

# Annual data report - energy distributors 2018/19

March 2020

Economic Regulation Authority

WESTERN AUSTRALIA

D212361

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## Chair's foreword

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

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.

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.

The composition of Western Australia's energy distribution sector has been stable for many years. Since the ERA was given responsibility for licensing energy distributors in 2005, the same three gas distributors (ATCO Gas Australia, Wesfarmers Kleenheat Gas and Esperance Power Station) and three electricity distributors (Horizon Power, Rottnest Island Authority and Western Power) have held distribution licences for small-use customers.

The size of the market has also been fairly stable, when measured by customer numbers. In recent years the number of small-use connections for both gas and electricity has grown each year, but in both sectors the rate of growth has slowed. When measured by energy delivered, however, the picture is mixed. Western Power's energy delivered peaked in 2015/16 and has since trended downwards. There was a 1.6 per cent increase in energy delivered by ATCO in 2018/19, but energy delivered was still below its 2016/17 peak.

The larger electricity distributors improved their reliability in 2018/19. The number of customer premises affected by extended interruptions on the Western Power distribution system was the lowest in the six years to 2018/19. The number of premises affected by more than the allowed number of interruptions was also the lowest over this period. Horizon Power met the Network Quality and Reliability Code's outage duration standard for rural systems for the first time in six years.

Nicola Cusworth  
**Chair, Economic Regulation Authority**

# 1. Energy distribution market overview

## Main points

- The number of electricity and gas distributors licensed to supply small use customers has not changed since the ERA took on licensing responsibilities in 2005.
- There is a downward trend in the number of new electricity and gas network connections.

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

- number of licensed distributors supplying small use electricity and gas customers<sup>1</sup>
- number of small use electricity and gas customer connections
- timeliness of electricity and gas reconnections.

## 1.1 Energy distributors

The number of electricity distributors licensed to supply small use customers has not changed since the licensing scheme commenced in 2005. The number of licensed gas distributors has not changed since the ERA took over responsibility for licensing gas distributors in 2005.

Electricity distribution licensees that supply small use customers are:

- Horizon Power
- Rottnest Island Authority
- Western Power.

Holders of gas distribution licences are:

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

## 1.2 Customer connections

Throughout this report, the term “customer connection” means a small use customer connection.

## 1.3 Connections on electricity distribution systems

Table 1 shows the total number of customer connections by year on each electricity distributor’s system.

<sup>1</sup> 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.

**Table 1: Electricity connections by distributor at 30 June 2014 to 2019**

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Horizon Power	46,508	47,832	47,168	48,748	48,981	50,635
Rottneest Island Authority	527	527	527	528	528	529
Western Power	1,060,588	1,085,657	1,110,196	1,128,334	1,141,308	1,152,904
<b>Total</b>	<b>1,107,623</b>	<b>1,134,016</b>	<b>1,157,891</b>	<b>1,177,610</b>	<b>1,190,817</b>	<b>1,204,068</b>

There were 13,251 new customer connections to electricity networks in 2018/19. The annual increase in the number of new electricity connections has trended downwards over the six years reported.<sup>2</sup>

## 1.4 Connections on gas distribution systems

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

**Table 2: Gas connections by distributor at 30 June 2014 to 2019**

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
ATCO	692,988	714,488	736,746	750,339	760,355	769,597
Esperance Power Station	342	357	376	383	385	375
Kleenheat	956	922	958	1,006	1,048	1,071
<b>Total</b>	<b>694,286</b>	<b>715,767</b>	<b>738,080</b>	<b>751,728</b>	<b>761,788</b>	<b>771,043</b>

There were 9,255 new customer connections to gas networks in 2018/19. As with electricity, the annual increase in the number of new gas customer connections has trended downwards over the past three years.<sup>3</sup>

<sup>2</sup> Refer to indicator CCD 1 in the customer connections tab of the distributor data published on the ERA [website](#).

<sup>3</sup> Refer to indicator D1 in the customer connections tab of the distributor data published on the ERA [website](#).

## 2. Electricity distribution system reliability

### Main points

- The number of customer premises that experienced extended interruptions on the Western Power distribution system was the lowest in the six years to 2018/19.
- The numbers of Western Power customer premises that experienced more than the permitted number of interruptions in both the combined Perth CBD and urban area and rural locations in 2018/19 were both the lowest in the past six years.
- Western Power met the Network Quality & Reliability Code's outage duration standard for the Perth CBD for the second consecutive year.
- Horizon Power met the Network Quality & Reliability Code's outage duration standard for rural systems for the first time in six years.

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.<sup>4</sup>

### 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.<sup>5</sup>
  - 16 interruptions per year in all other areas of Western Australia.

For consistency, this report refers to “customer premises” as “customer connections” in the discussion on NQ&R Code reliability measures.

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. Others supply interruptions are caused by factors outside the reasonable control of the distributor, such as severe weather events and third-party damage to distribution infrastructure. Including all supply interruptions means the distributor is reporting on the actual customer experience.

<sup>4</sup> 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).

<sup>5</sup> The CBD is the area supplied by the Milligan Street Zone Substation and the Hay Street Zone Substation, both operated by Western Power.

## 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:<sup>6,7</sup>

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

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:<sup>8,9</sup>

- Perth CBD – 30 minutes
- urban areas other than the Perth CBD – 160 minutes<sup>10</sup>
- any other area of the State (rural areas) – 290 minutes.<sup>11</sup>

The standard for each area takes into account the level of interconnection and available capacity factored into the design of the distribution systems.

Western Power and other 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.<sup>12</sup>

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

## 2.3 System reliability – NQ&R code

Data for Figures 1, 2, 3, 4 and 5 is in the energy distributor dataset published by the ERA (including the Rottnest Island Authority).<sup>13</sup>

<sup>6</sup> The definition of the measures is in Standard IEEE 1366-2003 - Guide for Electric Power Distribution Reliability Indices, Institute for Electrical and Electronic Engineers.

<sup>7</sup> 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.

<sup>8</sup> This is the equivalent to the SAIDI for the group of feeders supplying customer connections in each geographical area.

<sup>9</sup> See Appendix 3 for more information about how the standard is calculated.

<sup>10</sup> These areas are defined in section 3 of the NQ&R Code and include the Perth metropolitan region, Albany, Bunbury, Geraldton, Kalgoorlie and Mandurah.

<sup>11</sup> 'Other areas of the State' are referred to as 'rural areas' in this report for consistency with the SCONRRR framework's feeder classifications of 'short rural' and 'long rural'.

<sup>12</sup> 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: <https://www.erawa.com.au/electricity/electricity-access/western-power-network>.

<sup>13</sup> Economic Regulation Authority, Energy Distributor Dataset 2014 – 2019, Network Reliability ([online](#)).

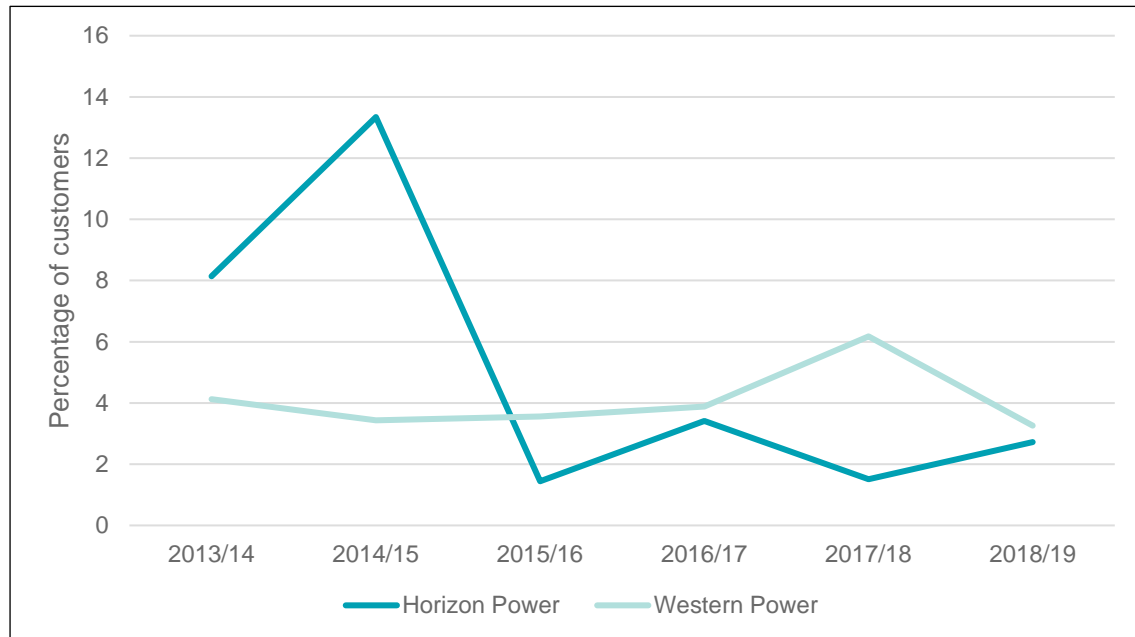


### 2.3.1 *Extended interruptions*

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

Figure 1 shows the percentage of customer connections on the Horizon Power and Western Power distribution systems that had an extended interruption.<sup>14</sup>

**Figure 1: Horizon Power and Western Power extended interruptions 2014 to 2019**



The number of customer connections on Western Power's distribution system affected by extended interruptions in 2018/19 (37,599) was the lowest in the past six years.

### 2.3.2 *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.<sup>15</sup>

The number of customer connections in the combined Perth CBD and urban areas that had more than nine interruptions continued to trend downwards. In 2018/19, 1,266 customer connections had more than nine interruptions.

<sup>14</sup> The Rottnest Island Authority is excluded from Figure 1, because it has reported zero extended interruptions on its system in the past six years.

<sup>15</sup> Western Power is the only distributor that supplies the Perth CBD and urban areas.

**Figure 2: Multiple supply interruptions on electricity distribution systems – CBD and urban 2014 to 2019**

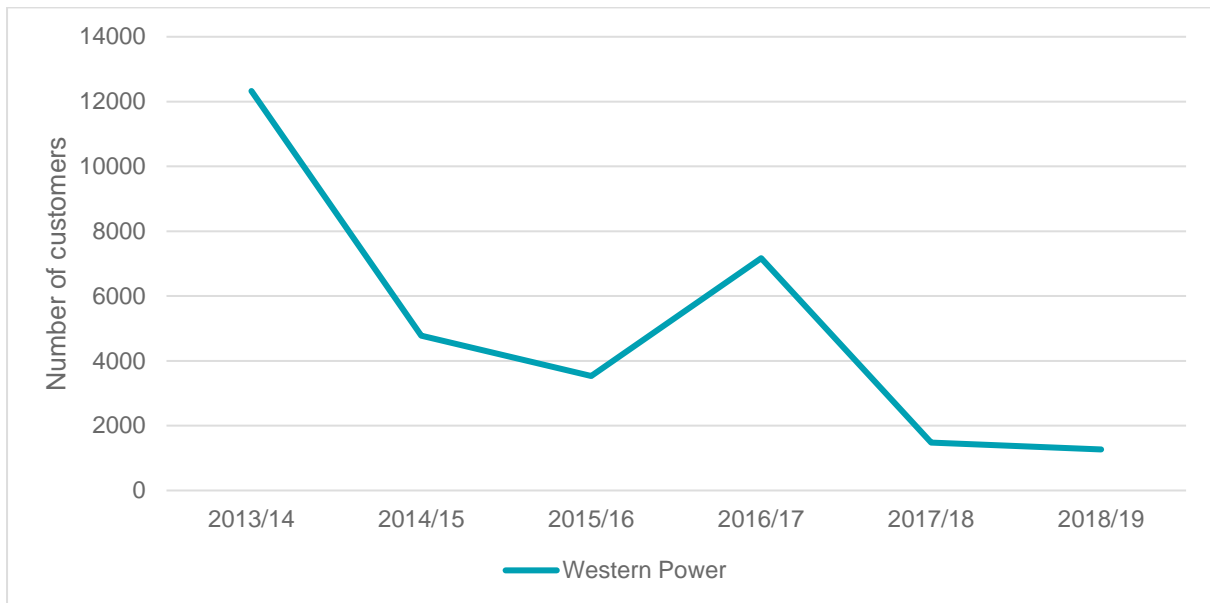
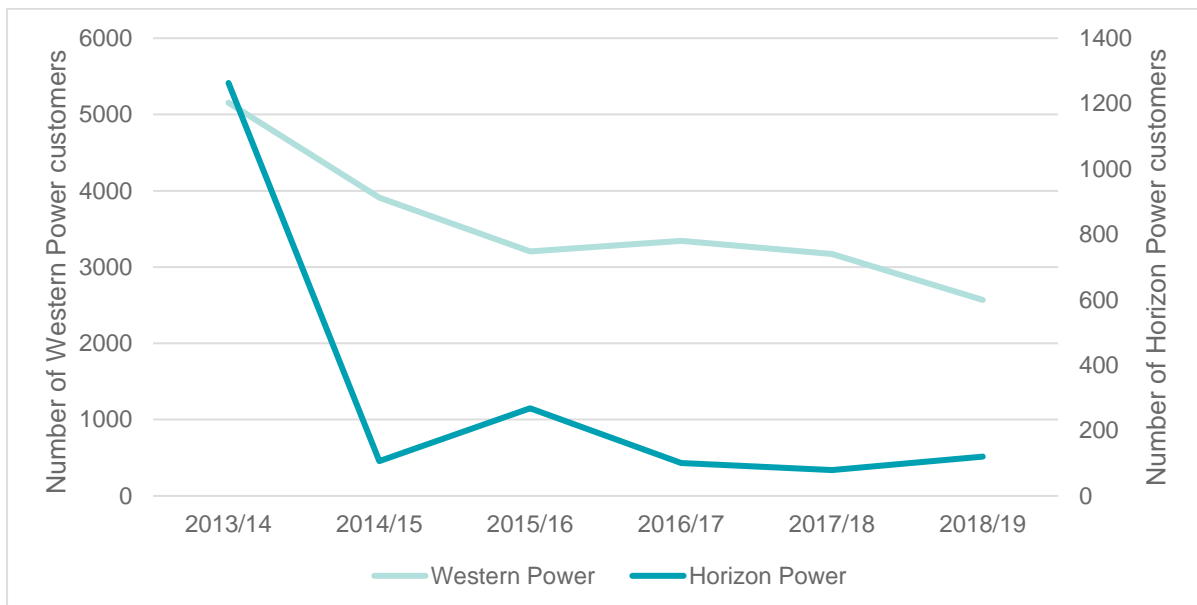


Figure 3 shows the number of customer connections that had more than the permitted number of interruptions (16) in rural areas, where all three distributors have distribution systems.<sup>16</sup>

**Figure 3: Multiple supply interruptions on electricity distribution systems – Rural 2014 to 2019**



For rural locations, the number of customer connections that had more than 16 interruptions on the Western Power distribution system continued to trend downwards. Since 2013/14, the number of affected Western Power customer connections has decreased by an average of 8.5 per cent each year.

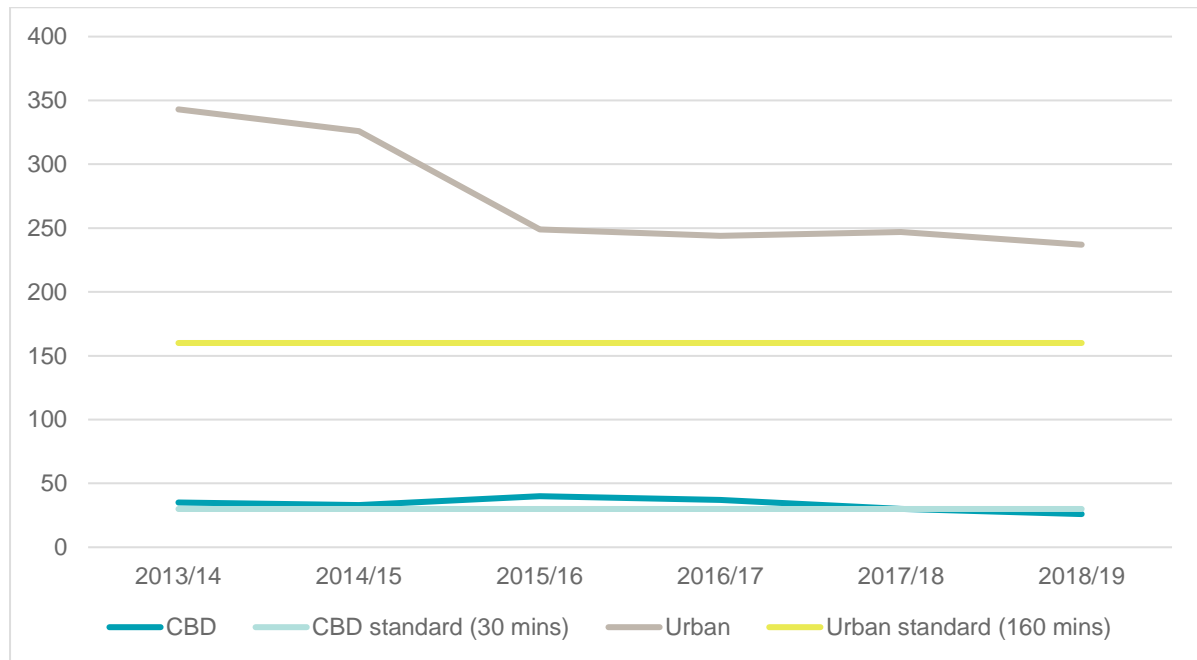
<sup>16</sup> The Rottneest Island Authority has been excluded from Figure 3, because it has not reported any excess interruptions to customer connections in the past 10 years.

## 2.3.3 System reliability

### 2.3.3.1 System Average Interruption Duration Index

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) in these areas and compares them with 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 2014 to 2019 (minutes)**

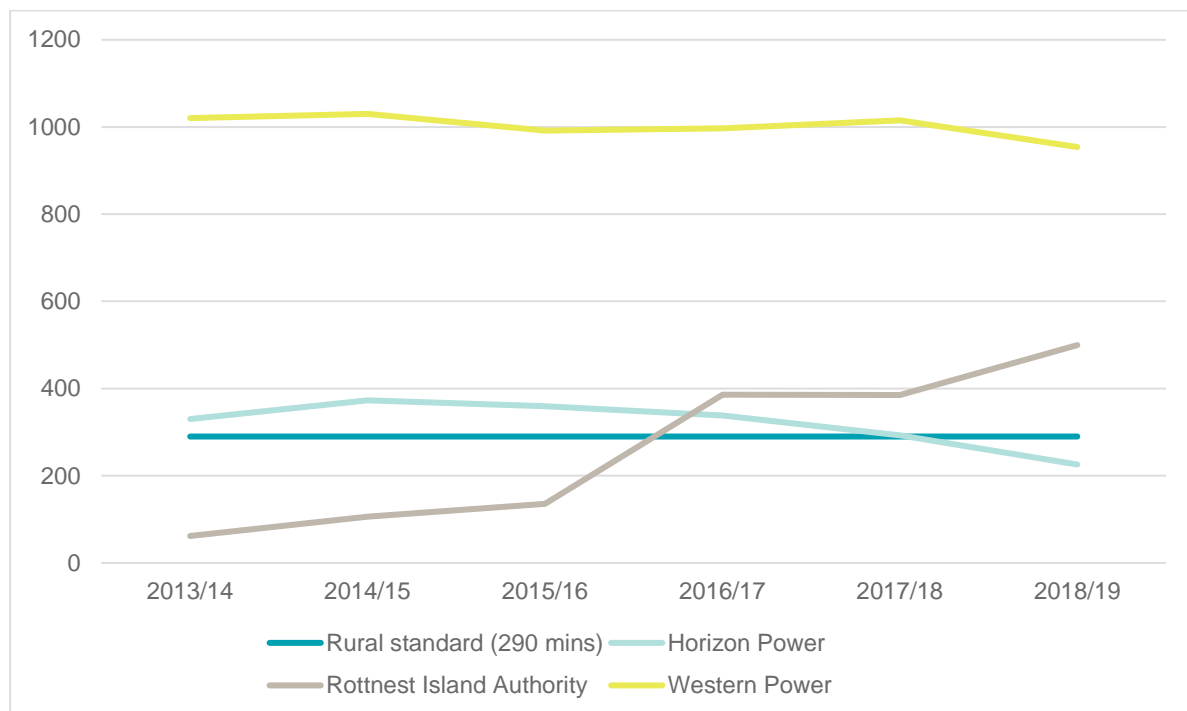


This was the second consecutive year that Western Power met the NQ&R Code's CBD SAIDI standard.

In the past six years, Western Power has not met the NQ&R Code's SAIDI standard of 160 minutes for urban areas. Western Power's performance in 2018/19 continued to improve to its lowest level in six years but was still substantially above the standard.

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 2014 to 2019 (minutes)**



In the past six years, Western Power has not met the NQ&R Code's standard for rural systems, although its performance improved slightly in 2018/19. As can be seen in Figures 6, 7, 8 and 9 later in the report, Western Power's SAIDI performance improves substantially when it is normalised.<sup>17</sup>

In 2018/19, Horizon Power met the NQ&R Code's SAIDI standard for rural systems for the first time in the past six years.

Since 2013/14, the average total duration of interruptions on the Rottnest Island Authority's distribution system has trended upwards, reaching 500 minutes in 2018/19.

## 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 considered to be caused by factors under 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. It is normal practice to use normalised reliability data to assess the reliability performance of distributors, particularly when comparing or benchmarking distributor performance.

<sup>17</sup> Normalisation allows distributors to exclude interruptions caused by events outside their reasonable control such as severe weather, generation outages and transmission network outages. The NQ&R Code requires distributors to include all interruptions regardless of their cause(s).

### 2.4.1 System Average Interruption Duration Index

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.

Table 3 shows the overall and normalised SAIDI values by feeder class for each distributor for 2018/19.

**Table 3: Overall and normalised SAIDI by electricity distributor for 2018/19**

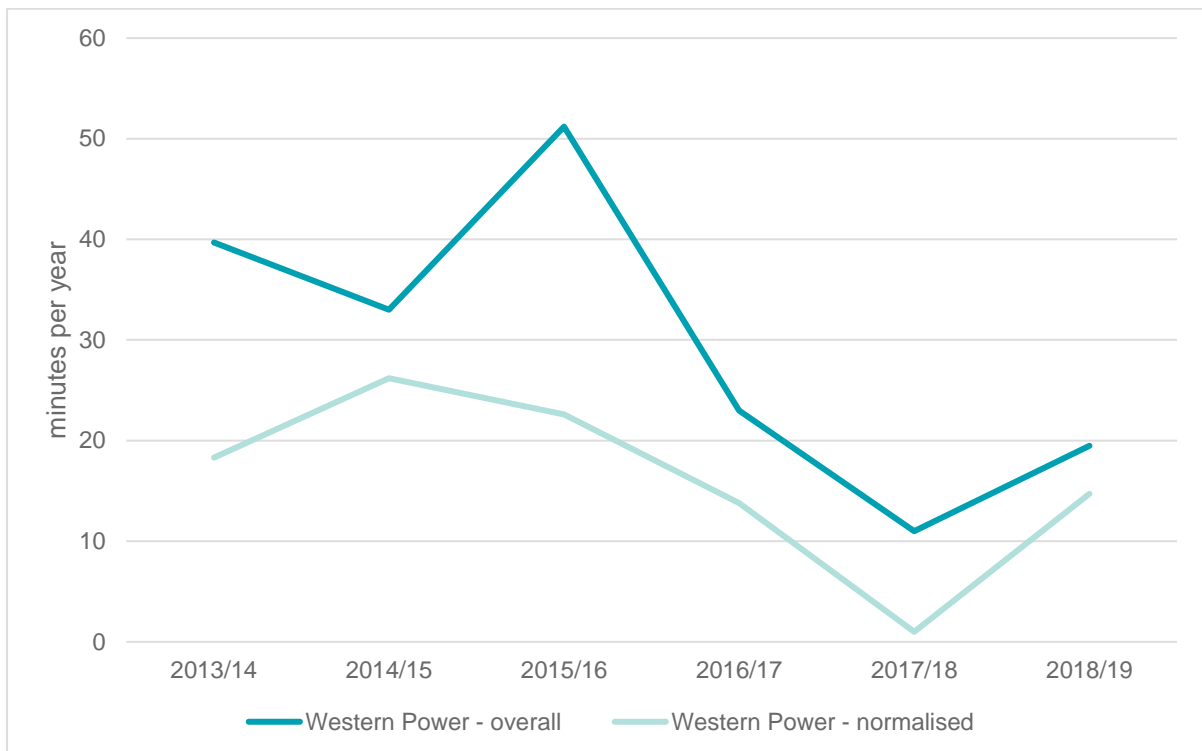
Overall SAIDI (minutes per annum)					
	Total network	CBD	Urban	Short rural	Long rural
Horizon Power	234	N/A	38	233	1084
Rottnest Island Authority	520	N/A	N/A	520	N/A
Western Power	274	20	173	287	1061
Normalised SAIDI (minutes per annum)					
	Total network	CBD	Urban	Short rural	Long rural
Horizon Power	178	N/A	33	174	879
Rottnest Island Authority	0	N/A	N/A	0	N/A
Western Power	176	15	108	183	732

N/A – The distributor does not operate feeders of this type

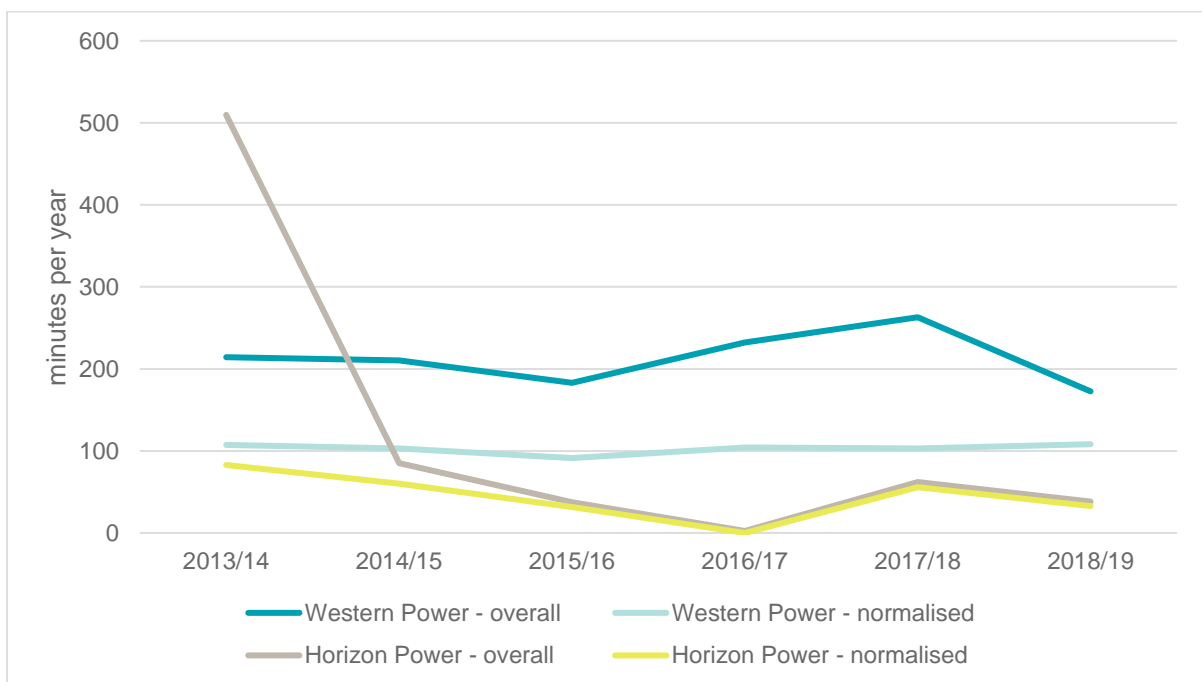
Figures 6, 7, 8 and 9 compare the past six years of overall SAIDI values and normalised SAIDI values for the CBD, urban, short rural and long rural feeder classes respectively for Horizon Power and Western Power. Data for Figures 6, 7, 8 and 9 is in the energy distributor dataset published by the ERA (including the Rottnest Island Authority).<sup>18</sup>

<sup>18</sup> Economic Regulation Authority, Energy Distributor Dataset 2014 – 2019, Network Reliability ([online](#)).

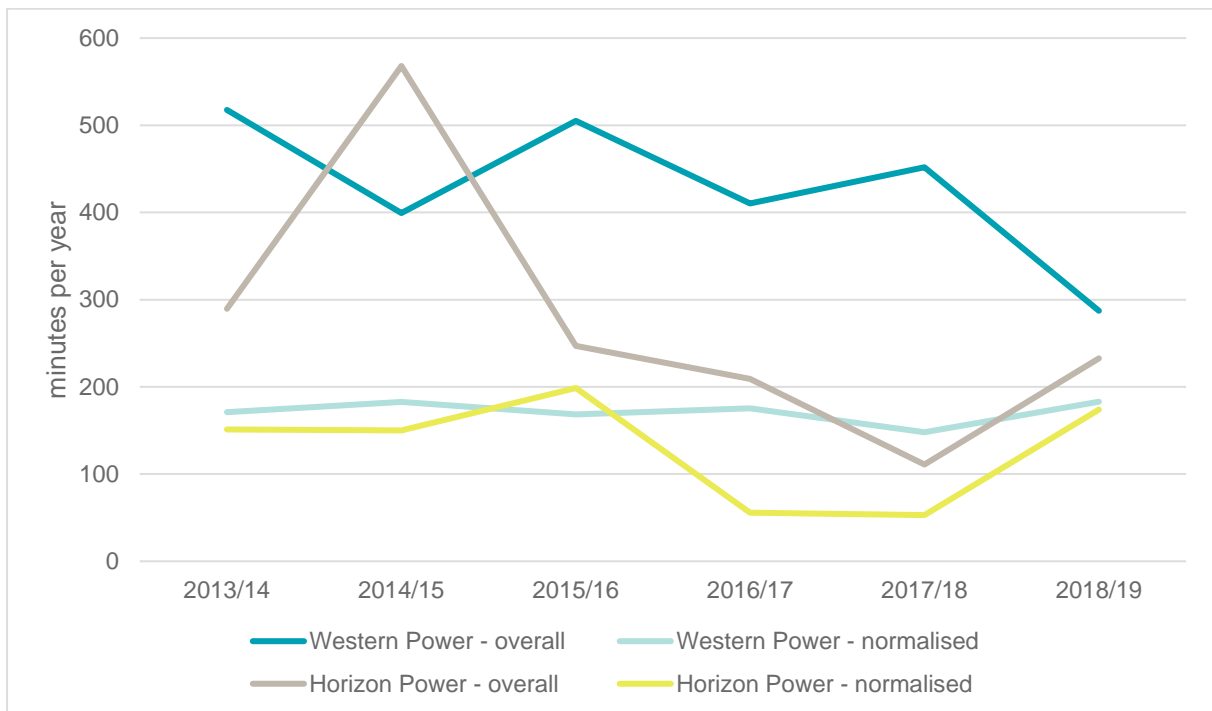
**Figure 6: Overall and normalised SAIDI by electricity distributor – CBD 2014 to 2019**



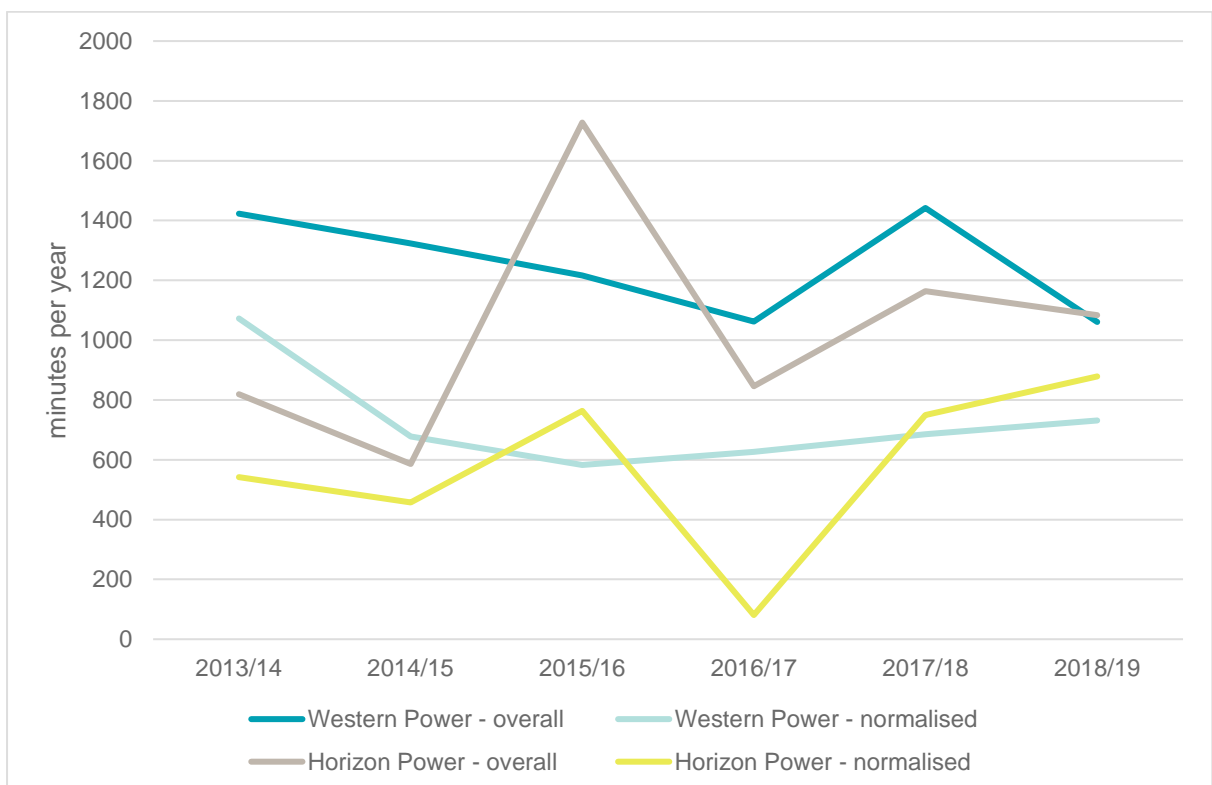
**Figure 7: Overall and normalised SAIDI by electricity distributor – Urban 2014 to 2019**



**Figure 8: Overall and normalised SAIDI by electricity distributor - Short rural 2014 to 2019**



**Figure 9: Overall and normalised SAIDI by electricity distributor - Long rural 2014 to 2019**



The normalisation process has resulted in the values of normalised SAIDI being lower than the overall SAIDI for all classes of feeder.

The normalisation process has excluded all interruptions on the Rottnest Island Authority distribution system, so it has not been included in Figure 8.<sup>19</sup>

The value of SAIDI for each class of feeder is influenced by the level of redundancy in the network for that class, and the remoteness of the location.<sup>20</sup> Long and short rural feeders tend not to have any redundancy, and are often in remote locations, which increases the time to repair faults.

## 2.4.2 System Average Interruption Frequency Index

SAIFI measures 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.

Table 4 shows the overall and normalised SAIFI values by feeder class for each distributor in 2018/19.

**Table 4: Overall and normalised SAIFI for each electricity distributor in 2018/19**

Overall distribution network – SAIFI (per year)					
	Total network	CBD	Urban	Short rural	Long rural
Horizon Power	1.9	N/A	0.4	2.0	7.5
Rottnest Island Authority	6.5	N/A	N/A	6.5	N/A
Western Power	1.9	0.1	1.3	2.3	5.4
Normalised distribution network – SAIFI (per year)					
	Total network	CBD	Urban	Short rural	Long rural
Horizon Power	1.7	N/A	0.3	1.8	6.5
Rottnest Island Authority	0.0	N/A	N/A	0.0	N/A
Western Power	1.4	0.1	1.0	1.8	4.1

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.

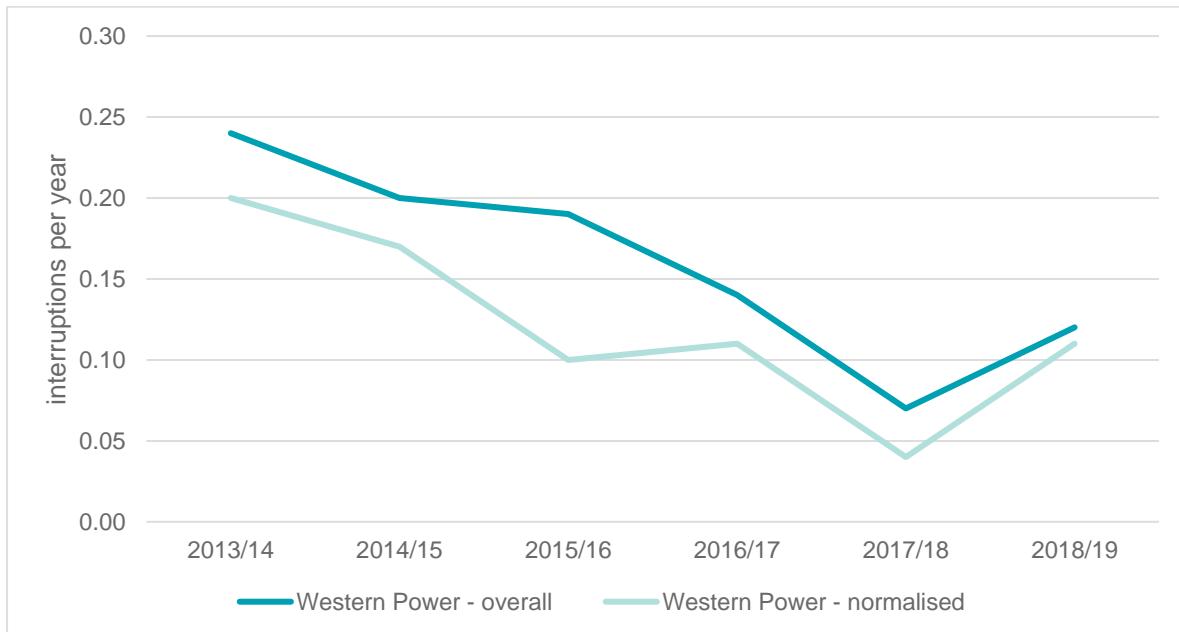
<sup>19</sup> The Rottnest Island Authority distribution system only includes short rural feeders. In recent years, most of the unplanned interruptions have been caused by generation outages.

<sup>20</sup> Redundancy is often achieved by the designing spare capacity into the feeders in a network. 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.

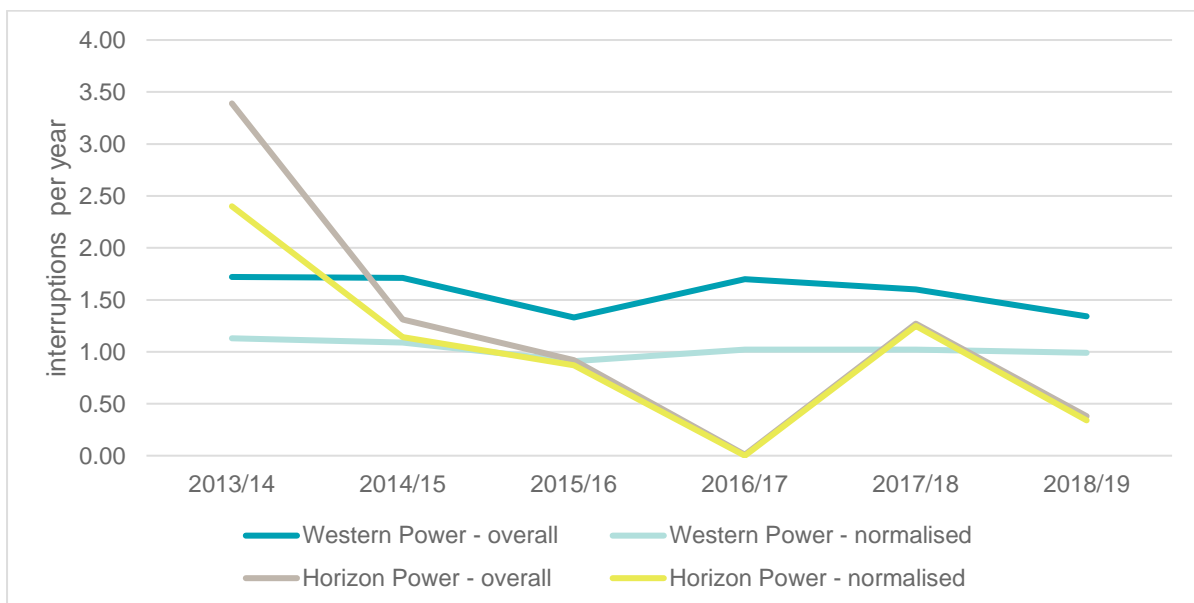


Figures 10, 11, 12 and 13 compare the past six years of overall and normalised SAIFI values for the CBD, urban, short rural and long rural feeder classes respectively for Horizon Power and Western Power. Data for Figures 10, 11, 12 and 13 is in the energy distributor dataset published by the ERA (including the Rottneest Island Authority).<sup>21</sup>

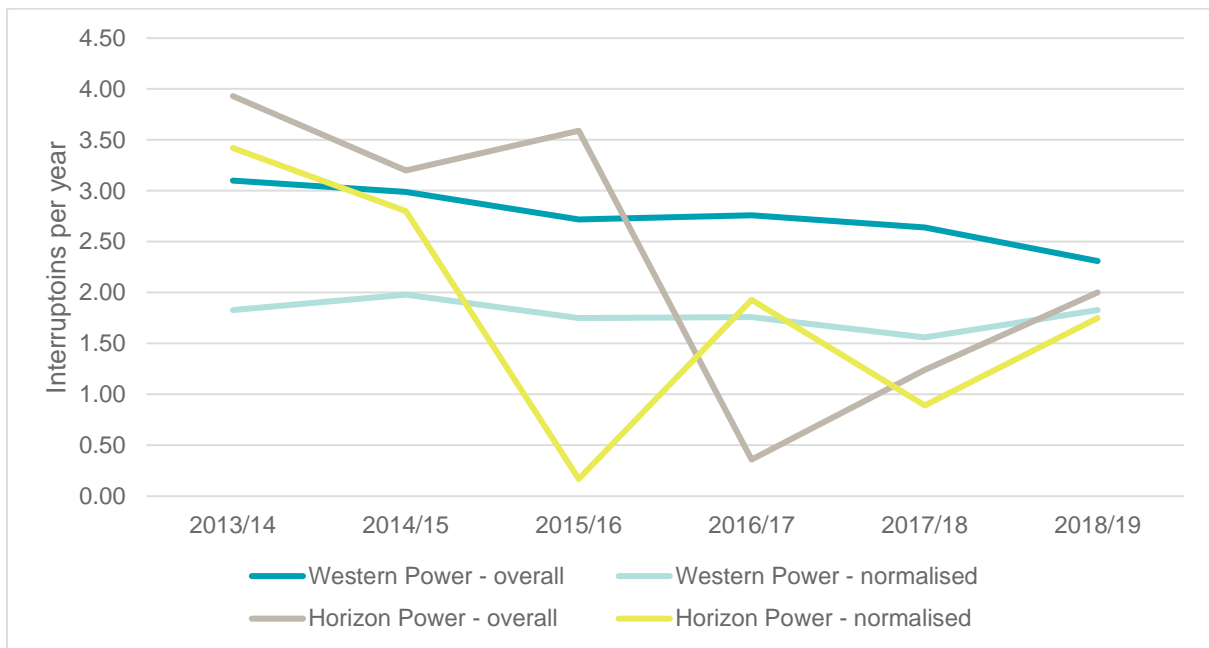
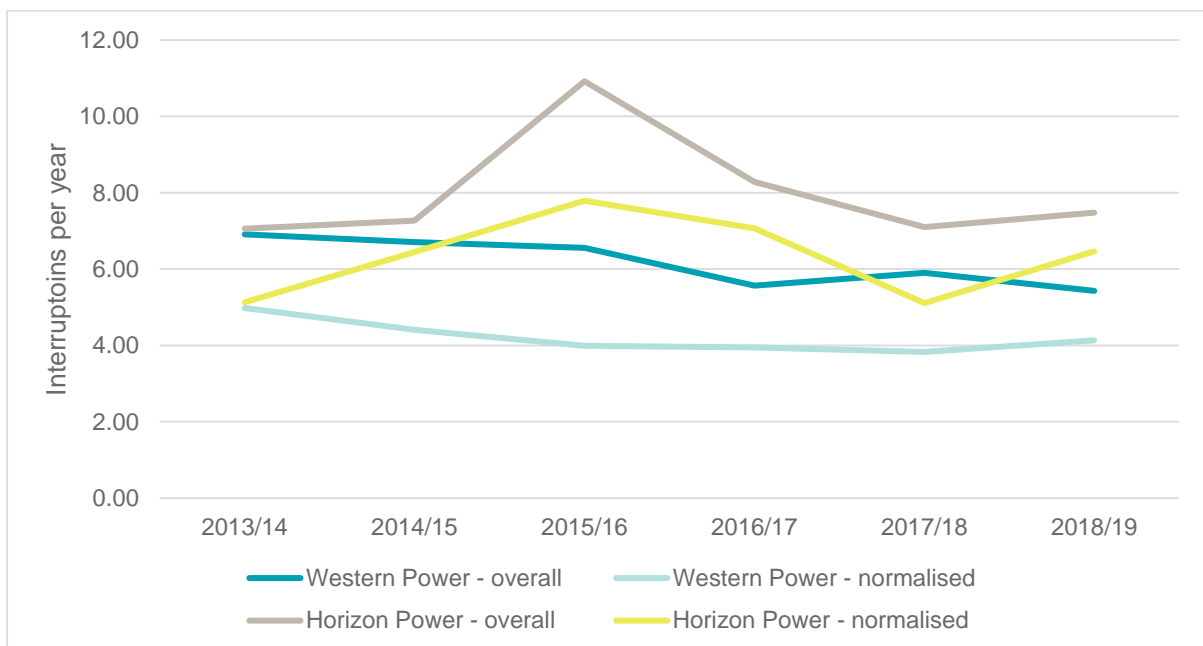
**Figure 10: Overall and normalised SAIFI by electricity distributor – CBD 2014 to 2019**



**Figure 11: Overall and normalised SAIFI by electricity distributor – Urban 2014 to 2019**



<sup>21</sup> Economic Regulation Authority, Energy Distributor Dataset 2014 – 2019, Network Reliability ([online](#)).

**Figure 12: Overall and normalised SAIFI by electricity distributor - Short Rural 2014 to 2019****Figure 13: Overall and normalised SAIFI by electricity distributor - Long Rural 2014 to 2019**

Comparing the SAIDI and SAIFI data shows the change in the values of SAIFI each year mostly follow the same pattern as the SAIDI values. This result is to be expected. When an interruption is removed from the total interruptions by the SAIDI normalisation process, there is a corresponding reduction in the value of 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.<sup>22</sup>

<sup>22</sup> Economic Regulation Authority, Energy Distributor Dataset 2014 – 2019, Network Reliability, indicator NQR4 ([online](#)).

### 3. Gas distribution system reliability

#### Main points

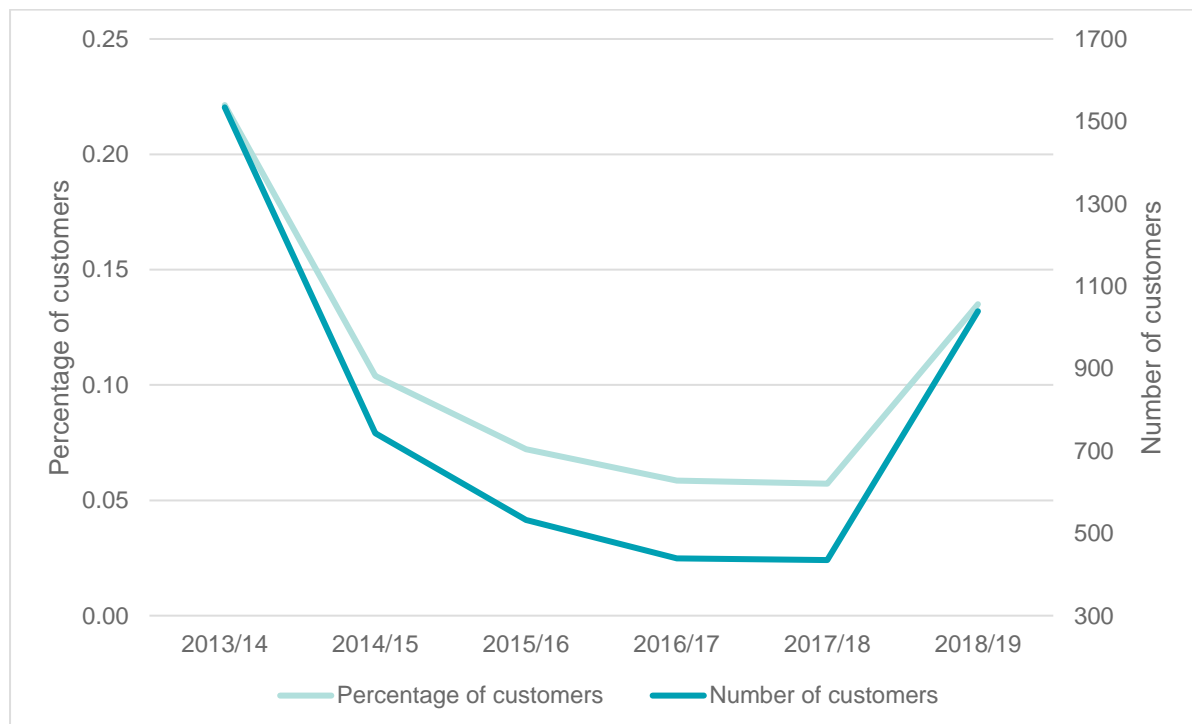
- Fewer than 0.2 per cent of gas customer connections experienced extended supply interruptions due to network outages in 2018/19.

Gas distributors are required to report on the number of customer connections with interruptions that exceeded 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 2014 to 2019**



In 2018/19 1,039 ATCO customer connections had an extended interruption. This was more than double the number in 2017/18. ATCO reported that this was due to a major gas outage in August 2018 that affected 705 customer connections.

Kleenheat reported that 167 customer connections had extended interruptions in 2018/19. This was due to the Rapids Landing gas network outage in December 2018 and January 2019 caused by third-party damage to network infrastructure.

## 4. Energy delivered

### Main points

#### Electricity

- The energy delivered to customer connections on Western Power's distribution system (13,290 gigawatt-hours) was the lowest in the past six years.
- Between 2015/16 and 2018/19, there has been a 13.2 per cent decrease in energy delivered to urban customer connections by Western Power, despite an increase in the total number of customer connections.

#### Gas

- There was a 1.6 per cent increase in gas delivered to customer connections by ATCO's distribution systems.
- There was a 6.5 per cent increase in gas delivered to customer connections by Kleenheat's distribution systems – the highest increase in the past six years.

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 of electricity, respectively.

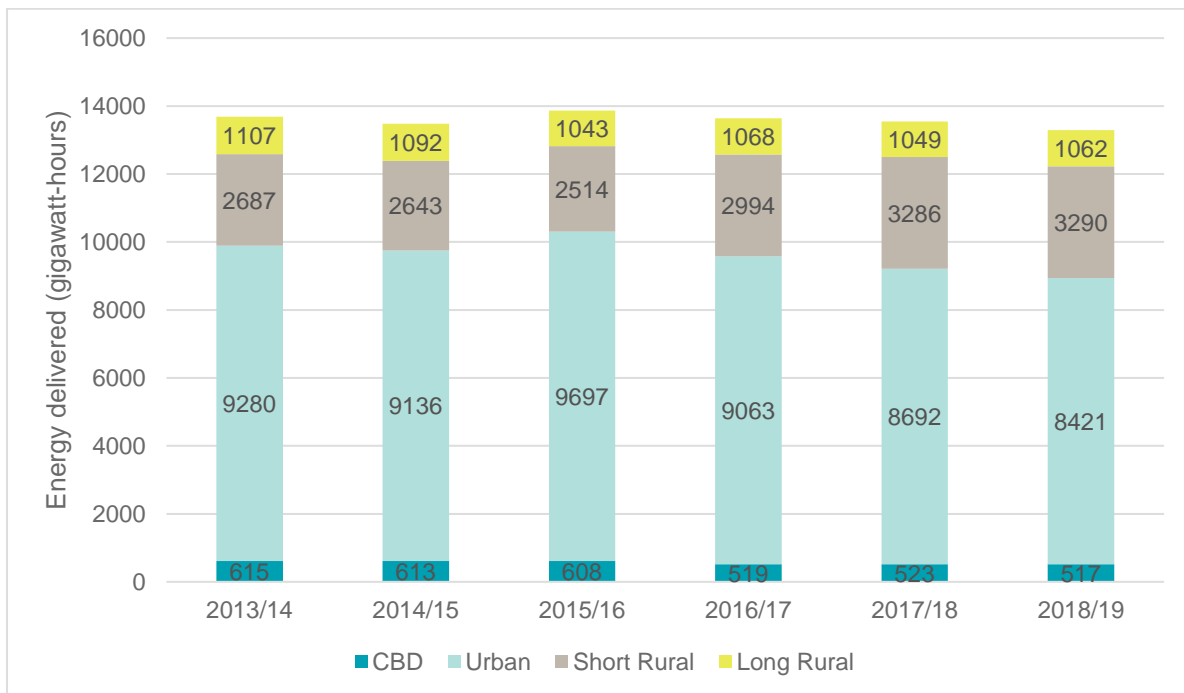
### 4.1 Energy delivered by electricity distributors

Electricity delivered data is provided separately for:<sup>23</sup>

- Western Power
- Rottnest Island Authority.

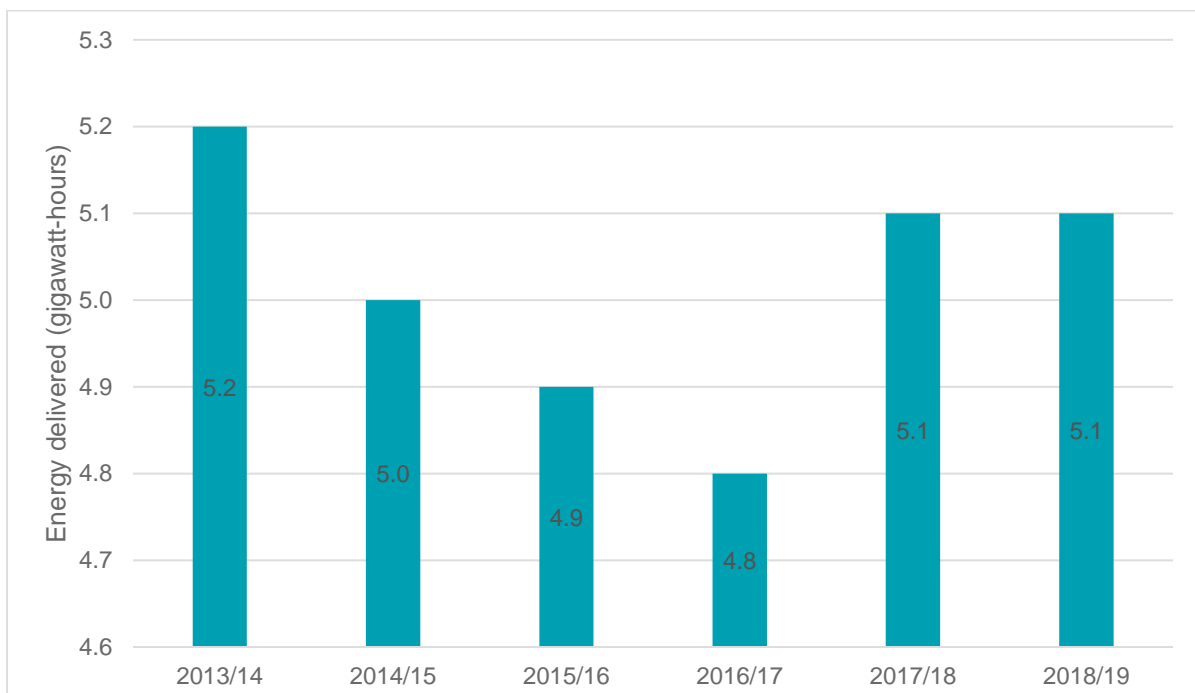
Figure 15 shows the amount of energy delivered to Western Power customer connections, broken down by feeder class.

<sup>23</sup> Horizon Power has been excluded because it has been unable to easily segregate the energy delivered by customer type across feeder categories. The ERA has requested Horizon Power investigate its ability to provide the data in future reports.

**Figure 15: Energy delivered by Western Power by feeder type 2014 to 2019**

The energy delivered to customer connections on Western Power's distribution system (13,290 gigawatt-hours) was the lowest in the past six years. Since 2015/16, the energy delivered to customer connections on urban feeders has decreased by 13.2 per cent.

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

**Figure 16: Energy delivered by Rottnest Island Authority 2014 to 2019**

The total electricity delivered to customer connections on the Rottnest Island Authority's distribution system remained unchanged between 2017/18 and 2018/19 at 5.1 gigawatt-hours.

The difference between the highest and lowest values of energy supplied over the past six years is 7.7 per cent.

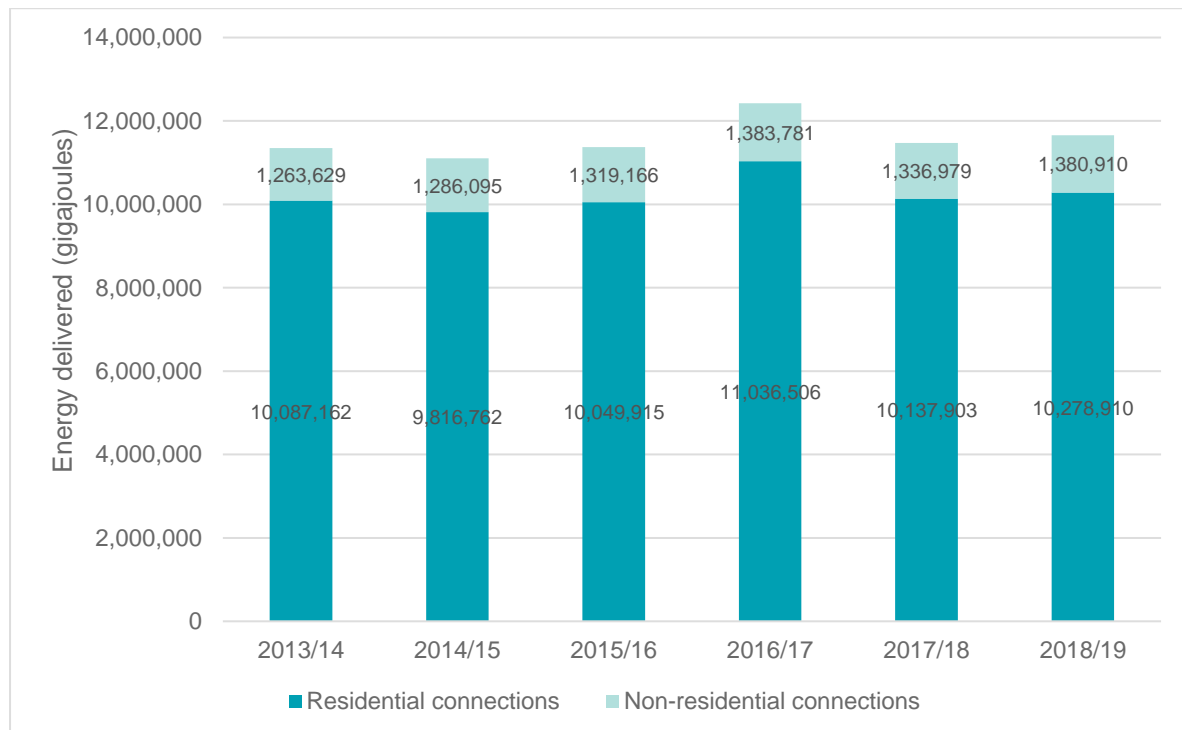
## 4.2 Energy delivered by gas distributors

Energy delivered data is provided separately for:

- ATCO
- Esperance Power Station
- Kleenheat.

Figure 17 shows the amount of energy delivered by ATCO to residential and non-residential customer connections.<sup>24</sup>

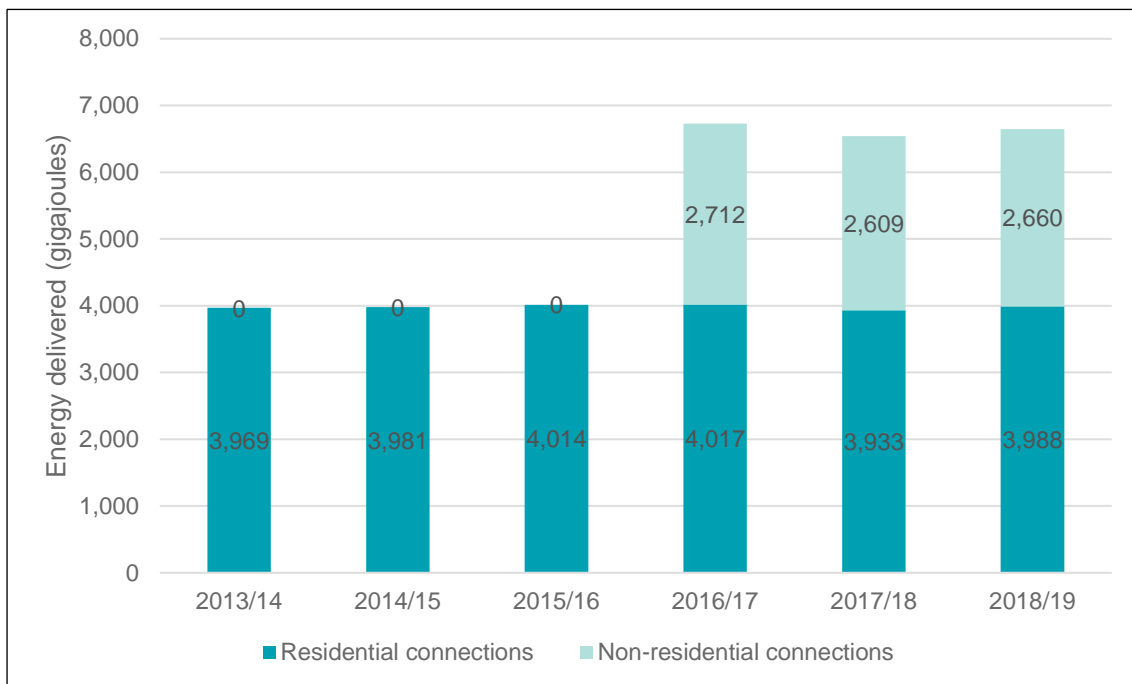
**Figure 17: Energy delivered by ATCO 2014 to 2019**



In 2018/19, there was a 1.6 per cent increase in overall energy delivered on ATCO's distribution systems. There was a larger increase in energy delivered to non-residential customer connections (3.2 per cent) than to residential customer connections (1.4 per cent).

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

<sup>24</sup> ATCO's gas consumption data is measured over a calendar year. For example, the consumption data for 2018/19 period is in fact for the 2018 calendar year.

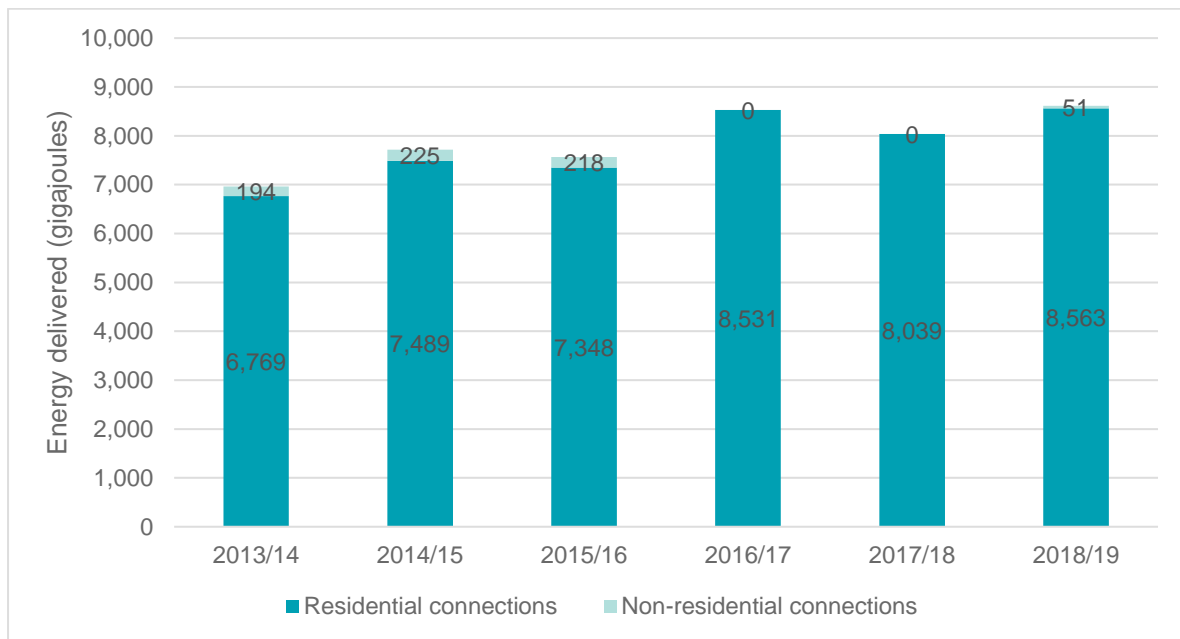
**Figure 18: Energy delivered by Esperance Power Station 2014 to 2019**

The energy delivered to non-residential customer connections between 2013/14 and 2015/16 has been removed from Figure 16, because it included energy delivered to customers not covered by Esperance Power Station's licence.<sup>25</sup>

Energy delivered to residential customer connections decreased by 1.4 percent from 2017/18 to 2018/19.

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

<sup>25</sup> Customers who consumed 1 terajoule or more of gas per year.

**Figure 19: Energy delivered by Kleenheat 2014 to 2019**

In 2018/19, there was a 6.5 per cent increase in residential consumption. The increase in non-residential consumption was due to Rapids Landing Primary School being connected to the distribution system during the reporting period.



## 5. Customer service

### Main points

- Horizon Power reported 760 per cent more complaints in 2018/19 than 2017/18 due to, for the first time, including complaints resolved at the first point of contact.
- Western Power's administrative and customer service complaints increased by 16 per cent in 2018/19.
- ATCO Gas Australia and Western Power had a small decrease in the number of calls answered within 30 seconds.

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 AS ISO 10002 – 2014 *Guidelines for complaint management in 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.<sup>26</sup> The ERA has specified two categories of complaints:

- Administrative process or customer service complaints: includes 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: includes poor service, privacy issues and health and safety issues.

The NQ&R Code focusses 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.<sup>27</sup>

#### 5.1.1 Electricity code complaints

Table 5 shows the number of complaints about electricity code matters received by Horizon Power and Western Power.<sup>28</sup>

<sup>26</sup> The specification of complaints reporting obligations is in the ERA's [Electricity Distribution Licence Performance Reporting Handbook](#).

<sup>27</sup> These standards are in Part 2 or an instrument made under section 14(2) of the NQ&R Code.

<sup>28</sup> Because it has only received two complaints in the past six years, Rottneest Island Authority has been excluded from the table.

**Table 5: Complaints received by electricity distributors (electricity code) 2014 to 2019**

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
<b>Horizon Power<sup>29</sup></b>						
Administrative and customer service complaints	274	168	506	263	114	992
Other complaints	17	76	121	8	7	49
<b>Total complaints</b>	<b>291</b>	<b>244</b>	<b>627</b>	<b>271</b>	<b>121</b>	<b>1041</b>
<b>Western Power</b>						
Administrative and customer service complaints	41	68	140	258	295	343
Other complaints	506	592	500	643	578	599
<b>Total complaints</b>	<b>547</b>	<b>660</b>	<b>640</b>	<b>901</b>	<b>873</b>	<b>942</b>

The total number of complaints about electricity code matters received by both distributors reached a six-year high in 2018/19.

Total complaints received by Horizon Power increased by 760 per cent between 2017/18 and 2018/19. Horizon Power reported that this was due to the inclusion of complaints that were resolved at the first point of contact.<sup>30</sup> In previous years, Horizon Power did not include complaints resolved at the first point of contact in its data.

### 5.1.2 NQ&R Code complaints

Table 6 shows the number of complaints about NQ&R Code matters received by Horizon Power and Western Power.<sup>31</sup>

**Table 6: Complaints received by electricity distributors (NQ&R Code) 2014 to 2019**

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Horizon Power	31	32	34	111	27	76
Western Power	765	975	693	728	920	955
<b>Total complaints</b>	<b>796</b>	<b>1,007</b>	<b>727</b>	<b>839</b>	<b>947</b>	<b>1,031</b>

<sup>29</sup> Horizon Power complaints data since 2013/14 is the combined total of complaints about their retail and distribution services, following a change of call centre service provider.

<sup>30</sup> Licensees are required to include all complaints received from customers, including those that are resolved at the first point of contact, usually by telephone. The data for previous years did not include complaints resolved at the first point of contact.

<sup>31</sup> Because it has only received one complaint in the past six years, Rottneest Island Authority has been excluded from the table.

The total number of complaints about NQ&R Code matters received by Horizon Power and Western Power in 2018/19 were both the highest in the past six years.

## 5.2 Gas complaints

The complaint reporting obligations for gas distributors are contained in the ERA's gas reporting handbook.<sup>32</sup>

Table 7 shows the total number of complaints, across the six categories specified in the gas reporting handbook, received by ATCO and Kleenheat.<sup>33</sup>

**Table 7: Complaints received by gas distributors 2014 to 2019**

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
ATCO	25 <sup>34</sup>	236	513	516	431	371
Kleenheat	0	3	1	4	4	12
<b>Total</b>	<b>25</b>	<b>239</b>	<b>514</b>	<b>520</b>	<b>435</b>	<b>384</b>

Complaints received by ATCO decreased by 13.9 per cent in 2018/19.

Table 8 categorises the complaints received by ATCO and Kleenheat in 2018/19.

**Table 8: Categorisation of complaints received by gas distributors in 2018/19**

Complaint category	ATCO	Kleenheat
Connection and augmentation	7	0
Reliability of supply	6	10
Quality of supply	4	0
Network charges and costs	9	0
Administrative processes or customer service	146	1
Other	199	1
<b>Total</b>	<b>371</b>	<b>12</b>

<sup>32</sup> Economic Regulation Authority, 2019, [Gas Distribution Licence Performance Reporting Handbook](#), pp. 10-11.

<sup>33</sup> Because it has only received one complaint in the past six years, Esperance Power Station has been excluded from the table.

<sup>34</sup> The number of complaints reported by ATCO excluded complaints that were resolved on first contact. These complaints were included in the total from 2014/15 onwards.

## 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 performance. Different distributors operate different types of call centres, depending on the size of their customer base.

### 5.3.1 Electricity distributor call centre performance

Western Power operates an in-house call centre. The Rottnest Island Authority and Horizon Power both outsource their call centre services. The Rottnest Island Authority call centre handles calls from other areas of its business and does not distinguish between calls about its retail and distribution services.

Table 9 shows the number of calls received by each electricity distributor call centre.

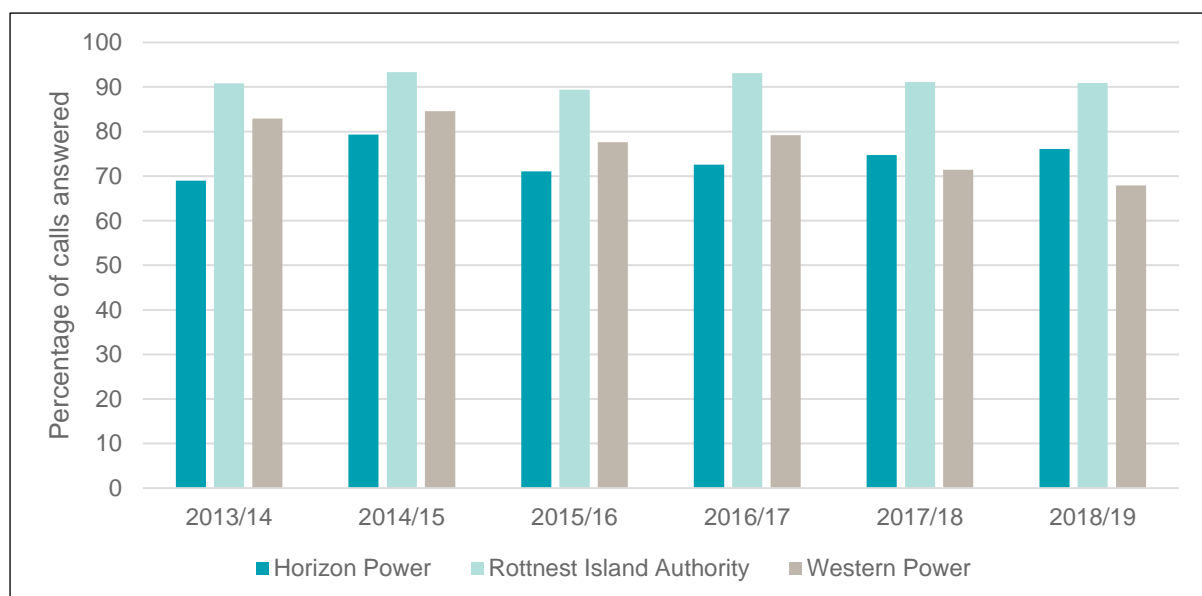
**Table 9: Number of calls to electricity distributor call centres 2014 to 2019**

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
Horizon Power	14,437	11,452	12,794	13,645	10,940	9,234
Rottnest Island Authority	4,850	5,250	1,955	814	852	33
Western Power	455,368	388,358	357,105	343,300	376,719	357,889
<b>Total</b>	<b>474,655</b>	<b>405,060</b>	<b>371,854</b>	<b>357,759</b>	<b>388,511</b>	<b>367,156</b>

The Rottnest Island Authority had a large decrease in call centre calls due to changes to the way maintenance is managed on Rottnest Island, which has reduced the number of issues reported to the call centre.

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

**Figure 20: Percentage of electricity distributor calls answered within 30 seconds 2014 to 2019**



### 5.3.2 Gas distributor call centre performance

Esperance Power Station does not operate a call centre.

The Kleenheat call centre handles calls about its retail operations and calls to other areas of its business as well as distribution.

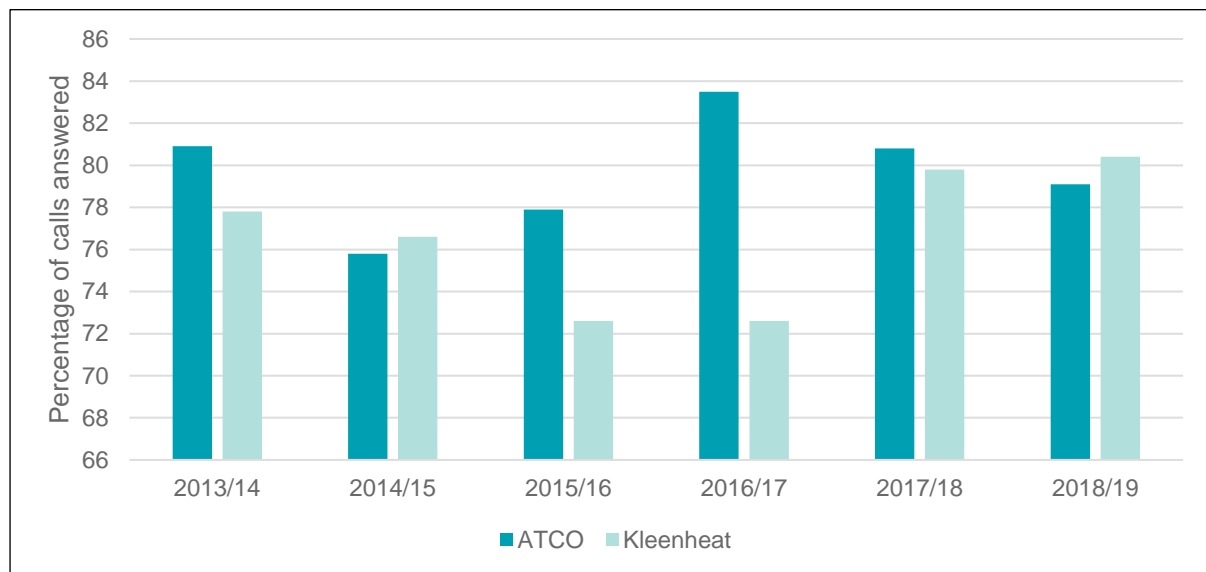
Table 10 shows the number of calls received by the ATCO and Kleenheat call centres.

**Table 10: Number of calls to gas distributor call centres 2014 to 2019**

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
ATCO	77,388	84,106	84,685	79,316	71,258	68,029
Kleenheat	235,698	233,363	222,505	285,887	310,803	289,778
<b>Total</b>	<b>313086</b>	<b>317469</b>	<b>307190</b>	<b>365203</b>	<b>382061</b>	<b>357807</b>

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 2014 to 2019**



The percentage of calls answered within 30 seconds by Kleenheat went above 80 per cent for the first time in the last six years.

## 6. Streetlight repair

### Main points

- The percentage of faulty metropolitan streetlights repaired after the benchmark of five business days increased to 17.4 per cent for Western Power and decreased to 10.9 per cent for Horizon Power in 2018/19.
- Almost 20 per cent of faulty regional streetlights were repaired after the benchmark of nine business days by both Western Power and Horizon Power.

### 6.1 Number of streetlights

Table 11 shows the number of streetlights in metropolitan and regional areas that were maintained by each distributor at 30 June 2019.

**Table 11: Number of streetlights in metropolitan and regional areas at 30 June 2014 to 2019**

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
<b>Metropolitan areas</b>						
Horizon Power	8,325	8,022	8,332	8,066	7,866	7,672
Western Power	207,146	213,526	219,734	223,721	226,973	230,188
<b>Total</b>	<b>215,471</b>	<b>221,548</b>	<b>228,066</b>	<b>231,787</b>	<b>234,839</b>	<b>237,860</b>
<b>Regional areas</b>						
Horizon Power	10,331	11,298	11,007	11,255	11,202	11,225
Rottnest Island Authority	190	190	189	189	189	189
Western Power	37,907	38,539	39,202	39,931	40,363	40,637
<b>Total</b>	<b>48,428</b>	<b>50,027</b>	<b>50,398</b>	<b>51,375</b>	<b>51,754</b>	<b>52,051</b>

Table 12 shows the number of faulty streetlights reported to each distributor.

**Table 12: Number of streetlight faults reported in metropolitan and regional areas 2014 to 2019**

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
<b>Metropolitan areas</b>						
Horizon Power	149	158	130	163	189	267
Western Power	33,596	28,805	28,518	33,308	36,510	41,889
<b>Total</b>	<b>33,745</b>	<b>28,963</b>	<b>28,648</b>	<b>33,471</b>	<b>36,699</b>	<b>42,156</b>
<b>Regional areas</b>						
Horizon Power	168	177	183	248	261	354
Rottneest Island Authority	18	112	79	22	33	43
Western Power	3,220	3,428	4,061	1,549	2,825	3,745
<b>Total</b>	<b>3,406</b>	<b>3,717</b>	<b>4,323</b>	<b>1,819</b>	<b>3,119</b>	<b>4,142</b>

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

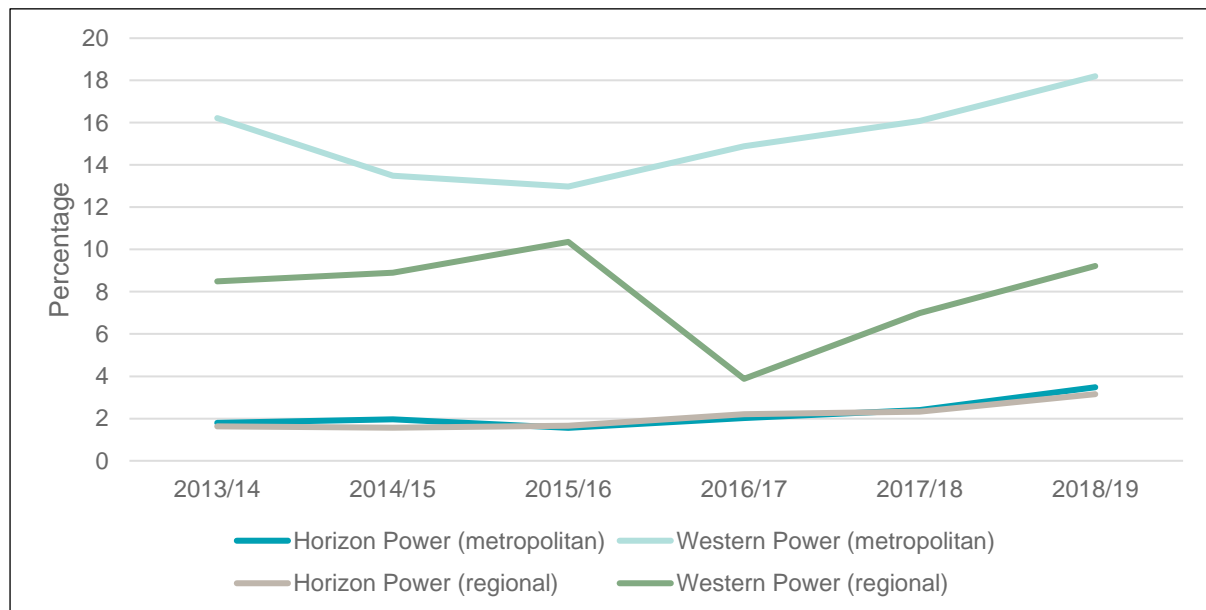
**Figure 22: Faulty streetlights by distributor and location 2014 to 2019 (%)**

Figure 23 shows the proportion of faulty metropolitan streetlights that were repaired more than the benchmark five business days after they were reported faulty.

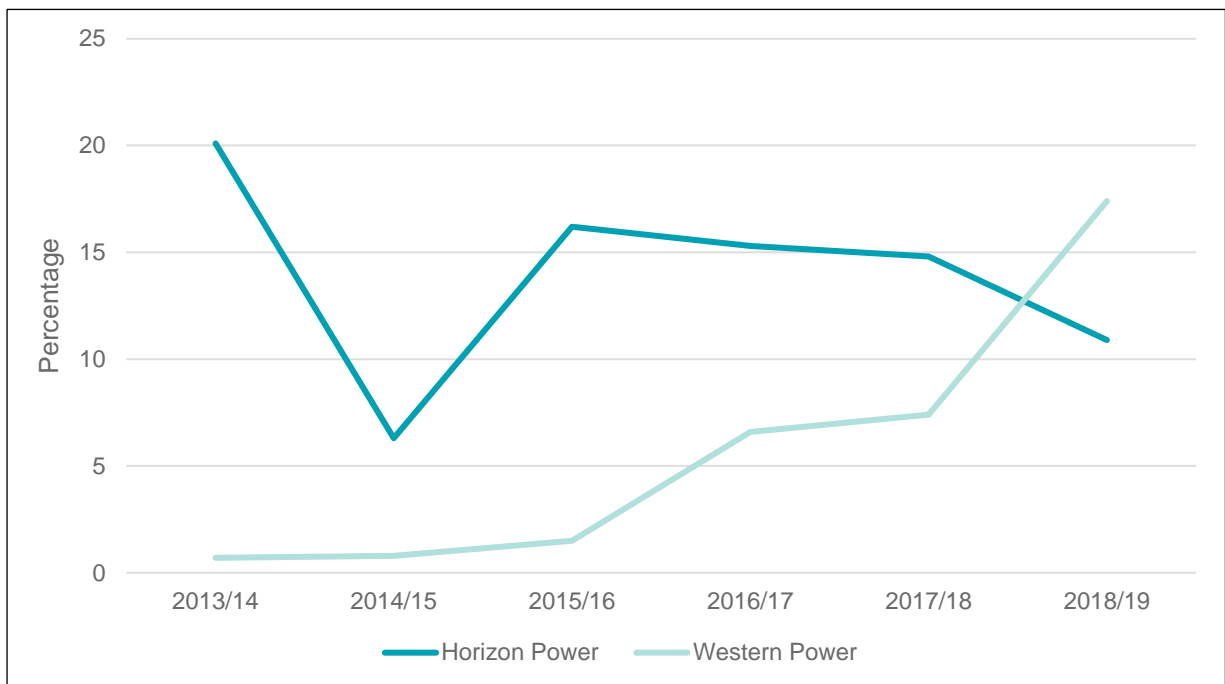
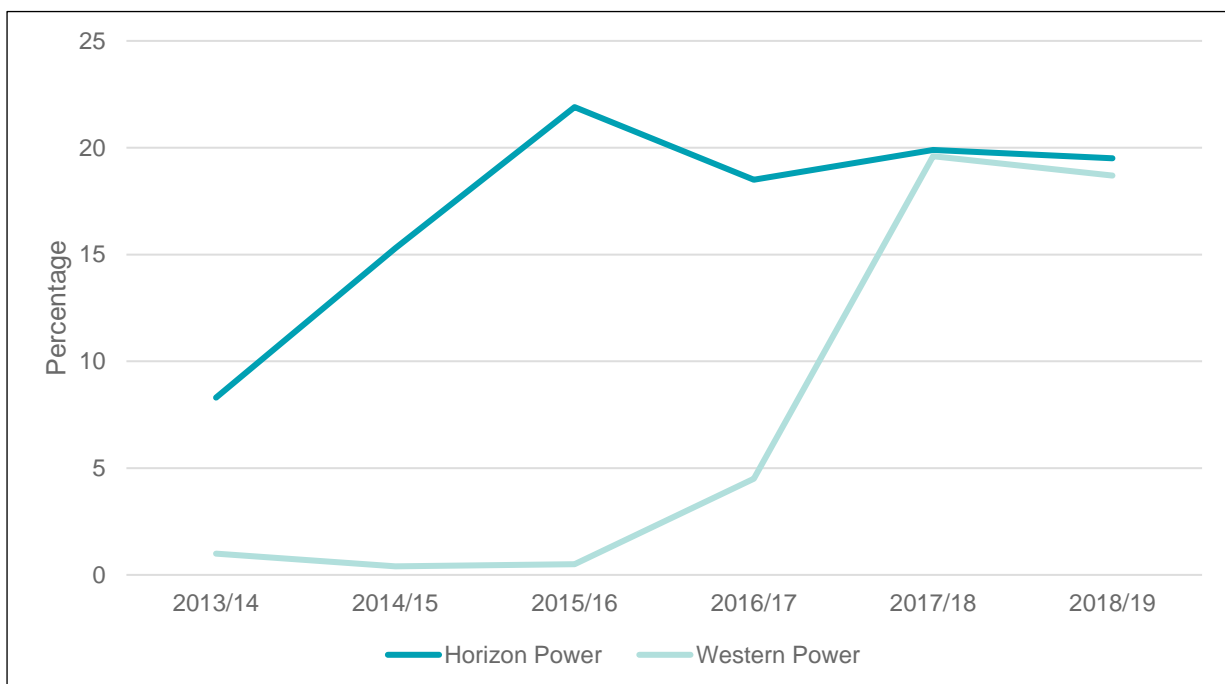
**Figure 23: Faulty metropolitan streetlights repaired after 5 business days 2014 to 2019 (%)**

Figure 24 shows the percentage of faulty regional streetlights that were repaired more than the benchmark nine business days after they were reported faulty.

**Figure 24: Faulty regional streetlights repaired after 9 business days 2014 to 2019 (%)**



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## Appendix 3 – Additional information on distribution system reliability measures

### *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) of 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.

### *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)*<sup>35</sup> describes a statistical

<sup>35</sup> IEEE 1366-2003 has been superseded by IEEE 1366-2012. The data provided by distributors in this report is based on IEEE 1366-2003.

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.<sup>36</sup>

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.<sup>37</sup> This approach allows major events to be separately studied from normal daily operation. This exposes trends in daily operation of the system that might otherwise be masked by the MEDs.<sup>38</sup>

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).<sup>39</sup> 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 13: Distribution feeder classifications (SCONRRR)**

Description			
CBD <sup>40</sup>	Urban	Short Rural	Long Rural
A feeder supplying predominantly commercial, high rise buildings, supplied by a predominantly underground distribution network 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.

<sup>36</sup> The reporting period used for this report is the year ending 30 June.

<sup>37</sup> 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.

<sup>38</sup> 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 network infrastructure beyond the control of the distributor.

<sup>39</sup> The National Electricity Market covers the ACT, New South Wales, South Australia, Queensland, Tasmania and Victoria.

<sup>40</sup> The Perth CBD area is defined as the areas supplied from the Milligan Street Zone Substation or the Hay Street Zone Substation.