 to 2023

The total electricity delivered to customer connections on Horizon Power's distribution system increased only slightly from 988 GWh in 2021/22, to 1,069 GWh in 2022/23.¹⁸

4.2 Energy delivered by gas distributors

Energy delivered data is provided separately for:

- ATCO
- Kleenheat.

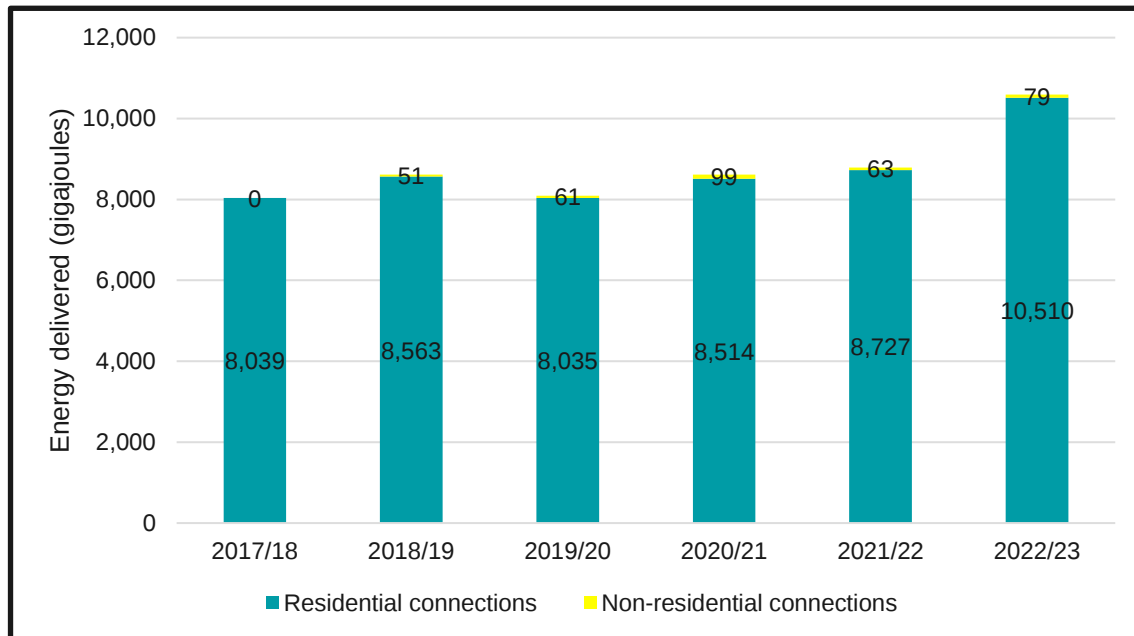
Figure 18 shows the amount of energy delivered by ATCO to residential and non-residential customer connections.

Figure 18: Energy delivered by ATCO 2018 to 2023



Figure 19 shows the amount of energy delivered by Kleenheat to residential and non-residential customers.

¹⁸ This is the fourth year that Horizon Power has been able to supply energy delivered data. Prior to 2019/20, Horizon was unable to separate the energy delivered to small use customers from the total energy supplied through its feeders.

Figure 19: Energy delivered by Kleenheat 2018 to 2023

The energy delivered by Kleenheat in 2022/23 is at its highest for the six years reported. Kleenheat attributed this to lower-than-average temperatures during the reporting period, increasing gas heating consumption.

5. Customer service

Main points

- In 2022/23, there were fewer Electricity Code complaints to both Western Power and Horizon Power compared to 2021/22: 29 per cent and 51 per cent, respectively.
- The 93 per cent increase in reliability (NQ&R Code) complaints to Horizon Power are attributed to Ex-Tropical Cyclone Ellie.
- Calls to electricity call centers fell by 15.1 per cent, while the percentage of calls answered within 30 seconds by Western Power and Horizon Power were the lowest in six years.
- The number of complaints received by ATCO was the highest in six years.
- Overall, the number of calls to gas call centers were the lowest in six years (down 7.6 per cent from 2021/22).

The *Code of Conduct for the Supply of Electricity to Small Use Customers* (Electricity Code) and the *Compendium of Gas Customer Licence Obligations* (Gas Compendium) require distributors to have an internal process for handling complaints and resolving disputes that complies with *Australian Standard ISO 10002-2014 Guidelines for compliant management organisations*.¹⁹

Customer service is reported on by energy distributors in terms of the number of complaints and call centre performance.

5.1 Electricity complaints

The Electricity Code focuses on customer protection and services, requiring distributors to report on the two categories of complaints specified by the ERA:

- Administrative process or customer service complaints, including meter reading issues, the timeliness of customer communications, issues with complaints handling and general administrative matters.
- Other complaints, including poor service, privacy issues, and health and safety issues.

In contrast, the NQ&R Code focuses on supply reliability. Section 5.1.2 shows the number of complaints received by a distributor when it fails to comply with the NQ&R Code's power quality and reliability standards.

5.1.1 Electricity Code complaints

Table 9 shows the number of complaints by Electricity Code categories received by Horizon Power and Western Power.

The total number of complaints received by Horizon Power fell by 51 per cent, from 980 in 2022/23 to 480. Horizon Power attributed the lower complaint numbers to the State

¹⁹ ERA 2023: Code of Conduct for the Supply of Electricity to Small Use Customers ([online](#)) and Compendium of Gas Customer Licence Obligations ([online](#)).

Government's Household Electricity Credit payment as the payment reduced bill debt and lowered customer complaints.²⁰

Western Power's complaints were also lower by 29 per cent compared to the previous year.

Table 9: Complaints received by electricity distributors (Electricity Code) 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Horizon Power						
Administrative and customer service complaints	114	992	1,480	767	962	479
Other complaints	7	49	43	19	18	1
Total complaints	121	1,041	1,523	786	980	480
Western Power						
Administrative and customer service complaints	295	343	253	354	316	286
Other complaints	578	599	2,762	1,636	1,615	1,086
Total complaints	873	942	3,015	1,990	1,931	1,372

5.1.2 NQ&R Code complaints

Table 10 shows the number of complaints about NQ&R Code matters (power quality and reliability) received by Horizon Power and Western Power.

Table 10: Complaints received by electricity distributors (NQ&R Code) 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Horizon Power	27	76	56	452	44	85
Western Power	920	955	4,315	3,522	2,747	1,611
Total complaints	947	1,031	4,371	3,974	2,791	1,696

The number of NQ&R complaints received by Western Power in 2022/23 was 41 per cent lower compared to 2021/22. There was an increase in NQ&R complaints received by Horizon Power in 2022/23; up by 93 per cent, compared to 2021/22. Horizon Power advised that this increase will have been influenced by complaints from customers who have been affected by Ex-Tropical Cyclone Ellie.

5.2 Gas complaints

Table 11 shows the total number of complaints received by ATCO and Kleenheat since 2017/18.

²⁰ WA Household electricity credit offset 2022: As part of the State Government's 2022/23 budget, a \$400 electricity credit was provided automatically in July 2022 for Synergy and Horizon Power customers.

Table 11: Complaints received by gas distributors 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
ATCO	431	371	299	629	848	922
Kleenheat	4	12	1	0	1	0
Total	435	383	300	629	849	922

The number of complaints received by ATCO in 2022/23 was the highest in the six years reported, an increase of 8.7 per cent from the previous year. ATCO attributed the increase to:

- Issuing 2,500 invoices to customers, to clear an invoice backlog, which led to more network charges and subsequent complaints from customers about cost.
- Growing use of ATCO's online tool for customer complaints.

Table 12 categorises the complaints received by ATCO and Kleenheat in 2020 to 2023.

Table 12: Categorisation of complaints received by gas distributors in 2020 to 2023

Complaint category	ATCO				Kleenheat			
	2019/20	2020/21	2021/22	2022/23	2019/20	2020/21	2021/22	2022/23
Connection and augmentation	7	35	33	35	0	0	0	0
Reliability of supply	4	7	0	0	1	0	0	0
Quality of supply	1	2	0	0	0	0	0	0
Network charges and costs	20	94	147	226	0	0	0	0
Administrative processes or customer service	132	206	336	340	0	0	1	0
Other	135	285	332	316	0	0	0	0
Total	299	629	848	922	1	0	1	0

5.3 Call centre performance

Many customer interactions with distributors are by telephone. How responsive a distributor is to telephone calls is an important indicator of customer service. Distributors operate different types of call centres, depending on the number of calls they receive from customers.

5.3.1 Electricity distributor's call centre performance

Western Power operates an in-house call centre. The Rottne Island Authority, Horizon Power and Peel Renewable Energy outsource their call centre services. Table 13 shows the number of calls received by each electricity distributor's call centre.²¹

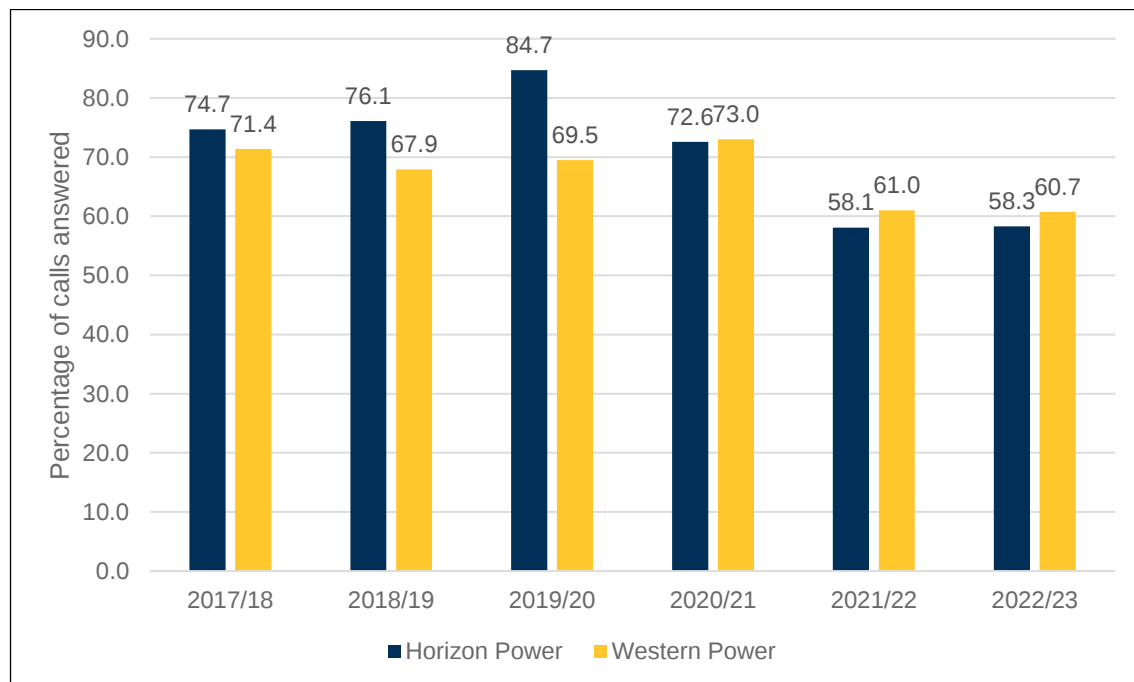
Table 13: Number of calls to electricity distributor call centres 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Horizon Power	10,940	9,234	11,382	9,624	12,400	11,492
Western Power	376,719	357,889	394,175	350,535	339,858	287,251
Total	387,659	367,123	405,557	360,159	352,258	298,743

The number of calls by customers to the electricity distributor's call centre was the lowest in the six years reported. Horizon Power reported a 7.3 per cent decrease in calls. Western Power reported 15.4 per cent less calls, since using SMS to inform customers about power outages.

Figure 20 shows the percentage of calls that were answered within 30 seconds by each electricity distributor's call centre.

Figure 20: Percentage of electricity distributor calls answered within 30 seconds - 2018 to 2023



The percentage of calls answered within 30 seconds by Western Power and Horizon Power are at the lowest in the six years reported and there was minimal change between 2021/22 and 2022/23. The percentage of calls answered within 30 seconds by Western Power reduced from 61 per cent in 2021/22 to 60.7 per cent in 2022/23. Figures were similar for Horizon Power; 58.1 per cent in 2021/22 up to 58.3 per cent in 2022/23.

²¹ Rottne Island Authority has been excluded from Table 13 and Figure 20 as it has not been able to separately report on calls related to their distribution service since 2019/20. Peel Renewable Energy has also been excluded from Table 13 because it did not receive any complaints in 2022/23.

5.3.2 Gas distributor's call centre performance

Kleenheat's call centre handles calls about its gas retail operations and other areas of its business, as well as distribution calls.

Table 14 shows the number of calls received by ATCO and Kleenheat's call centres.

Table 14: Number of calls to gas distributor call centres 2018 to 2023

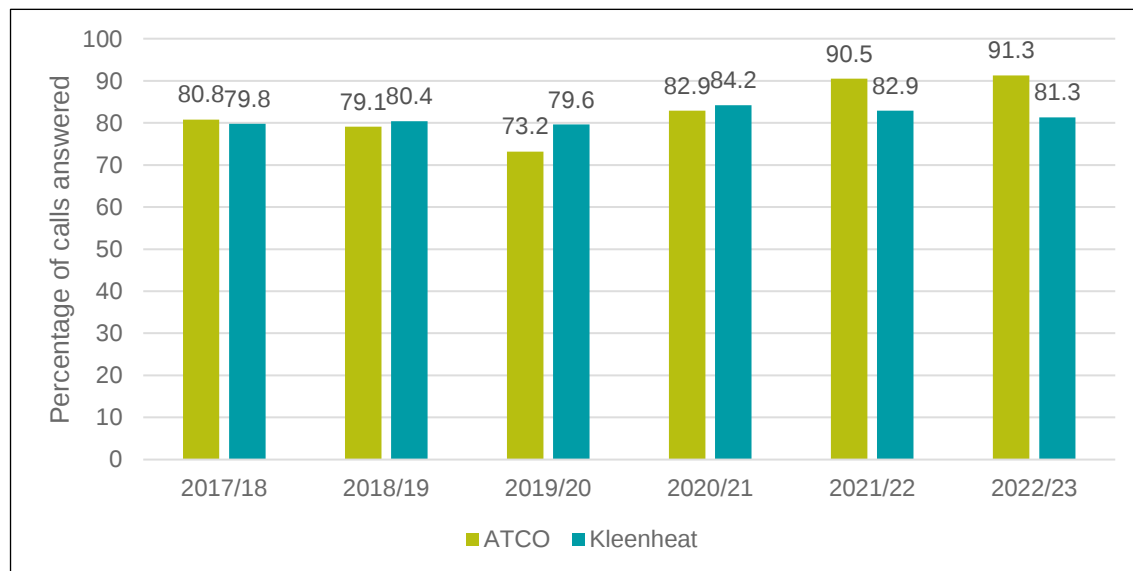
	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
ATCO	71,258	68,029	60,753	43,985	38,160	34,837
Kleenheat	310,803	289,778	246,101	195,480	204,465	189,164
Total	382,061	357,807	306,854	239,465	242,625	224,001

The total number of calls received by the ATCO call centre was the lowest for the six years reported. ATCO attributed the reduction in customer calls to factors including:

- Retailer disconnections not yet returning to pre pandemic levels (disconnections are a driver of calls).
- A stable cohort of core call centre staff receiving ongoing training and professional development.
- More online customer self-service options to report issues, such as the smell of gas.

Figure 21 shows the percentage of calls that were answered by gas distributor call centres within 30 seconds.

Figure 21: Percentage of gas distributor calls answered within 30 seconds 2018 to 2023



The proportion of calls answered within 30 seconds by both gas distributors remains similar to the previous year.

6. Streetlight repair

Key points

- In 2022/23, 4,175 more streetlights were added to the metropolitan network.
- Horizon Power added 97 streetlights to its regional network in 2022/23.
- The number of metropolitan streetlight faults fell by 6.6 per cent.
- Fewer regional street light faults were reported by Rottnest Island Authority as faults reduced from 87 in 2021/22 to 3 in 2022/23.
- Horizon Power reported 22.5 percent fewer streetlight faults compared to 2021/22.
- All distributors repaired more regional streetlight faults within a nine-day period.

6.1 Number of streetlights

A total of 303,202 streetlights were maintained by respective distributors across metropolitan and regional areas in Western Australia, as at June 2023 (Table 15). The number of streetlights increased by 1.3 per cent (4,175) in the metropolitan area in 2022/23 compared to the previous year and is consistent with increases ranging between 0.5 to 2 per cent, across the six years reported.

Although Horizon Power added 97 new streetlights to its network, the number of regional streetlights fell by 175 as at June 2023. Western Power reclassified 717 streetlights from regional to the metropolitan area and updated its streetlights register, removing 166 streetlight entries.

Table 15: Number of streetlights in metropolitan and regional areas on 30 June 2018 to 2022

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Metropolitan areas						
Horizon Power	7,866	7,672	7,501	7,684	7,684	7,672
Peel Renewable Energy	n/a	n/a	n/a	11	11	11
Western Power	226,973	230,188	233,144	235,589	236,895	241,799
Total	234,839	237,860	240,645	243,284	244,590	249,482
Regional areas						
Horizon Power	11,202	11,225	11,336	11,461	11,618	11,715
Rottnest Island Authority	189	189	189	189	189	189
Western Power	40,363	40,637	41,072	41,160	42,088	41,816
Total	51,754	52,051	52,597	52,810	53,895	53,720

6.2 Streetlight faults

At June 2023, a total of 39,606 streetlight faults were reported across Western Australia, representing 13 per cent of the total streetlight network.²² This is more than 7 per cent lower than the 42,670 faults reported in 2021/22.

Table 16 shows the number of streetlight faults in metropolitan and regional areas by distributor.

Table 16: Number of streetlight faults in metropolitan and regional areas 30 June 2018 to 2023

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Metropolitan areas						
Horizon Power	189	267	122	115	144	136
Peel Renewable Energy	n/a	n/a	n/a	7	0	0
Western Power	36,510	41,889	49,801	38,757	37,173	34,712
Total	36,699	42,156	49,923	38,879	37,317	34,848
Regional areas						
Horizon Power	261	354	257	218	240	186
Rottnest Island Authority	33	43	30	25	87	3
Western Power	2,825	3,745	5,914	5,015	5,026	4,569
Total	3,119	4,142	6,201	5,258	5,353	4,758

Both Western Power and Horizon Power reported decreases in the number of streetlight faults in the metropolitan area over 2022/23. Peel Renewable Energy reported no street light faults for 2022/23.

Regionally, the number of streetlight faults reported by the Rottnest Island Authority significantly decreased from 87 in 2021/22 to 3 in 2022/23. Rottnest Island Authority explained the decrease was due to the large number of repairs carried out in 2021/22. Both Western Power and Horizon Power reported decreases of 9 and 22.5 per cent respectively, when compared to 2021/22.

Figure 22 shows the number of metropolitan and regional streetlight faults received by distributors, expressed as a percentage of the total streetlights maintained by each distributor in these areas.

²² The ERA has recently become aware that the number of streetlight faults reported by Western Power does not include streetlight cable faults. The ERA will be reviewing this further with Western Power and is aiming to provide additional data on streetlight cable faults in future reports.

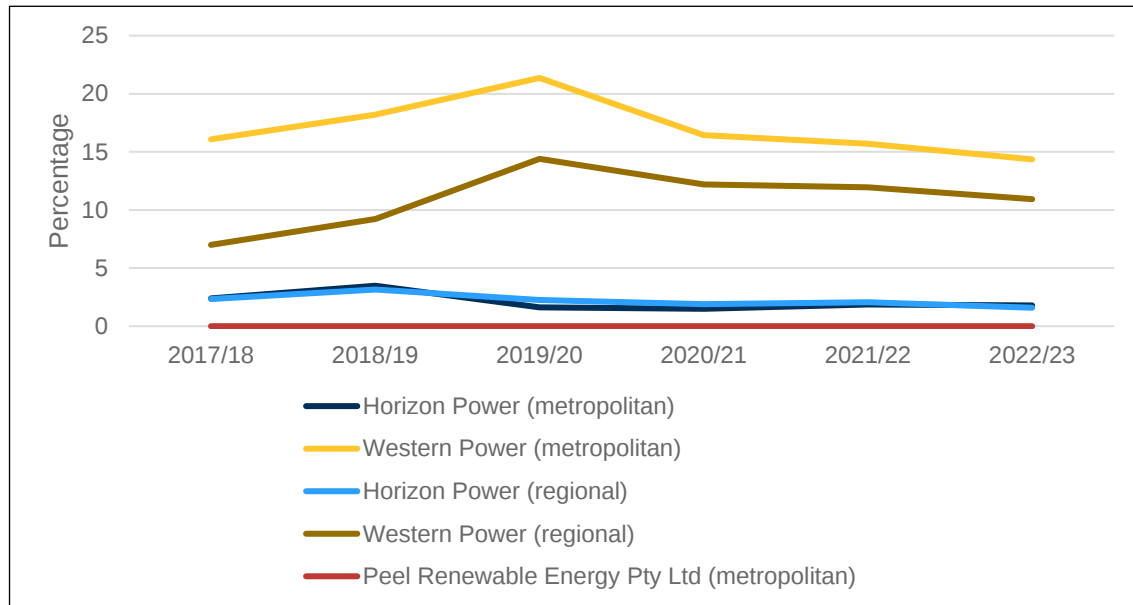
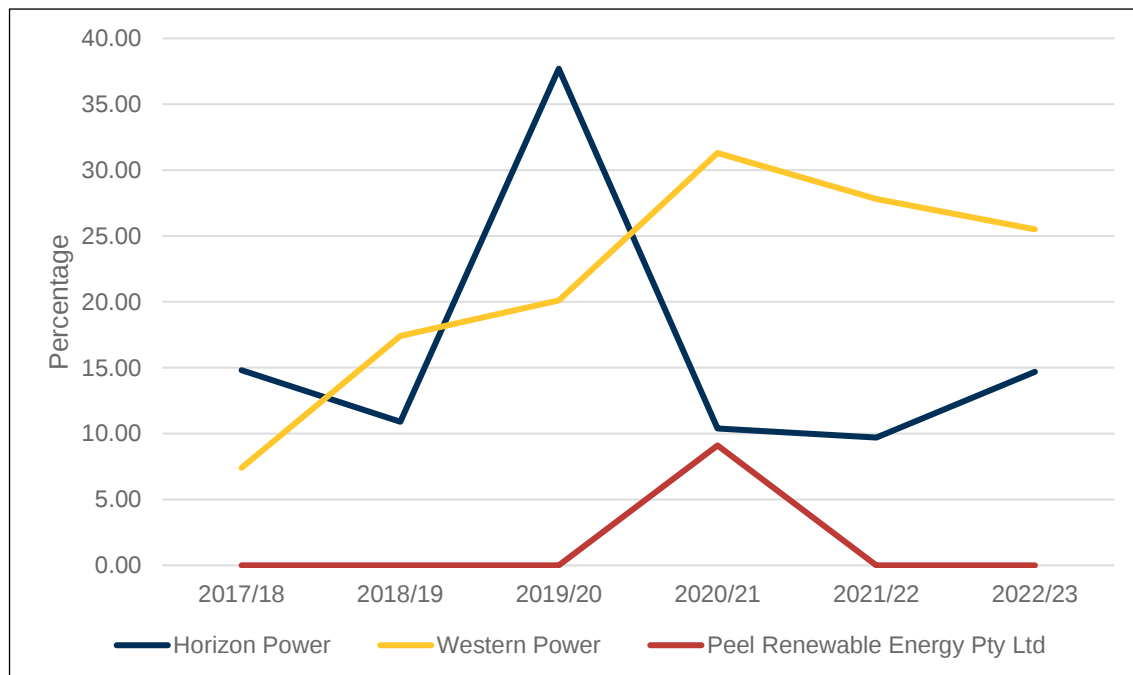
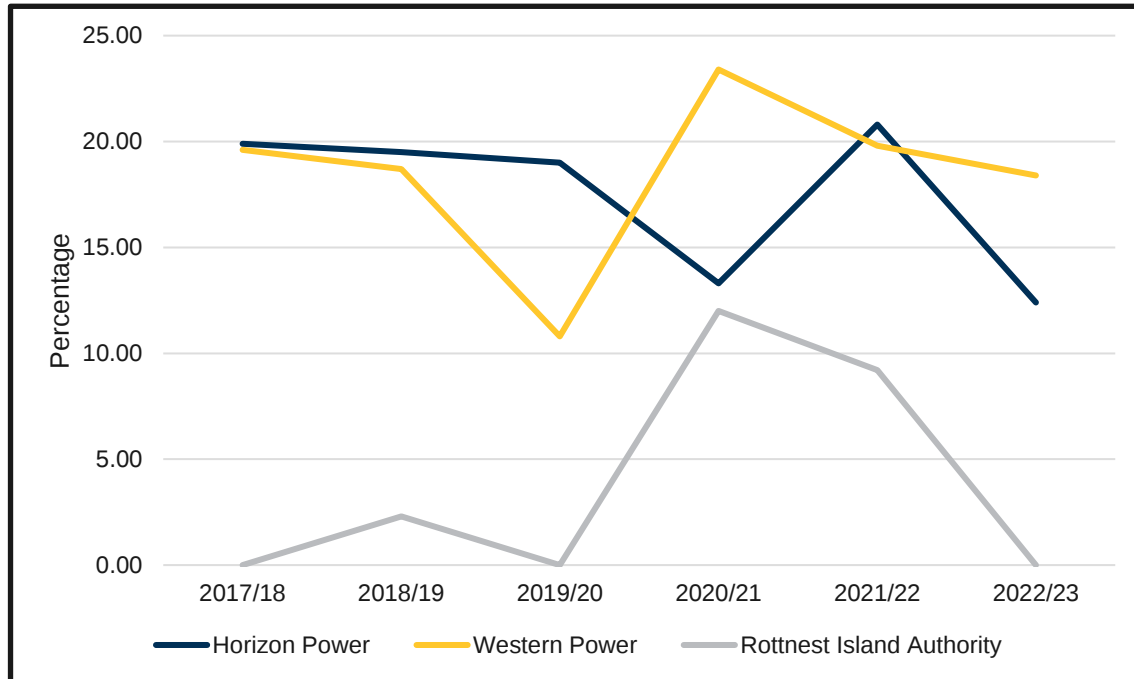
Figure 22: Faulty streetlights by distributor and location 2018 to 2023

Figure 23 shows the proportion of faulty metropolitan streetlights that were not repaired within the benchmark of five business days from the date they were reported faulty.

Figure 23: Faulty metropolitan streetlights not repaired within five business days 2018 to 2023

The percentage of metropolitan streetlights repaired by Horizon Power outside the five business days benchmark increased slightly from 9.7 per cent in 2021/22 to 14.7 per cent in 2022/23. Western Power reported a slight decline, from 27.8 per cent in 2021/22 to 25.5 per cent in 2022/23.

Figure 24 shows the proportion of faulty regional streetlights that were not repaired within the benchmark of nine business days from the date they were reported faulty.

Figure 24: Faulty regional streetlights not repaired within nine business days 2018 to 2023

In 2022/23, all three distributors reduced the percentage of faulty streetlights not repaired within nine business days.

Since 2020/21, Western Power has continued to group faulty streetlights together to enable efficient repairs. This approach has lowered Western Power's faulty streetlight percentage from 23.4 to 18.4 per cent. The percentage of streetlights not repaired by Horizon Power within nine business days also decreased from 20.8 per cent in 2021/22 to 12.4 per cent in 2022/23.

Rottnest Island Authority repaired its three faulty streetlights within the nine business days and so reported a zero result.

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Appendix 3 Additional information on distribution system reliability measure

NQ&R Code reliability measures

Schedule 1, clauses 11 and 13 of the NQ&R Code specify the system reliability measures that distributors must report, and how to calculate them.

Clause 11 specifies four reliability measures:

- Average length of interruption of supply to customer premises expressed in minutes (this is equivalent to the System Average Interruption Frequency Index (SAIFI)).
- Average number of interruptions of supply to customer premises.
- Average percentage of time that electricity has been supplied to customer premises (this is equivalent to the System Average Interruption Duration Index (SAIDI)).
- Average total length of all interruptions of supply to customer premises expressed in minutes (this is equivalent to the Customer Average Interruption Duration Index (CAIDI)).

Clause 13(3) defines the average value of interruptions as:

- The average of the interruptions for each year for the four years ending in the current reporting period.
- The average of the four (annual) values.

The calculation in clause 13 gives a four-year average value for each of the measures in clause 11.

Distributors are required to report the four reliability measures in clause 11 for each discrete area of the State defined in Schedule 1, clause 2 of the NQ&R Code:

- Perth CBD
- Urban areas other than the Perth CBD
- All other areas of the State.

Definitions of overall and normalised interruptions under the ERA's system reliability framework

The overall SAIDI, SAIFI and CAIDI measure all sustained interruptions (including those caused by generation outages, transmission outages, planned interruptions, unplanned interruptions and directed load shedding).^{23, 24, 25, 26,}

Normalised SAIDI, SAIFI and CAIDI are all unplanned sustained interruptions with the exclusion of interruptions:

- that are caused by generation outages
- that are caused by transmission outages²⁷
- that are caused by direct load shedding
- where the daily unplanned SAIDI exceeds the Major Event Day (MED) boundary.

This approach is described in the ERA's [Electricity Distribution Licence Performance Reporting Handbook](#).

MED is defined in the Standard IEEE 1366-2012 – Guide for Electric Power Distribution Reliability Indices, Institute for Electrical and Electronic Engineers (IEEE 1366). Section 4.5 of the Standard describes a statistical approach to calculate the SAIDI threshold for a MED. The calculation of the MED threshold is based on the SAIDI associated with all the interruptions that occurred during the reporting period, which is typically one year.

The purpose of calculating the MED threshold is to remove days where the daily system SAIDI is much larger than the distribution system average for the reporting period. The approach allows major events to be separately studied from normal daily operation, which exposes trends in daily operation of the system that might otherwise be masked by the MEDs.^{28, 29, 30}

²³ Sustained interruption means a loss of electricity associated with an outage on any part of the network of more than one minute in duration. The interruption starts when it is recorded by equipment (such as SCADA system) or, where such equipment does not exist, at the time that the first customer call relating to the network outage is received. The interruption ends when supply has been restored to that part of the distribution network affected by the outage, or when the supply is reasonably assumed to have been restored if there is no equipment available to record the time of restoration.

²⁴ Unplanned interruption means a sustained interruption that is not a planned interruption, or a planned interruption where the required advance notice of the interruption has not been given to the customer.

²⁵ Planned interruption means a sustained interruption of supply to a supply address that has been caused by scheduled works, for example, preventative maintenance, repairs and network augmentation. Customers are notified in advance of planned interruptions. Planned meter replacements are excluded.

²⁶ Directed load shedding means load shedding that has been directed by the Australian Energy Market Operator (AEMO).

²⁷ The calculation of unplanned interruptions must include interruptions caused by the failure of the transmission system connected to a distribution system where the responsibility for the transmission system lies with the distributor.

²⁸ The calculation of the MED threshold uses the natural logarithms of the daily SAIDI values. The MED threshold is set at 2.5 log-standard deviations above the log-average of the SAIDI data set for the reporting period. The MED for each reporting year is calculated from the four years of data immediately preceding the reporting year. For example, the MED for reporting year 2022/23 is calculated using the SAIDI in the four-year period 2018/19 to 2022/23.

²⁹ Some regulators require distributors to separately report on the cause(s) of interruptions that occurred during MEDs. Often MEDs result from severe weather events, bushfires and the failure of critical distribution system infrastructure beyond the control of the distributor.

³⁰ For 2022/23, Western Power calculated its MED threshold from the five years of data immediately preceding 2022/23. This longer period is used so that it is consistent with the period used to report on service standard performance in Western Power's Access arrangement.

It is important to note that, although the SAIDI is used to identify MEDs, the system SAIFI and CAIDI should be calculated based on the removal of the values of SAIFI and CAIDI for each of the MEDs.

The Australian Energy Regulator also uses IEEE 1366 to calculate normalised values for SAIDI, SAIFI and CAIDI for the distribution systems in the National Electricity Market (NEM). Adopting IEEE 1366 to calculate the normalised system reliability of Western Australian distributors provides opportunities to benchmark their performance with that of comparable distributors in the NEM.

Distribution feeder classifications

The table below provides the definitions for the four types of distribution feeder classifications.

Distributors are required to report overall and normalised SAIDI, SAIFI and CAIDI for each of the four distribution feeder classifications.

Table 17: Distribution feeder classifications

Description			
CBD³¹	Urban	Short Rural	Long Rural
A feeder supplying predominantly commercial, high-rise buildings, supplied by a predominantly underground distribution system containing significant interconnection and redundancy compared to urban areas.	A feeder, which is not a CBD feeder, with actual maximum demand over the reporting period per total feeder route length greater than 0.3MVA/km.	A feeder, which is not a CBD or urban feeder, with a total feeder route length less than 200km.	A feeder, which is not a CBD or urban feeder, with a total feeder route length greater than 200km.

³¹ The Perth CBD area is defined as the areas supplied from the Milligan Street Zone Substation or the Hay Street Zone Substation.