Annual data report 2020/21

Energy distributors

20 January 2022

Economic Regulation Authority
WESTERN AUSTRALIA

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Chair's forward

The Economic Regulation Authority is Western Australia's economic regulator, and its responsibilities include administering the licensing schemes covering energy distribution.

Each year, the ERA reports to the Minister for Energy on trends in energy markets and indicators of energy distributors' performance, with a focus on reliability and customer service.

This report covers the period 1 July 2020 to 30 June 2021.

Performance reporting obligations apply only to distributors serving small use customers, who are residential and small business customers consuming less than 160 megawatt hours of electricity or 1 terajoule of gas a year. This comprises Western Power, Horizon Power, Rottnest Island Authority and Peel Renewable Energy in respect of electricity, and ATCO Gas Australia, Wesfarmers Kleenheat Gas and Esperance Power Station for gas.

During 2020/21, there was an improvement in both the number and duration of supply interruptions.

Fewer Western Power customers were affected by interruptions longer than 12 hours. The number of interruptions in 2020/21 was among the lowest recorded over the past six years, in part due to the severe weather events and bushfires during the year occurring in less densely populated regional areas.

There was an improvement in the reliability of electricity distribution systems operated by Horizon Power and Western Power. The number of customer connections on both distributors' rural systems that experienced more than the benchmark 16 interruptions in 2020/21 was the lowest for the six years reported.

In 2020/21, the average total duration of interruptions per customer connection (SAIDI) on Horizon Power's rural distribution systems was 226 minutes. This was the third consecutive year that Horizon Power met the 290-minute standard for rural systems.

Looking ahead, the ERA considers it likely that Western Power's rural distribution system reliability will continue to improve in future years, as more stand-alone power systems are deployed in regional areas. The deployment of these systems will reduce the number of customers supplied by less reliable overhead distribution lines and have other benefits, including reducing the risk of bushfires.

Two major interruptions on ATCO's distribution systems, in January and May 2021, resulted in an increase in the number of customer connections affected by an interruption longer than 12 hours.

The number of connections on electricity and gas distribution systems in 2020/21 was the highest for the six years reported. Western Power and ATCO accounted for most of the growth in electricity and gas connections, respectively.

The amount of energy delivered by Western Power in 2020/21 was the highest for the six years reported (14,064 GWh).

ATCO reported a decrease in the amount of energy delivered to business customer connections, which was the lowest for the six years reported (1.28 petajoules).

Western Power reported decreases in the percentage of streetlight faults in metropolitan and regional areas in 2020/21. However, the percentage of faults repaired within the five- and nine-day benchmarks after being reported were the lowest for the six years reported. This

deterioration in regional streetlight repair performance was attributed to re-allocating staff to assist with repairing the network after the Wooroloo bushfires and cyclone Seroja.

Horizon Power's overall streetlight repair performance improved in 2020/21. The percentage of metropolitan and regional streetlight faults repaired within the five- and nine-day benchmarks after being reported was the highest for the six years reported. The improvement was due to local government authorities and Main Roads relaxing the requirement to have a traffic management plan to repair faulty streetlights.

Western Power and Horizon Power reported substantial reductions in the number of complaints received from customers in 2020/21, compared to previous years. The distributors gave different reasons for the reduction in complaints. Horizon Power cited the pause on disconnections and the various COVID-19 support measures in place by its retail business while Western Power noted there were fewer severe weather events and bushfires affecting its networks.

ATCO Gas Australia reported it received just over twice as many complaints in 2020/21 as it did in 2019/20, due to the introduction of a new online channel for customers to lodge complaints. Complaints lodged online accounted for 39 per cent of the total in 2020/21.

Steve Edwell
Chair
Economic Regulation Authority

1. Market overview

Main points

- The number of electricity connections increased for the sixth consecutive year.
- The number of electricity connections on Western Power and Horizon Power's distribution systems was the highest in the six years reported.
- The number of gas connections was the highest in the six years reported, mostly due to an increase in connections on ATCO's distribution systems.

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 customers[1]
- number of small use electricity and gas customer connections.

1.1 Electricity distributors

The number of electricity distributors licenced to supply small use customers has not changed since 2091/20.[2]

Electricity distribution licensees that supply customers are:

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

This is the first year that this report includes data for Peel Renewable Energy.[3]

1.2 Electricity connections

Table 1 shows the number of customer connections on each electricity distributor's system.[4]

The number of connections on Western Power's distribution system was the highest in the six years reported. Western Power stated that the increase was primarily due to demand for new house construction, because of COVID-19 economic stimulus programs and the subdivision of larger properties.[5]

1 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.

2 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.

3 On 5 March 2020, EDL7 was granted to Enwave WA Pty Ltd. On 23 September 2020, the ERA approved a minor amendment to EDL7 to change the licensee's registered name from Enwave WA Pty Ltd to Peel Renewable Energy Pty Ltd.

4 Throughout this report, the term 'customer connection' means a small use customer connection.

5 The grant scheme, announced as a COVID-19 stimulus measure provides $20,000 for eligible homebuyers to build a new house or single-tier development for contracts entered into between 4 June 2020 and

Table 1: Electricity connections by distributor at 30 June 2016 to 2021

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Horizon Power	47,168	48,748	48,981	50,635	48,243	51,951
Rottnest Island Authority	527	528	528	529	529	529
Western Power	1,110,196	1,128,334	1,141,308	1,152,904	1,162,601	1,175,528
Peel Renewable Energy	n/a	n/a	n/a	n/a	n/a	5
Total	**1,157,891**	**1,177,610**	**1,190,817**	**1,204,068**	**1,211,373**	**1,228,013**

1.3 Gas distributors

The number of licensed gas distributors has not changed since the ERA took over the responsibility for licensing gas distributors in 2005.

Holders of gas distribution licenses are:

- ATCO Gas Australia
- Wesfarmers Kleenheat Gas
- Esperance Power Station.

1.4 Gas connections

Table 2 shows the number of customer connections on each gas distributor's system.

Table 2: Gas connections by distributor at 30 June 2016 to 2021

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
ATCO	736,746	750,339	760,355	769,597	772,861	781,436
Esperance Power Station	376	383	385	375	376	376
Kleenheat	958	1,006	1,048	1,071	1,103	1,176[6]
Total	**738,080**	**751,728**	**761,788**	**771,043**	**774,340**	**782,987**

The number of gas connections was the highest in the six years reported, mostly due to an increase in connections on ATCO's distribution systems.

31 December 2020. The Building Bonus program complements the Federal Government's $25,000 HomeBuilder grants, announced at about the same time.

6 Kleenheat reported that it has 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.

2. Electricity distribution system reliability

Main points

- The number of Western Power and Horizon Power's customers experiencing extended interruptions was less than in 2019/20.
- The number of Western Power's rural customer connections having more than the permitted 16 interruptions in 2020/21 was the lowest for the six years reported.
- For the third consecutive year, Horizon Power has met the outage duration standard for rural systems prescribed in the relevant code.

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).
- Steering Committee on National Regulatory Reporting Requirements (SCONRRR) framework and Institute for Electrical and Electronic Engineers (IEEE) standard 1366-2003.[7,8]

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.[9]
  - 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.[10]

The NQ&R Code 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 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

7 The framework is described in the *National Regulatory Reporting for Electricity Distribution and Retailing Businesses, Utility Regulators Forum*, March 2002. The document was published by the Steering Committee on National Regulatory Reporting Requirements (SCONRRR).

8 *Standard IEEE 1366-2003 – Guide for Electricity Power Distribution Reliability Indices, Institute for Electrical and Electronic Engineers*

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

10 The NQ&R Code is unusual in using the term 'customer premise' to define a property connected to a distribution network.

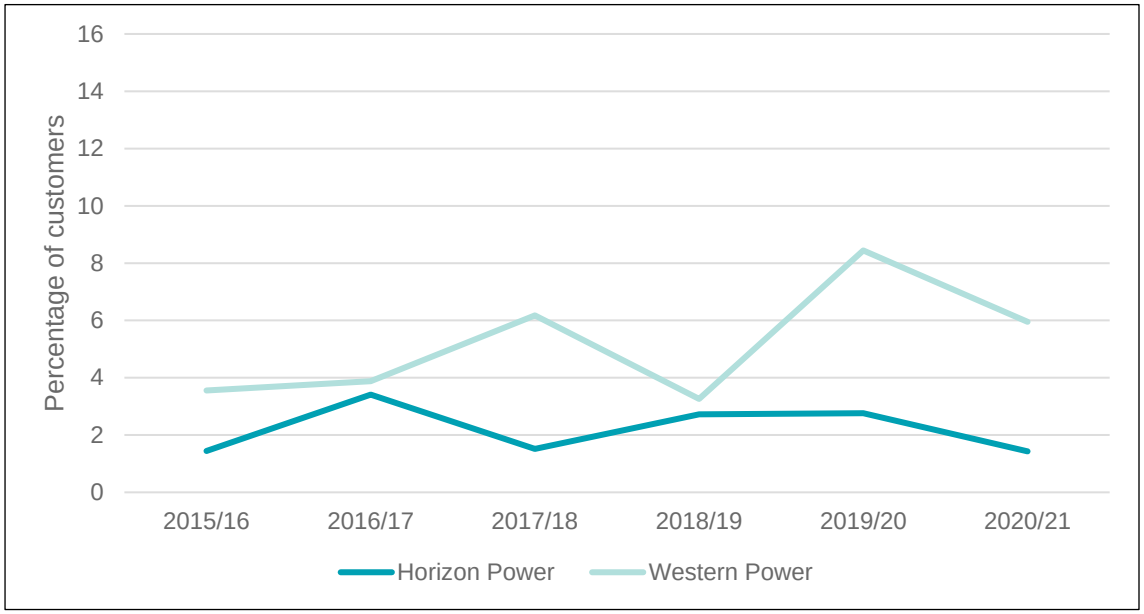
generation outages. Including all supply interruptions means that the distributor is reporting on the actual customer experience.

Extended interruptions

Because of unpredictable environmental factors, such as severe storms and bush fires, the number of customer connections affected by extended interruptions varies each year.

Figure 1 shows the percentage of customer connections on the Horizon Power and Western Power's distribution systems that had an extended interruption (interruptions that exceed 12 hours continuously).[11, 12]

Figure 1: Horizon Power and Western Power's extended interruptions 2016 to 2021 (%)



The proportion of customer connections supplied by Western Power that had extended interruptions in 2020/21 was at 6.0 per cent (69,955 premises). Western Power attributed the cause of the extended interruptions to severe storms in April 2021, including cyclone Seroja, and June 2021, and the Wooroloo bushfires in February 2021. However, this is substantially fewer interruptions than in 2019/20, when 98,159 premises (8.4 per cent) experienced an extended interruption on Western Power's distribution system. These interruptions were due to severe storms in February 2020 and May 2020 and pole top fires in January 2020.

Western Power noted that the storms in February 2020 and May 2020 were much more severe than the storms in April 2021 and June 2021. For example, cyclone Seroja affected customers predominantly in the less densely populated areas of the Mid-West and Wheatbelt region, whereas the storms in 2020 affected the densely populated Perth metropolitan and Peel areas.

[11] The Rottnest Island Authority has been excluded from Figure 1, because it has reported zero extended interruptions on its system in the past six years. Peel Renewable Energy has also been excluded from Figure 1, because it has reported zero extended interruptions in 2020/21.

[12] Data for Figures 1, 2, 3, 4 and 5 is in the energy distributor dataset published by the ERA. See Economic Regulation Authority, Energy Distributor Dataset – 2016 – 2021, Network Reliability (online).

Multiple interruptions

Figure 2 shows the number of customer connections that had more than the permitted number of interruptions (nine) in the Perth CBD and urban areas.[13]

In 2020/21, 1,323 Western Power customers had more than nine interruptions, which was much less than the 15,808 connections in 2019/20.[14]

Figure 2: Multiple supply interruptions on electricity distribution systems – CBD and urban 2016 to 2021

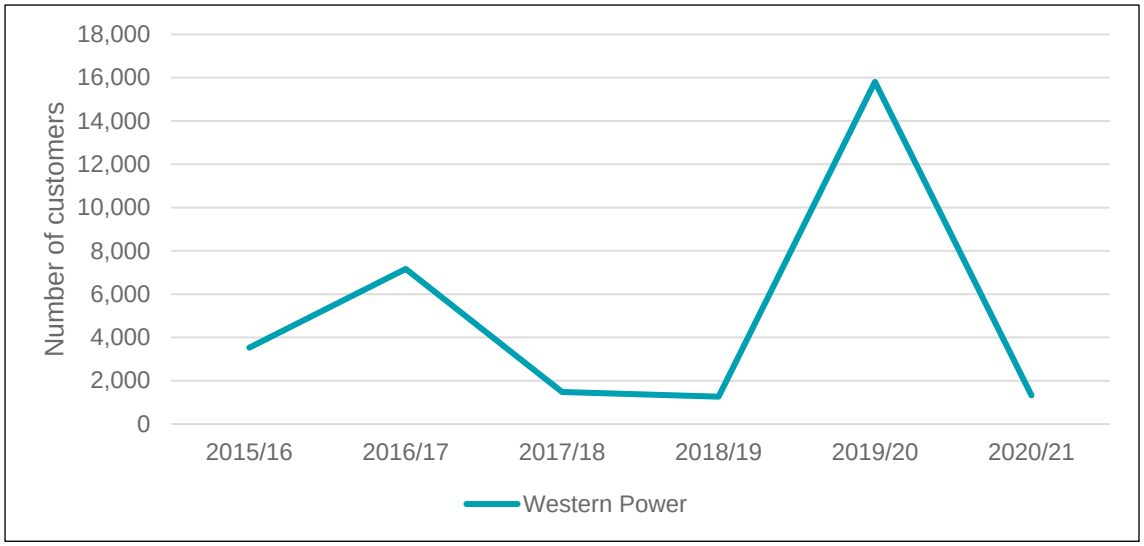
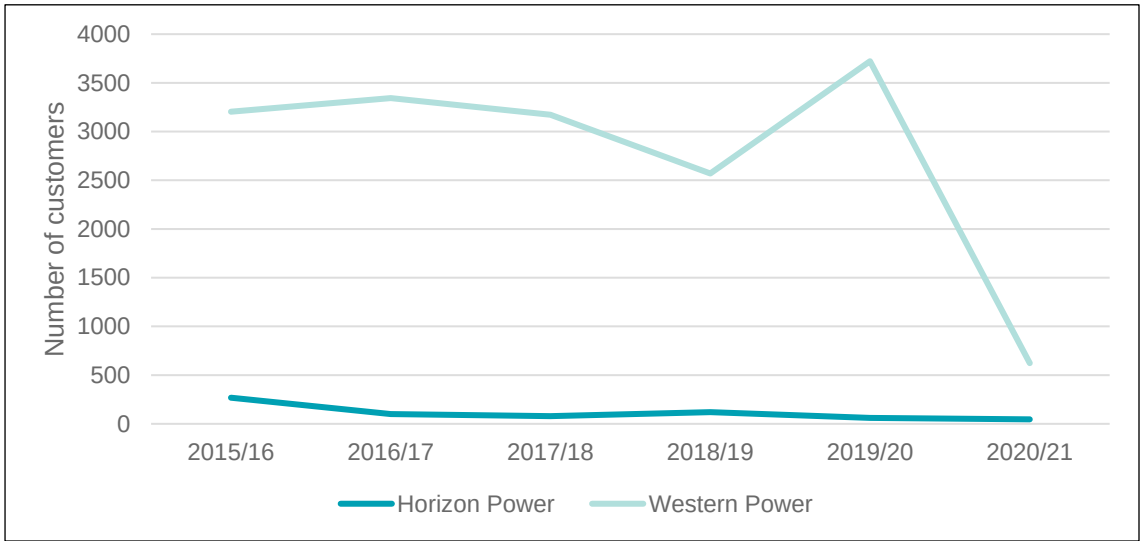


Figure 3 shows the number of customer connections that had more than the permitted number of interruptions (16) in rural areas, where all four distributors have distribution systems.[15]

Figure 3: Multiple supply interruptions on electricity distribution systems – rural 2016 to 2021



13 Western Power is the only distributor that supplies the Perth CBD and urban areas.

14 Western Power reported that the large increase in 2019/20 was due to severe storms in February and May 2020 and pole top fires in January 2020.

15 The Rottnest Island Authority has been excluded from Figure 3, because it has reported that none of its connections had more than 16 interruptions in the past six years. Peel Renewable Energy also reported that none of its connections had more than 16 interruptions in 2020/21 and has been excluded from Figure 3.

The 623 customer connections on the Western Power's distribution system that had more than 16 supply interruptions in 2020/21 was the lowest for the six years reported.[16] Western Power attributed the reduction in 2020/21 to fewer major storm events during the year.[17]

2.2 Common NQ&R Code and SCONRRR framework reliability measures

The SCONRRR framework and NQ&R Code both measure distribution system reliability through two main performance indicators:[18,19]

- 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.

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:[20, 21]

- Perth CBD – 30 minutes
- urban areas other than the Perth CBD – 160 minutes[22]
- any other area of the State (rural areas) – 290 minutes.[23]

The standard for each area takes into account 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.[24]

Further information on distribution system reliability measures is in Appendix 3.

16 Western Power reported that the large increase in 2019/20 was due to severe storms in February and May 2020 and pole top fires in January 2020.

17 Western Power reported eight major event days in 2019/20 and four in 2020/21.

18 The definition of the measures is in IEEE 1366-2003.

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

20 This is equivalent to the SAIDI for the group of feeders supplying customer connections in each geographical area.

21 See Appendix 3 for more information about how the standard is calculated.

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

23 'Other areas of the State' are referred to as 'rural area' in this report for consistency with the SCONRRR framework's feeder classifications of 'short rural' and 'long rural'.

24 The access arrangement requires Western Power to meet the service levels defined in the service standard benchmarks, which include benchmarks for distribution system reliability. More information is available on the ERA website.

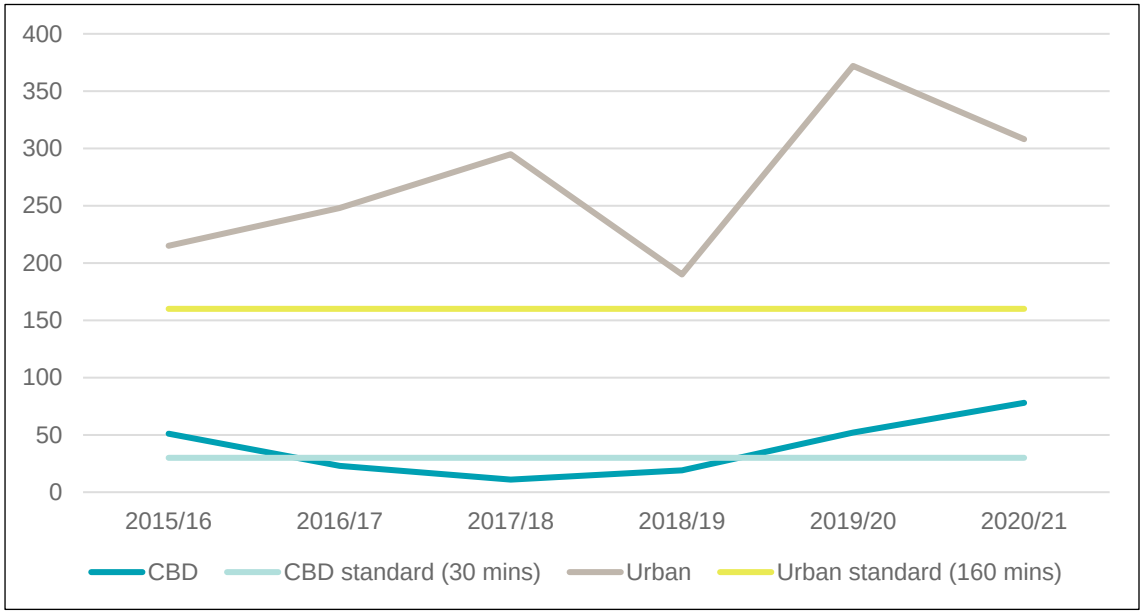
2.3 System reliability – NQ&R Code

SAIDI

Western Power is the only 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 2016 to 2021 (minutes)[25]



This is the second consecutive year that Western Power has not met the NQ&R Code's CBD SAIDI standard of 30 minutes. The 2020/21 CBD SAIDI was the result of an increase in planned interruptions. There were 18 planned interruptions that affected 600 customers, compared to 15 interruptions affecting 250 customers in 2019/20. The planned interruptions were mostly due to major works undertaken on the Hay-Milligan switchboard refurbishment program.

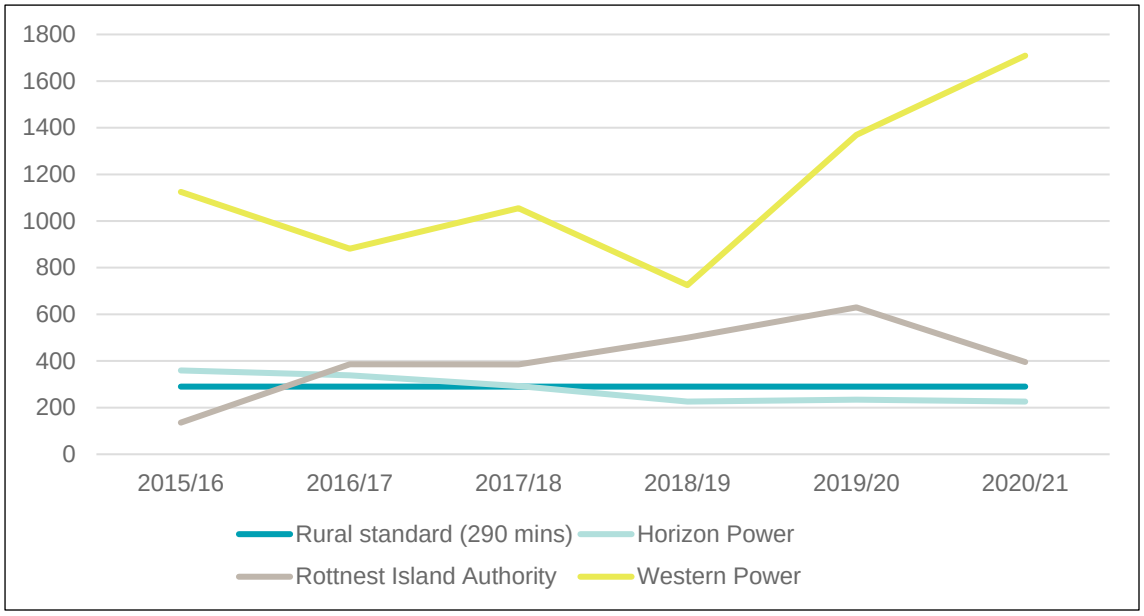
Western Power has not met the NQ&R Code's SAIDI standard of 160 minutes for urban areas in any of the six years reported.

Figure 5 shows the average total duration of interruptions per connection (SAIDI) on distribution systems located in rural areas for each distributor.[26]

[25] The ERA discovered a data processing error that resulted in the charts in previous years' reports being incorrect. This has been corrected and the data presented in Figure 4 is accurate for the six years reported.

[26] Peel Renewable Energy has been excluded from Figure 5, because it has reported that none of its connections had interruptions during the year.

Figure 5: Average total duration of interruptions per connection (SAIDI) in rural areas 2016 to 2021 (minutes)[27]



This is the third consecutive year that Horizon Power has met the NQ&R Code's SAIDI standard for rural systems.

The Rottnest Island Authority's SAIDI performance has improved since last year, reaching 396 minutes in 2020/21.

Western Power's SAIDI performance deteriorated for the second consecutive year, reaching 1,709 minutes in 2020/21, as a result of cyclone Seroja and the Wooroloo bushfires.

2.4 System reliability – SCONRRR framework

The SCONRRR reliability framework 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 in the SCONRRR framework removes all supply interruptions that were caused by factors outside the reasonable control of the distributor. The remaining supply interruptions are assumed to be caused by factors under the control of the distributor. It is normal practice to use normalised reliability data to assess the reliability performance of distributors, particularly when comparing or benchmarking distributor performance.

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, with the weighting based on the proportion of total customer connections served by each of the distribution system feeder types.

[27] The error that affected the data in Figure 4 also affected Figure 5. This has been corrected and the data in Figure 5 is accurate for the six years presented.

Table 3 shows the overall and normalised SAIDI values by feeder class for each distributor for 2020/21.[28]

Table 3: Overall and normalised SAIDI by electricity distributor for 2020/21

Overall SAIDI (minutes per annum)					
	Total network	**CBD**	**Urban**	**Short rural**	**Long rural**
Horizon Power	204	n/a	86	215	646
Rottnest Island Authority	127	n/a	n/a	127	n/a
Western Power	526	78	215	560	2656
Normalised SAIDI (minutes per annum)					
	Total network	**CBD**	**Urban**	**Short rural**	**Long rural**
Horizon Power	115	n/a	46	122	354
Rottnest Island Authority	0	n/a	n/a	0	n/a
Western Power	197	14	118	213	742

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.[29]

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.[30] Long and short rural feeders tend not to have any redundancy, and are often in remote locations, which increases the time to repair faults.

[28] Peel Renewable Energy have been excluded from Table 3, because it reported zero interruptions.

[29] Data for Figures 6, 7, 8 and 9 is in the energy distributor dataset published by the ERA (including the Rottnest Island Authority and Peel Renewable Energy). See Economic Regulation Authority, Energy Distributor Dataset – 2016 – 2021, Network Reliability (online).

[30] Redundancy is often achieved by designing spare capacity into the feeders in a distribution system. If a feeder fails, the energy that would normally flow through it is delivered to customers via other designated feeders that have spare capacity reserved for the purpose.

Figure 6: Overall and normalised SAIDI by electricity distributor – CBD 2016 to 2021

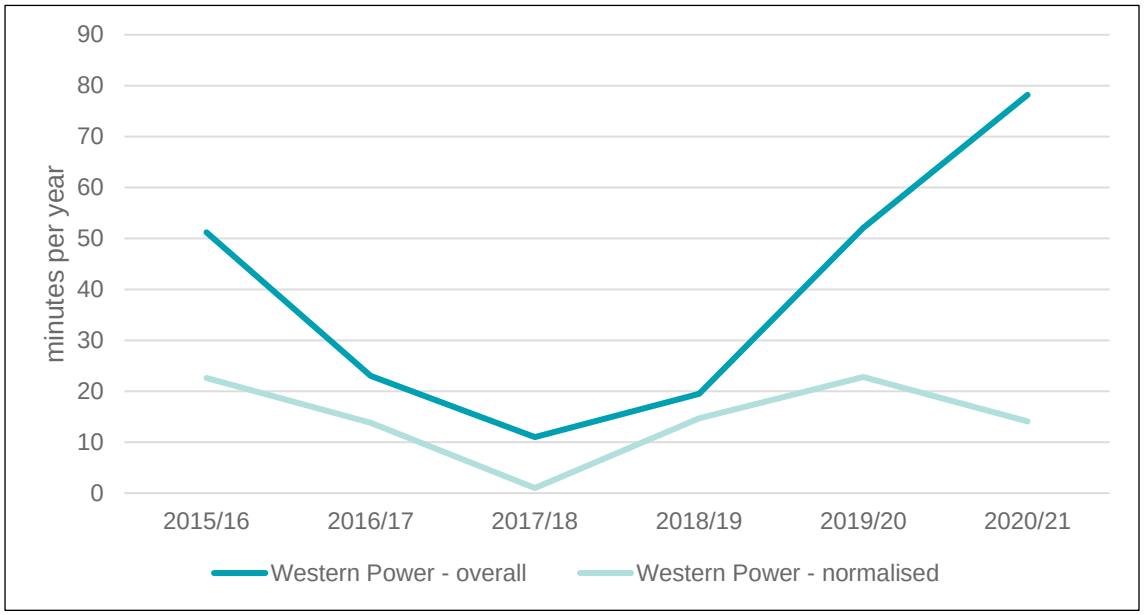
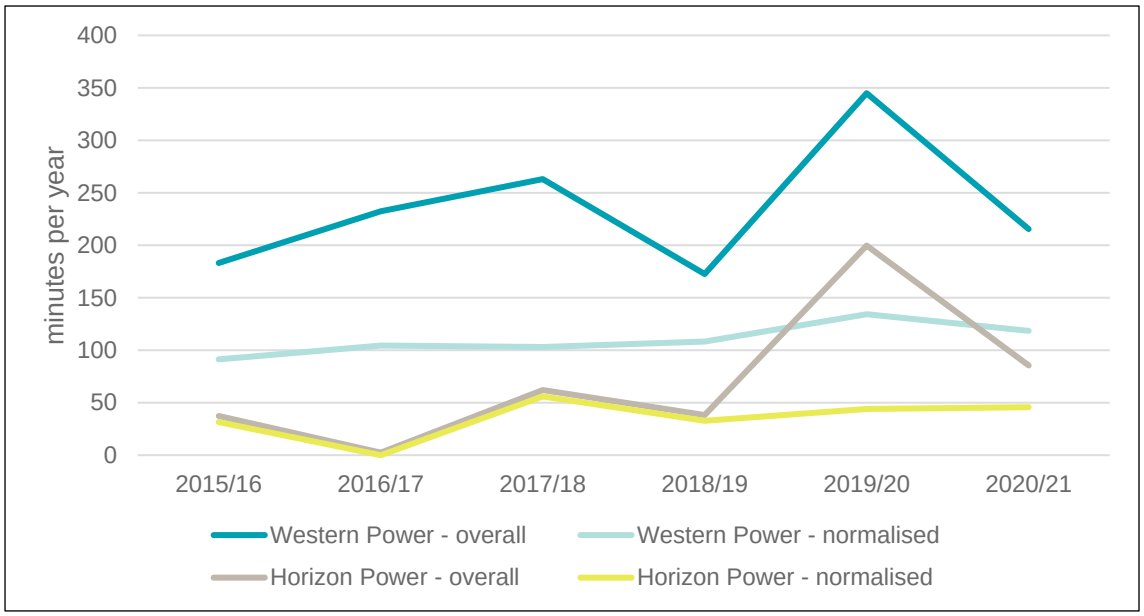


Figure 7: Overall and normalised SAIDI by electricity distributor – urban 2016 to 2021[31]



31 Peel Renewable Energy has been excluded from Figure 7 for the reason explained in footnote 28.

Figure 8: Overall and normalised SAIDI by electricity distributor – short rural 2016 to 2021[32]

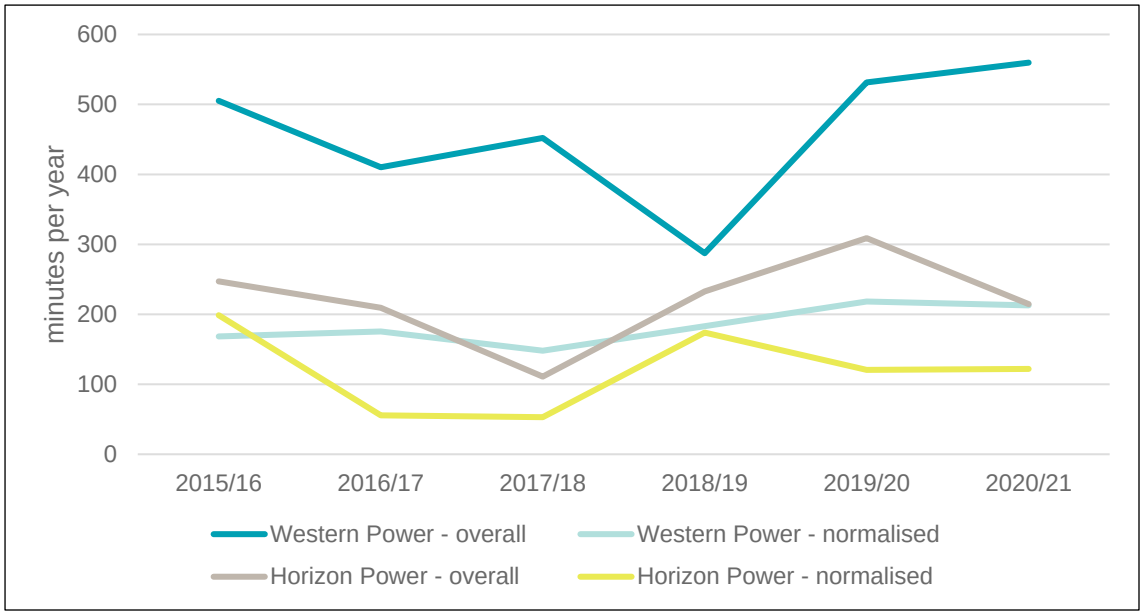
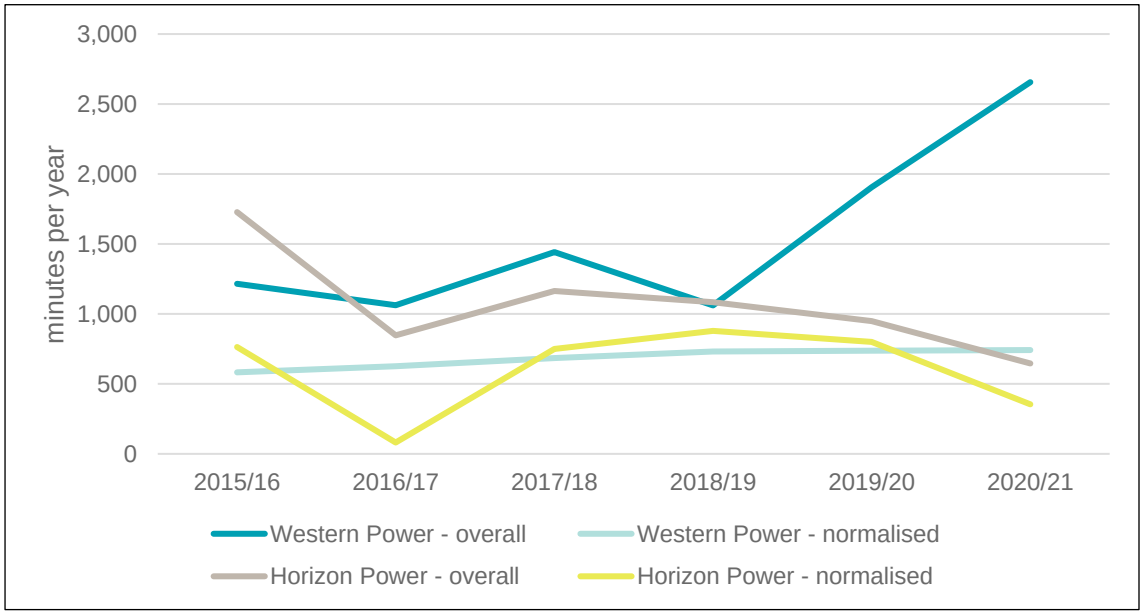


Figure 9: Overall and normalised SAIDI by electricity distributor – long rural 2016 to 2021



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 three distributors that reported SAIDI for 2020/21.

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 types.

[32] The Rottnest Island Authority has been excluded from Figure 8, because it has reported zero minutes of normalised SAIDI for each of the last six years.

Table 4 shows the overall and normalised SAIFI values by feeder class for each distributor in 2020/21.[33]

Table 4: Overall and normalised SAIFI for each electricity distributor in 2020/21

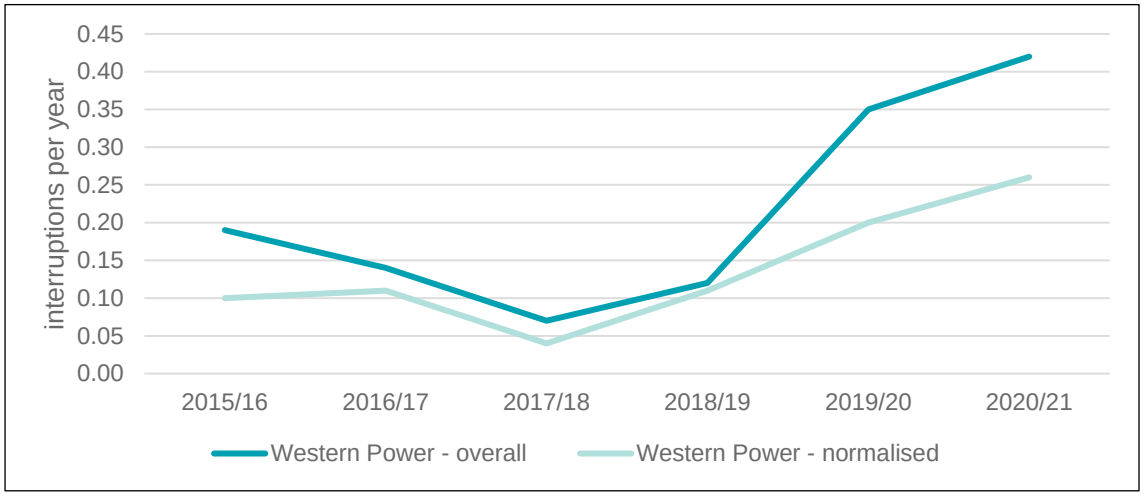
Overall distribution network – SAIFI (per year)					
	Total network	**CBD**	**Urban**	**Short rural**	**Long rural**
Horizon Power	2.28	n/a	1.64	2.36	4.33
Rottnest Island Authority	2.36	n/a	n/a	2.36	n/a
Western Power	2.17	0.42	1.48	2.64	5.47
Normalised distribution network – SAIFI (per year)					
	Total network	**CBD**	**Urban**	**Short rural**	**Long rural**
Horizon Power	1.80	n/a	1.19	1.91	2.99
Rottnest Island Authority	0.0	n/a	n/a	0.0	n/a
Western Power	1.62	0.26	1.13	1.94	4.26

n/a – No feeders of this type are operated by the distributor

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

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.[34]

Figure 10: Overall and normalised SAIFI by electricity distributor – CBD 2016 to 2021



[33] Peel Renewable Energy have been excluded from Table 4 for the reason explained in footnote 28.

[34] Data for Figures, 10, 11, 12 and 13 is in the energy distributor dataset published by the ERA (including the Rottnest Island Authority and Peel Renewable Energy). See Economic Regulation Authority, Energy Distributor Dataset – 2016 – 2021, Network Reliability (online).

Figure 11: Overall and normalised SAIFI by electricity distributor – urban 2016 to 2021

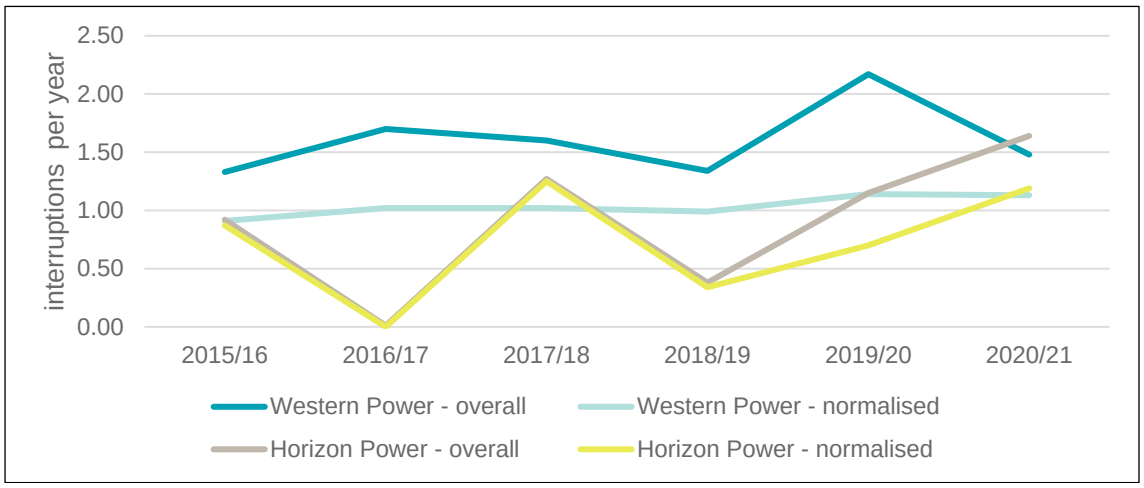


Figure 12: Overall and normalised SAIFI by electricity distributor – short rural 2016 to 2021[35]

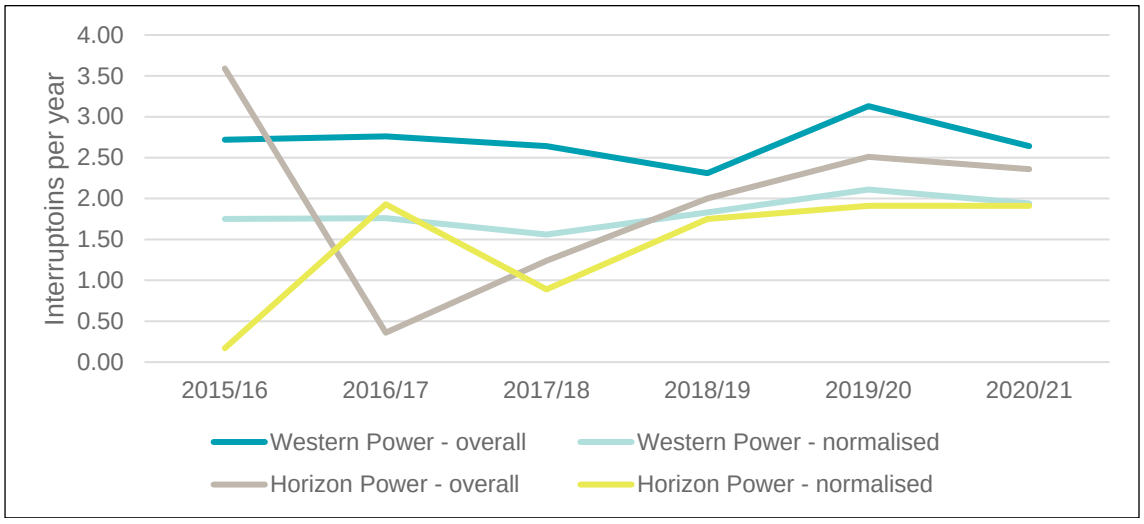
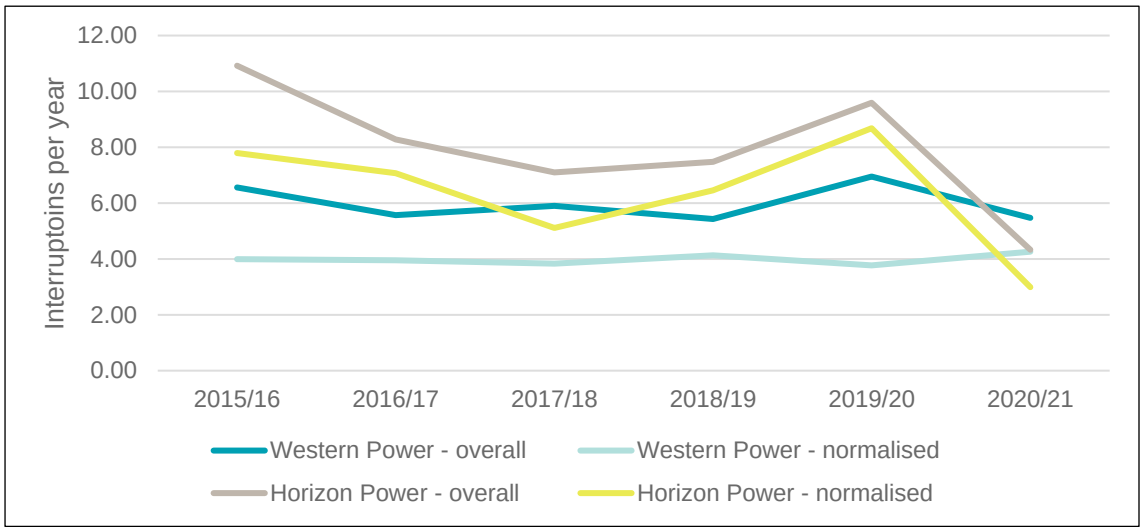


Figure 13: Overall and normalised SAIFI by electricity distributor – long rural 2016 to 2021



[35] The Rottnest Island Authority has been excluded from Figure 12, because it has reported a normalised SAIFI of zero for each of the last six years.

Comparing the SAIDI and SAIFI data shows 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. Horizon Power and Western Power's normalised performance was significantly better than both their overall performance and the performance reported under the NQ&R Code.[36]

[36] Economic Regulation Authority, Energy Distributor Dataset – 2016 – 2021, Network Reliability, indicator NQR4 (online).

3. Gas distribution system reliability

Main points

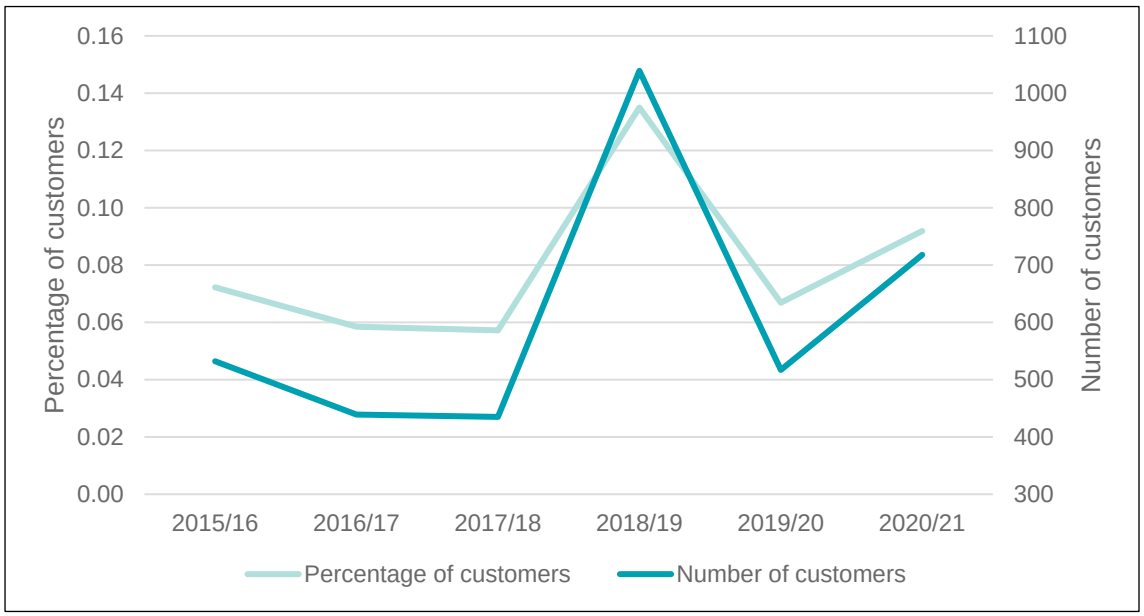
- The number of ATCO customers that experienced an extended interruption in 2020/21 increased due to two major outages.

Gas distributors are required 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 2016 to 2021



In 2020/21, 718 ATCO customer connections had an extended interruption, compared to 517 connections in 2019/20. ATCO reported that this increase was due to two major outages in January 2021 and May 2021.

Table 5 shows the number and percentage of Kleenheat's customer connections that had an extended interruption.

Table 5: Kleenheat extended interruptions 2016 to 2021

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Number of customers	0	14	14	167[37]	1	0
Percentage of customers	0.00	1.39	1.34	15.59	0.09	0.00

Esperance Power Station has not reported any extended interruptions in the past six years.[38]

[37] Kleenheat reported that the 167 customer connections that had extended interruptions in 2018/19 was due to the Rapids Landing outage in December 2018 and January 2019 caused by third-party damage to its distribution system.

[38] Economic Regulation Authority, Energy Distributor Dataset – 2016 – 2021, Network Reliability, indicator D14 (online).

4. Energy delivered

Main points

- The energy delivered to customer connections on the Western Power distribution system was the highest for the six years reported.
- There was an increase in energy delivered to customer connections on Kleenheat's distribution systems.

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

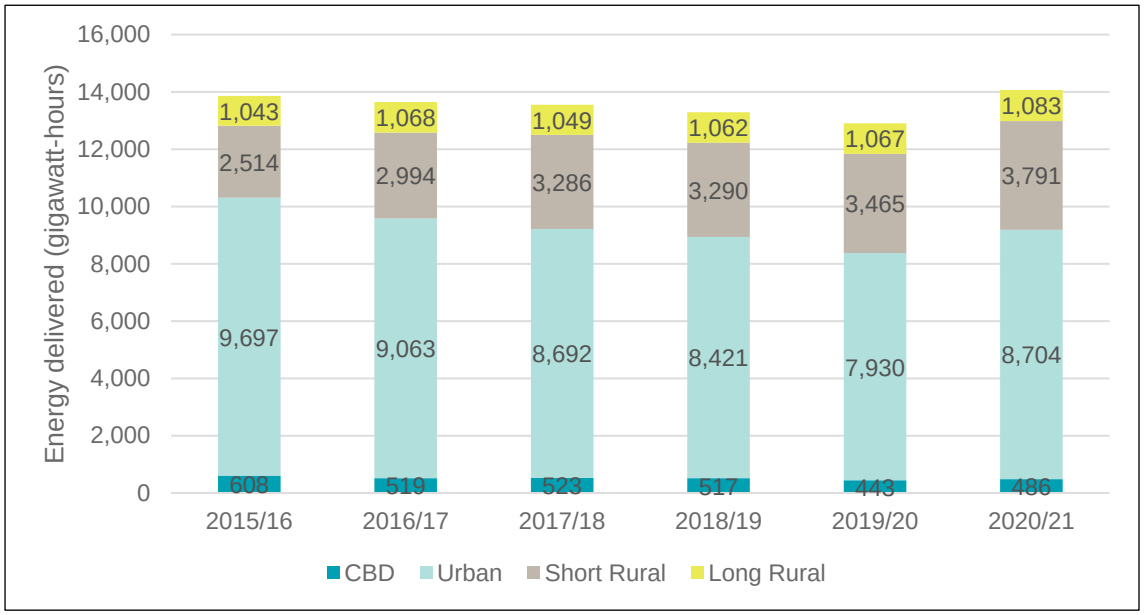
Data is provided separately for:

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

This is the first year that Peel Renewable Energy has provided data, reporting it supplied 0.1 GWh of energy to non-residential customers through its microgrid.[39]

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

Figure 15: Energy delivered by Western Power by feeder type 2016 to 2021

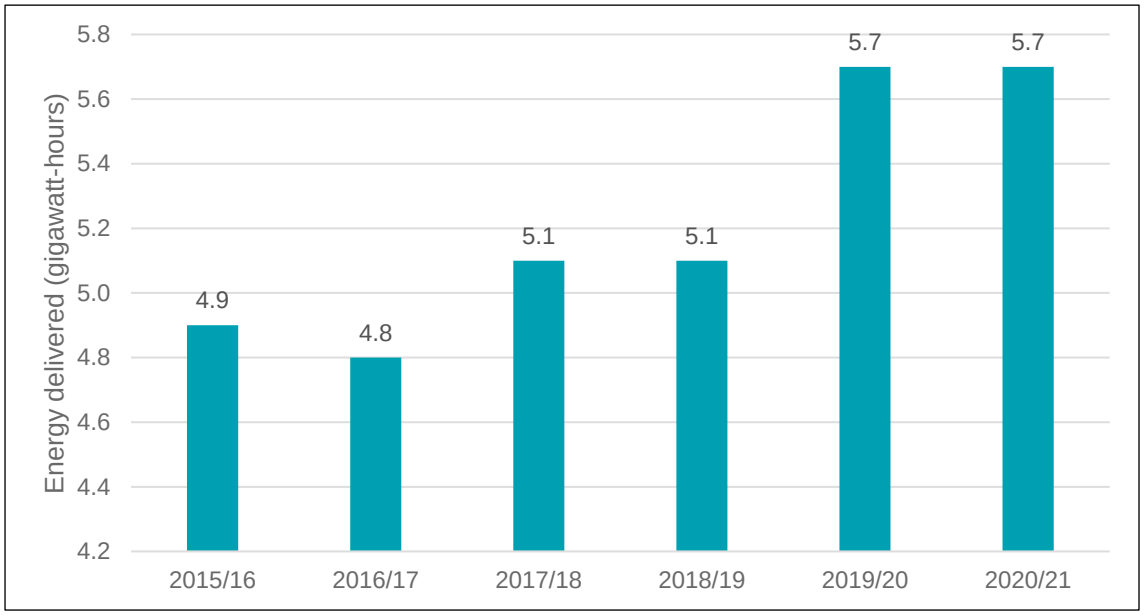


[39] The microgrid is located in the Greenfield Industrial Estate located east of Mandurah.

The energy delivered to customer connections on Western Power's distribution system (14,064 GWh) was the highest for the six years reported. The increase correlates with the increased number of connections on its system.[40]

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

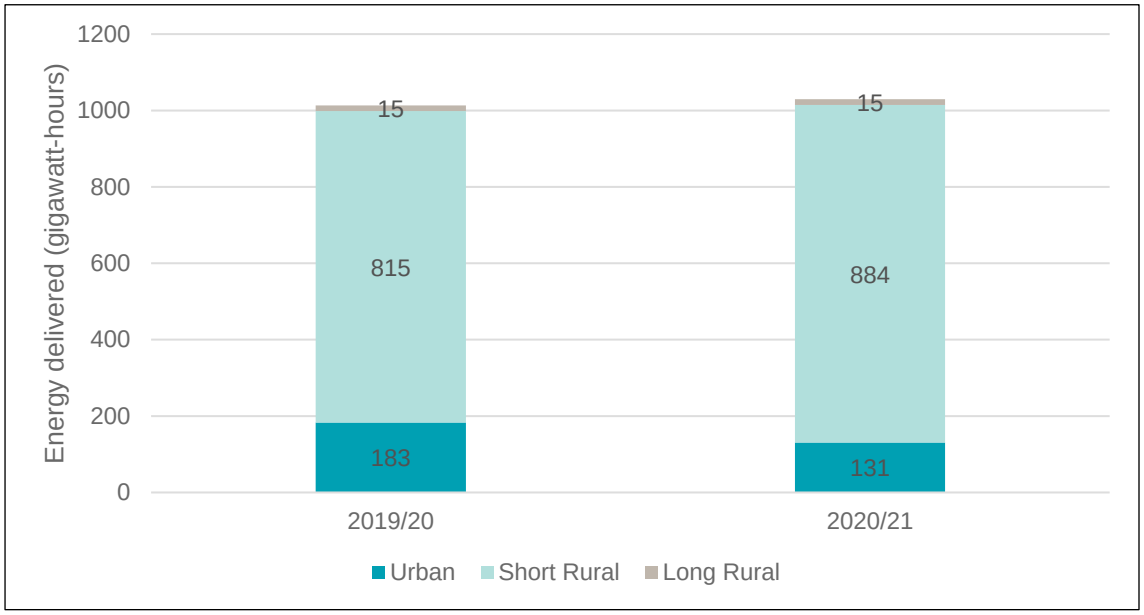
Figure 16: Energy delivered by Rottnest Island Authority 2016 to 2021



The total electricity delivered to customer connections on the Rottnest Island Authority's distribution system remained unchanged between 2019/20 and 2020/21 at 5.7 GWh.

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

Figure 17: Energy delivered by Horizon Power 2020 and 2021



[40] See section 1.2 of this report for further details.

This is the second 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.

The total electricity delivered to customer connections on Horizon Power's distribution system increased only slightly from 2019/20, reaching 1,030 GWh in 2020/21.

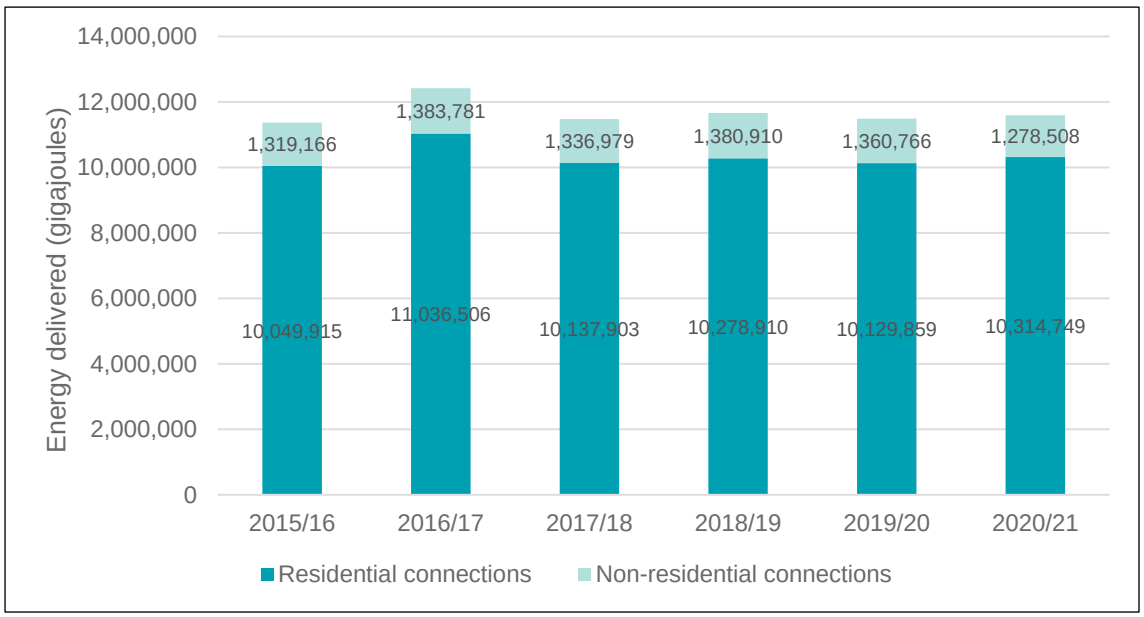
4.2 Energy delivered by gas distributors

Energy delivered data is provided separately for:

- ATCO
- Esperance Power Station
- Kleenheat.

Figure 18 shows the amount of energy delivered by ATCO to residential and non-residential customer connections.[41]

Figure 18: Energy delivered by ATCO 2016 to 2021

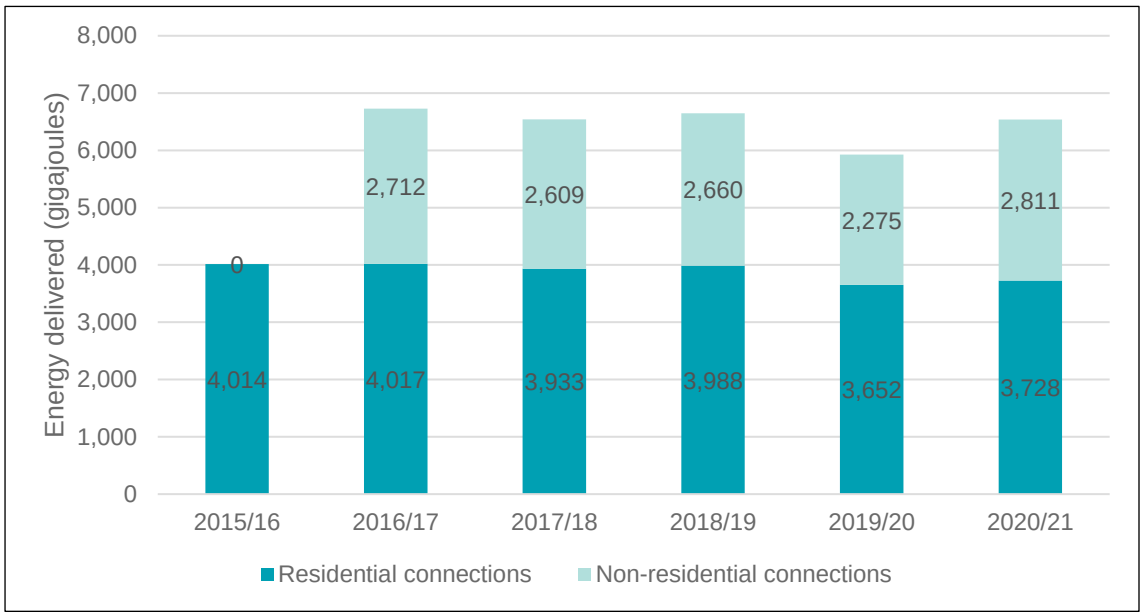


The energy delivered to ATCO's non-residential customers was the lowest for the six years reported.

Figure 19 shows the amount of energy delivered by Esperance Power Station to residential and non-residential customer connections.

[41] ATCO's gas consumption is measured over a calendar year. For example, the consumption data for 2020/21 period is in fact for the 2020 calendar year.

Figure 19: Energy delivered by Esperance Power Station 2016 to 2021

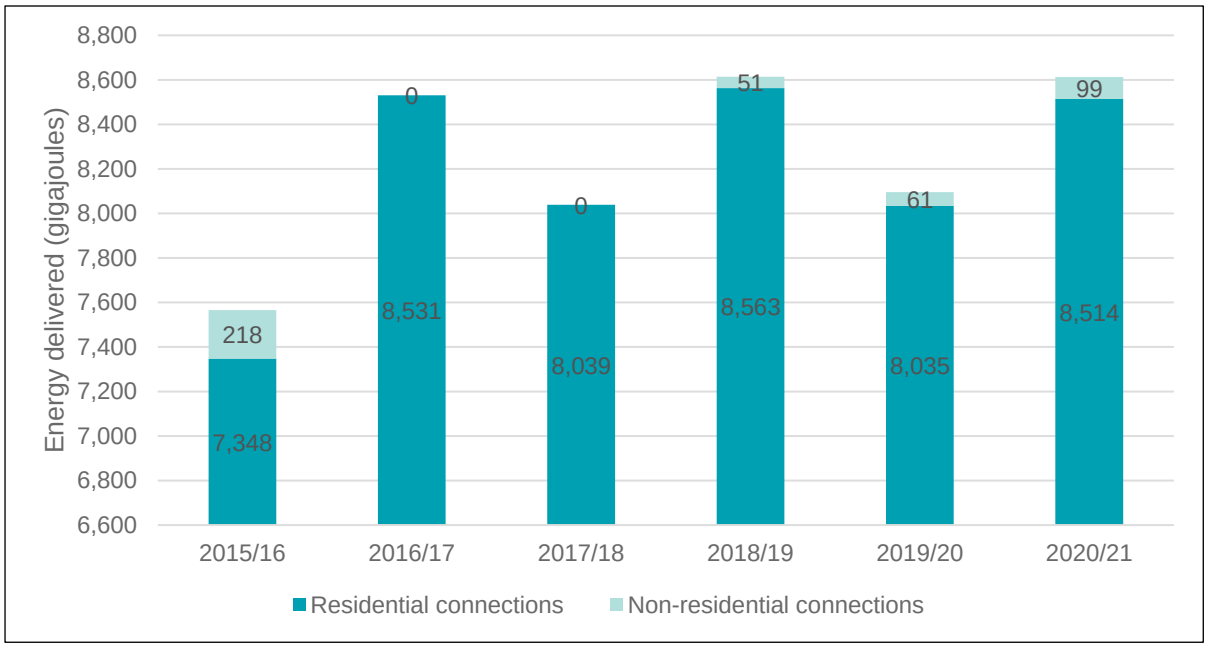


The energy delivered to non-residential customer connections in 2015/16 has been removed from Figure 19, because it included energy delivered to customers not covered by Esperance Power Station's licence.[42]

Energy delivered to residential and non-residential customer connections increased by 9.5 per cent in 2020/21. The energy delivered to non-residential customers was the highest for the five years reported.

Figure 20 shows the amount of energy delivered by Kleenheat to residential and non-residential customers.

Figure 20: Energy delivered by Kleenheat 2016 to 2021



[42] Customers who consumed 1 terajoule or more of gas per year.

Kleenheat attributed an increase in energy delivered to residential and non-residential customers to a colder and wetter winter in 2021 than recent years.

5. Customer service

Main points

- Horizon Power and Western Power received fewer complaints about administrative and customer service matters in 2020/21.
- The number of complaints about NQ&R Code matters received by Horizon Power was the highest in the six years reported. The increase in complaints was due to supply interruptions caused by the February 2021 floods in Carnarvon.
- The number of calls to the ATCO and Kleenheat call centres were the lowest for the six years reported.
- The proportion of calls to the Kleenheat call centre answered within 30 seconds was the highest for the six years reported.

The *Code of Conduct for the Supply of Electricity to Small Use Customers* (Electricity Code) and the *Compendium of Gas Customer Licence Obligations* 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*.

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 requires distributors to report complaints information specified by the ERA.[43] The ERA has specified two categories of complaints:

- Administrative process or customer service complaints, which include: meter reading issues, the timeliness of correspondence and other customer communications, issues with the complaints handling process, late responses to a complaint and general administrative matters.
- Other complaints, which include: poor service, privacy issues, and health and safety issues. The NQ&R Code focuses on the number of complaints received by a distributor that it has failed to comply with the NQ&R Code's power quality and reliability standards.[44]

Electricity code complaints

Table 6 shows the number of complaints about electricity code matters received by Horizon Power and Western Power.[45]

[43] The specification of complaints reporting obligations is in the ERA's *Electricity Distribution Licence Performance Reporting Handbook*.

[44] These standards are in Part 2 or an instrument under section 14(2) of the NQ&R Code.

[45] Rottnest Island Authority has been excluded from Table 6 because it did not receive any complaints in the past six years. Peel Renewable Energy has also been excluded from Table 6, because it did not receive any complaints in 2020/21.

Table 6: Complaints received by electricity distributors (Electricity Code) 2016 to 2021

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Horizon Power[46]						
Administrative and customer service complaints	506	263	114	992	1,480	767
Other complaints	121	8	7	49	43	19
Total complaints	**627**	**271**	**121**	**1,041**	**1,523**	**786**
Western Power						
Administrative and customer service complaints	140	258	295	343	253	354
Other complaints	500	643	578	599	2,762	1,636
Total complaints	**640**	**901**	**873**	**942**	**3,015**[47]	**1,990**

Total complaints received by Horizon Power and Western Power were both lower in 2020/21.

Western Power reported the decrease in complaints was due to fewer severe weather events in 2020/21, compared to 2019/20.[48] Horizon Power attributed less complaints to a pause in disconnections and the introduction of government assistance payments due to COVID-19.

NQ&R Code complaints

Table 7 shows the number of complaints about NQ&R Code matters received by Horizon Power and Western Power.[49]

Table 7: Complaints received by electricity distributors (NQ&R Code) 2016 to 2021

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Horizon Power	34	111	27	76	56	452
Western Power	693	728	920	955	4,315	3,522
Total complaints	**727**	**839**	**947**	**1,031**	**4,371**[50]	**3,974**

46 Horizon Power's complaints data is the combined total of complaints about their retail and distribution services, following a change of call centre service provider.

47 Western Power reported the increase in complaints in 2019/20 was because, for the first time, it included complaints that were resolved at first point of contact. Licensees are required to include all complaints received from customers, including those that are resolved at the first point of contact. For more information refer to section 4.3.4 of the ERA's 2019 *Electricity Distribution Licence Performance Reporting Handbook*.

48 Western Power reported eight major outages in 2019/20 and four in 2020/21.

49 Because it has only received one complaint in the past six years, Rottnest Island Authority has been excluded from the table. Peel Renewable Energy has also been excluded from Table 7, because it did not receive any complaints in 2020/21.

50 See footnote 47.

The number of NQ&R complaints received by Horizon Power in 2020/21 was 87.6 per cent higher than in 2019/20 and was the highest in the six years reported. Horizon Power attributed the increase to supply interruptions caused by the February 2021 floods in Carnarvon.

5.2 Gas complaints

Table 8 shows the total number of complaints received by ATCO and Kleenheat across the six categories specified in the gas reporting handbook.[51]

Table 8: Complaints received by gas distributors 2016 to 2021

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
ATCO	513	516	431	371	299	629
Kleenheat	1	4	4	12	1	0
Esperance Power Station	0	0	0	1	1	2
Total	**514**	**520**	**435**	**384**	**301**	**631**

ATCO reported that a substantial proportion of the increase in complaints received was due to the introduction of a new online tool in December 2019 for customers to lodge complaints. ATCO reported that the new tool has led to complaints lodged online increasing from 12 per cent of the total in 2019/20 to 39 per cent in 2020/21.

Table 9 categorises the complaints received by ATCO, Kleenheat and Esperance Power Station in 2020/21.

Table 9: Categorisation of complaints received by gas distributors in 2020/21

Complaint category	ATCO	Kleenheat	Esperance Power Station
Connection and augmentation	35	0	0
Reliability of supply	7	0	0
Quality of supply	2	0	0
Network charges and costs	94	0	1
Administrative processes or customer service	206	0	1
Other	285	0	0
Total	**629**	**0**	**2**

[51] Economic Regulation Authority, 2019, *Gas Distribution Licence Performance Reporting Handbook*, pp. 10-11.

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.

Electricity distributor's call centre performance

Western Power operates an in-house call centre. The Rottnest Island Authority, Horizon Power and Peel Renewable Energy outsource their call centre services.

Table 10 shows the number of calls received by each electricity distributor's call centre.[52, 53]

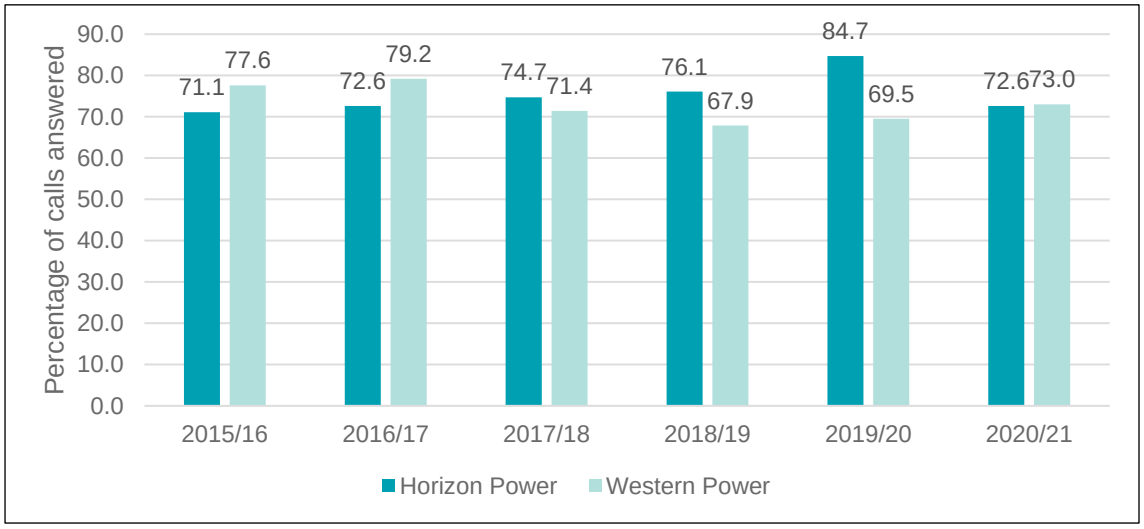
Table 10: Number of calls to electricity distributor call centres 2016 to 2021

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Horizon Power	12,794	13,645	10,940	9,234	11,382	9,624
Western Power	357,105	343,300	376,719	357,889	394,175	350,535
Total	**369,899**	**356,945**	**387,659**	**367,123**	**405,557**	**360,159**

In 2020/21, both Horizon Power and Western Power reported a decrease in calls to their call centres, down by 15.4 per cent and 11.1 per cent respectively. Western Power reported the decrease in calls due to less severe weather events in 2020/21 compared to 2019/20.[54]

Figure 21 shows the percentage of calls that were answered within 30 seconds by each electricity distributor call centre.

Figure 21: Percentage of electricity distributor calls answered within 30 seconds 2016 to 2021



52 The Rottnest Island Authority has been excluded from Table 10 and Figure 21 because it has not been able to separately report on calls related to their distribution service since 2019/20. Previous versions of this report provide historical call centre data.

53 Peel Renewable Energy has been excluded from Table 10 and Figure 21, because it did not receive any calls in 2020/21.

54 Western Power reported eight major events in 2019/20 and four in 2020/21.

Gas distributor's call centre performance

Esperance Power Station does not operate a call centre.

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

Table 11 shows the number of calls received by ATCO and Kleenheat's call centres.

Table 11: Number of calls to gas distributor call centres 2016 to 2021

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
ATCO	84,685	79,316	71,258	68,029	60,753	43,985
Kleenheat	222,505	285,887	310,803	289,778	246,101	195,480
Total	**307,190**	**365,203**	**382,061**	**357,807**	**306,854**	**239,465**

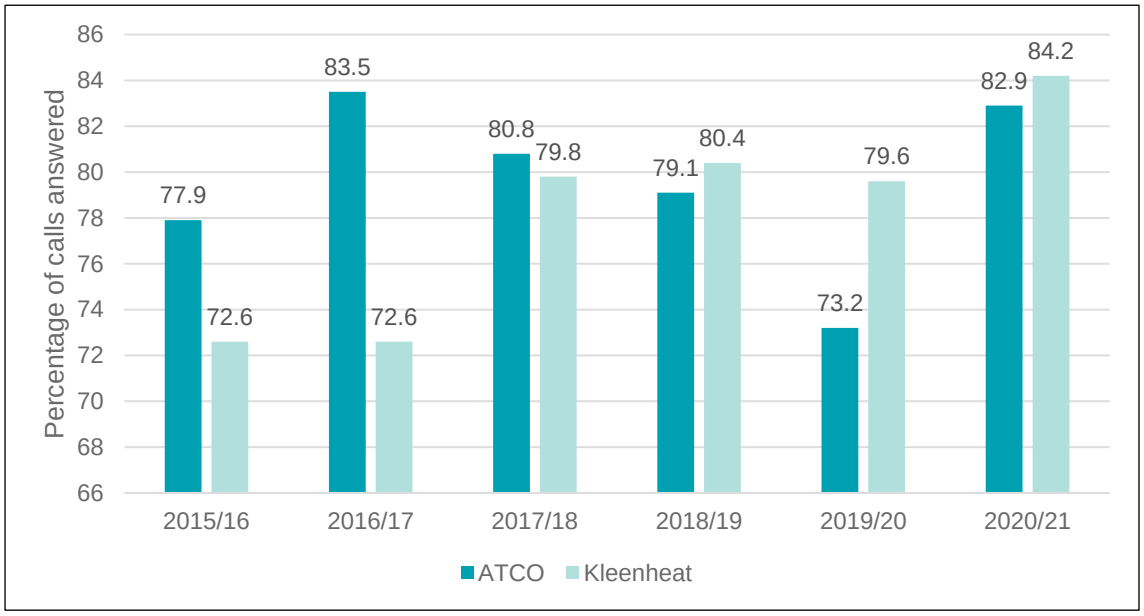
The total number of calls received by the ATCO and Kleenheat call centres was the lowest for the six years reported.

ATCO reported that the reduction in customer calls was due to COVID-19 lockdowns, a pause on retailer disconnections due to COVID-19, and expansion of online methods by which customers can contact ATCO.

Kleenheat attributed the decline in calls due to pausing disconnections as a result of COVID-19 and a general decline in basic account enquiries.

Figure 22 shows the percentage of calls that were answered by gas distributor call centres within 30 seconds.

Figure 22: Percentage of gas distributor calls answered within 30 seconds 2016 to 2021



The proportion of calls answered within 30 seconds by ATCO improved from last year. ATCO attributed this improvement to a new phone system it implemented in 2020.

The percentage of calls answered within 30 seconds by Kleenheat's call centre was the highest for the six years reported.

The ERA considers it likely that the improved performance of both call centres was also partly due to reduced call volumes.

6. Streetlight repair

Main points

- The proportion of metropolitan streetlights repaired by Horizon Power after the five-business day benchmark was the lowest in the six years reported.
- Both Western Power and the Rottnest Island Authority reported increases in the percentage of regional streetlights repaired after the benchmark of nine-business days.

6.1 Number of streetlights

Table 12 shows the number of streetlights in metropolitan and regional areas that were maintained by each distributor at 30 June 2021.

Table 12: Number of streetlights in metropolitan and regional areas at 30 June 2016 to 2021

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Metropolitan areas						
Horizon Power	8,332	8,066	7,866	7,672	7,501	7,684
Western Power	219,734	223,721	226,973	230,188	233,144	235,589
Peel Renewable Energy Pty Ltd	n/a	n/a	n/a	n/a	n/a	11
Total	**228,066**	**231,787**	**234,839**	**237,860**	**240,645**	**243,284**
Regional areas						
Horizon Power	11,007	11,255	11,202	11,225	11,336	11,461
Rottnest Island Authority	189	189	189	189	189	189
Western Power	39,202	39,931	40,363	40,637	41,072	41,160
Total	**50,398**	**51,375**	**51,754**	**52,051**	**52,597**	**52,810**

6.2 Streetlight faults

Table 13 shows the number of streetlight faults in metropolitan and regional areas reported to each distributor.

Table 13: Number of streetlight faults reported in metropolitan and regional areas 2016 to 2021

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Metropolitan areas						
Horizon Power	130	163	189	267	122	115

	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Western Power	28,518	33,308	36,510	41,889	49,801	38,757
Peel Renewable Energy Pty Ltd	n/a	n/a	n/a	n/a	n/a	7
Total	**28,648**	**33,471**	**36,699**	**42,156**	**49,923**	**38,879**
Regional areas						
Horizon Power	183	248	261	354	257	218
Rottnest Island Authority	79	22	33	43	30	25
Western Power	4,061	1,549	2,825	3,745	5,914	5,015
Total	**4,323**	**1,819**	**3,119**	**4,142**	**6,201**	**5,258**

Western Power attributed the decrease in streetlight faults in metropolitan and regional areas to a change in its delivery strategy, with a stronger focus on using internal staff to identify and resolve complex issues, resulting in fewer repeated fault reports.

Figure 23 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.[55]

Figure 23: Faulty streetlights by distributor and location 2016 and 2021

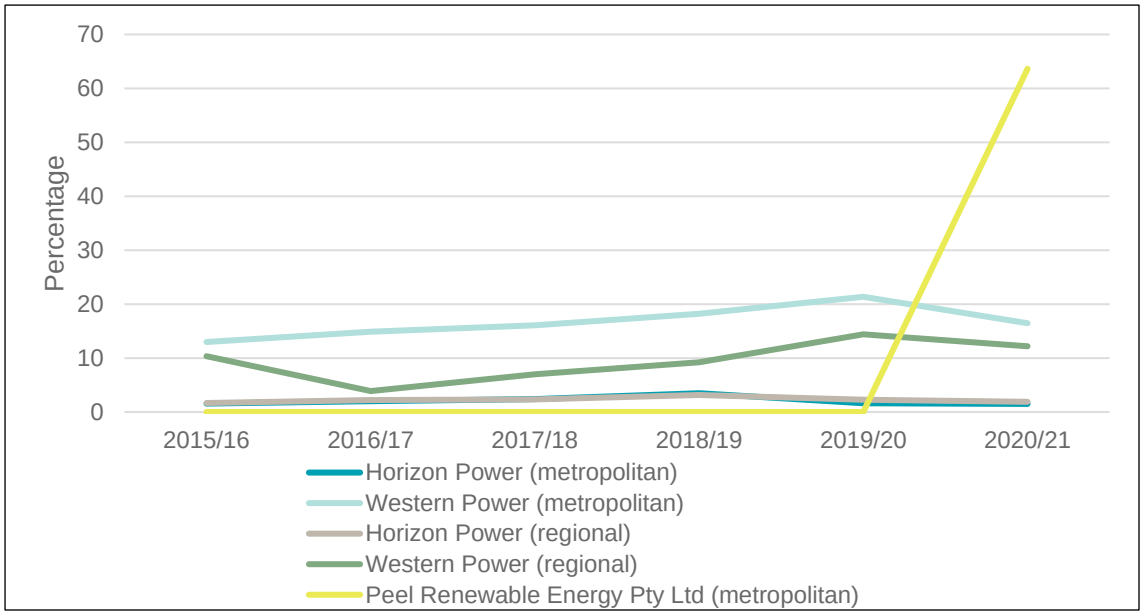


Figure 24 shows the proportion of faulty metropolitan streetlights that were repaired more than the benchmark five business days after they were reported faulty.

The proportion of metropolitan streetlights repaired after five business days by Horizon Power in 2020/21 was the lowest in the six years reported.

[55] The proportion of faulty streetlights reported by Peel Renewable Energy should be treated with caution due to the small number of streetlights they maintained.

Horizon Power explained the decrease was due to local government authorities and Main Roads no longer requesting traffic management plans to repair faulty streetlights for all suburban roads.[56] Traffic management plans are now only required for arterial roads.

Figure 24: Faulty metropolitan streetlights repaired after five business days 2016 to 2021

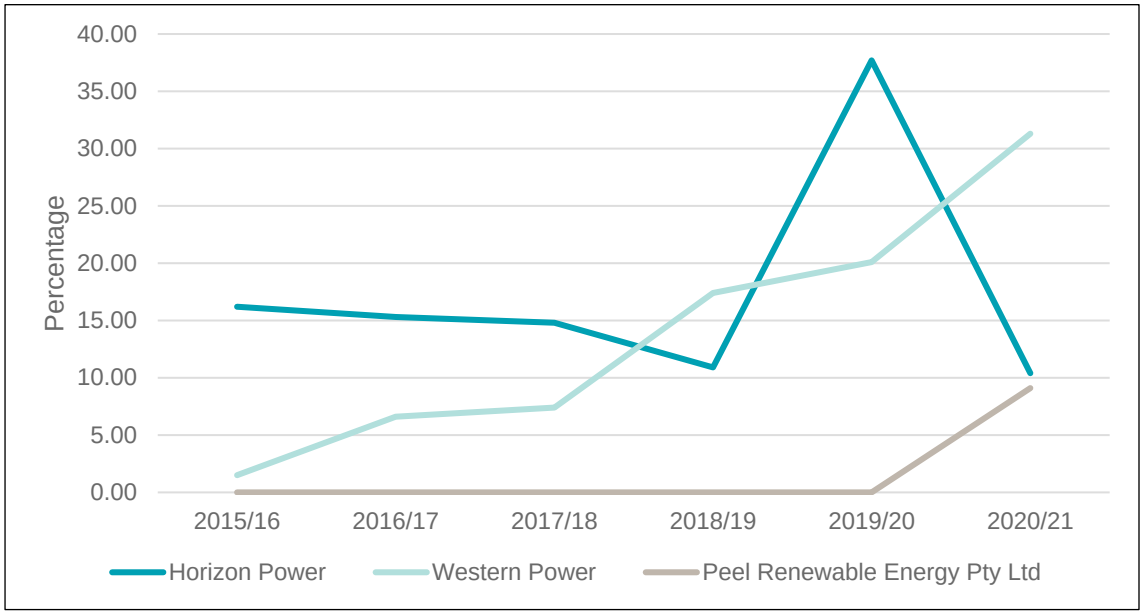
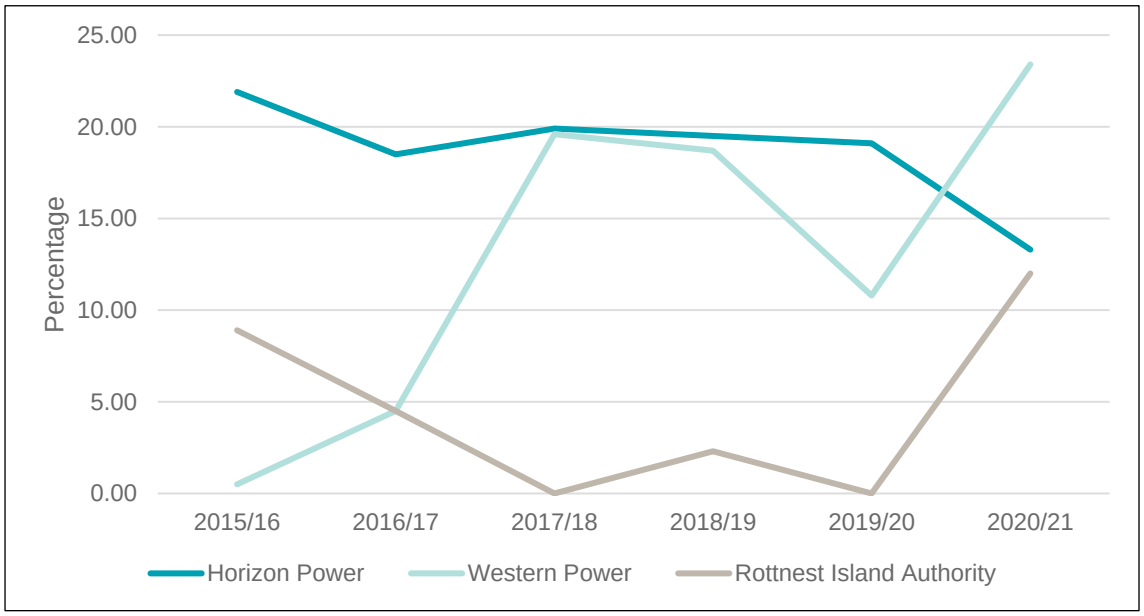


Figure 25 shows the proportion of faulty regional streetlights that were repaired more than the benchmark nine business days after they were reported faulty.

Figure 25: Faulty regional streetlights repaired after nine business days 2016 to 2021



The increase reported by Western Power was due to staff being re-allocated to assist with repair and remediation work after the Wooroloo bushfires and cyclone Seroja.

[56] In 2019/20, Horizon Power reported the increase due to local government authorities and Main Roads requesting traffic management plans to repair faulty streetlights. Applications for traffic management plans can take up to six weeks to be approved.

The increase reported by the Rottnest Island Authority was due to severe weather and closure of the island, which delayed streetlight repairs.

The decrease reported by Horizon Power was due to local government authorities and Main Roads no longer requesting traffic management plans to repair faulty streetlights for all suburban roads.

Appendix 1 List of Tables

Appendix 2 List of Figures

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 total duration of all interruptions of supply to customer premises expressed in minutes (this is equivalent to CAIDI).
- Average duration of interruption of supply to affected customer premises expressed in minutes (this is equivalent to SAIFI).
- Average number of interruptions of supply to affected customer premises.
- Average percentage of time that electricity has been supplied to customer premises (this is equivalent to SAIDI).

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 discreet 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.

SCONRRR definitions of overall and normalised interruptions

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).

The normalised SAIDI, SAIFI and CAIDI measure unplanned sustained interruptions that are caused by factors under the control of the distributor. Unplanned interruptions caused by generation outages, transmission outages and directed load shedding are excluded, as are unplanned outages where the daily SAIDI exceeds the Major Event Day (MED) threshold.

Section 4.5 of Standard *IEEE 1366-2003 - Guide for Electric Power Distribution Reliability Indices, Institute for Electrical and Electronic Engineers* (IEEE 1366) 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.[57, 58]

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.[59] This 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.[60]

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 standard IEEE 1366 to calculate normalised values for SAIDI, SAIFI and CAIDI for the distribution systems in the National Electricity Market (NEM).[61] 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.

SCONRRR distribution feeder classifications

The table below provides the definitions for the four types of feeder in the SCONRRR framework.

Table 14: Distribution feeder classifications (SCONRRR)

Description			
CBD[62]	**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.

57 IEEE 1366-2003 has been superseded by IEEE 1366-2012. The data provided by distributors in this report is based on IEEE 1366-2003.

58 The reporting period used for this report is the year ending 30 June.

59 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 2020/21 is calculated using the SAIDI in the four year period 2016/17 to 2019/20.

60 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.

61 The National Electricity Market covers the ACT, New South Wales, South Australia, Queensland, Tasmania and Victoria.

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