

7 Asset

7.1 Water main breaks per 100 km of water main—A8

The number water main breaks per 100 km of water main (A8) is the total number of breaks, bursts, and leaks in all distribution system mains¹⁸ and excludes breaks associated with headworks and transfer mains. It provides both an indication of customer service and the condition of the network. The number of main breaks is influenced by various factors:

- soil type
- rainfall
- pipe material
- age and condition of the network.

Water main breaks per 100 km of water main data for all utilities reporting in 2016–17 is in A13, Appendix A.

7.1.1 Key findings

A summary of data for the water main breaks, by utility group, is shown in Table 7.1. Despite reductions in the median number of water main breaks for the Major and Large utility groups, the national median remained steady—down 2 per cent from 2016–17 to 12.4 breaks per 100 km.

Figure 7.1, a box-and-whisker plot of water main breaks data for all utilities reporting A8 in a given year from 2006–07 to 2016–17, highlights that this result is part of a longer-term downward trend in the number of water mains breaks.

Table 7.1 Overview of results: Water main breaks per 100 km of water main

Utility group	Range		No. utilities with increase/decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	47.4	4	4	10	21.4	19.6	–8
	Yarra Valley Water	Logan					
Large	33.5	3.1	3	8	17.2	13.7	–20
	Townsville	Redland City					
Medium	56.6	1.8	10	12	8.4	8.7	4
	GWMWater	Port Macquarie Hastings					
Small	48.6	2.9	14	11	11.4	11.1	–3
	Central Highlands	Livingstone					
All utility groups (national)	56.6	1.8	31	41	12.6	12.4	–2
	GWMWater	Port Macquarie Hastings					

Table note

The median for water main breaks per 100 km of water main was calculated using data from all utilities (dual and single service providers) reporting data against A8 in both 2015–16 and 2016–17.

¹⁸ Includes both potable and non-potable water mains

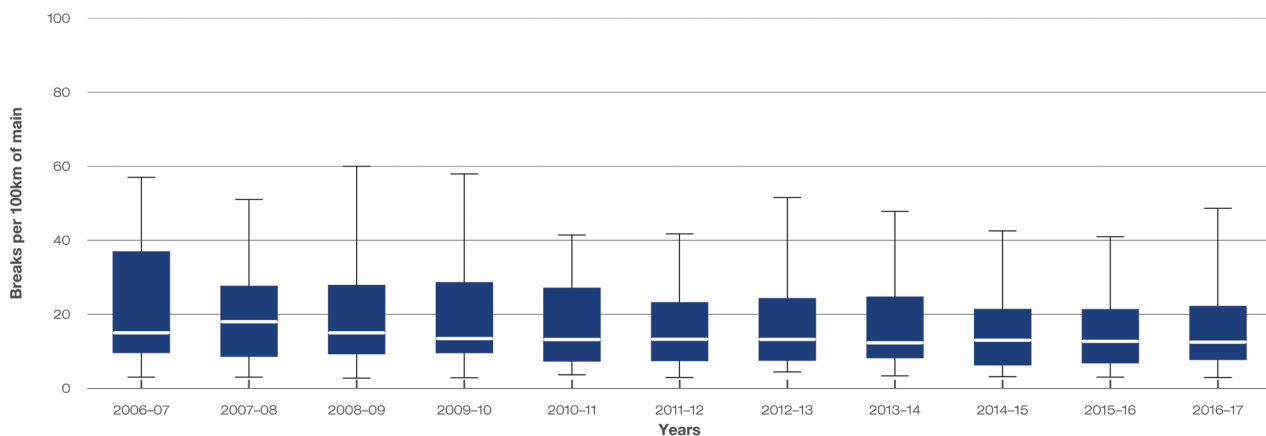


Figure 7.1 Water main breaks per 100 km of water main

7.1.2 Results and analysis—Major utility group

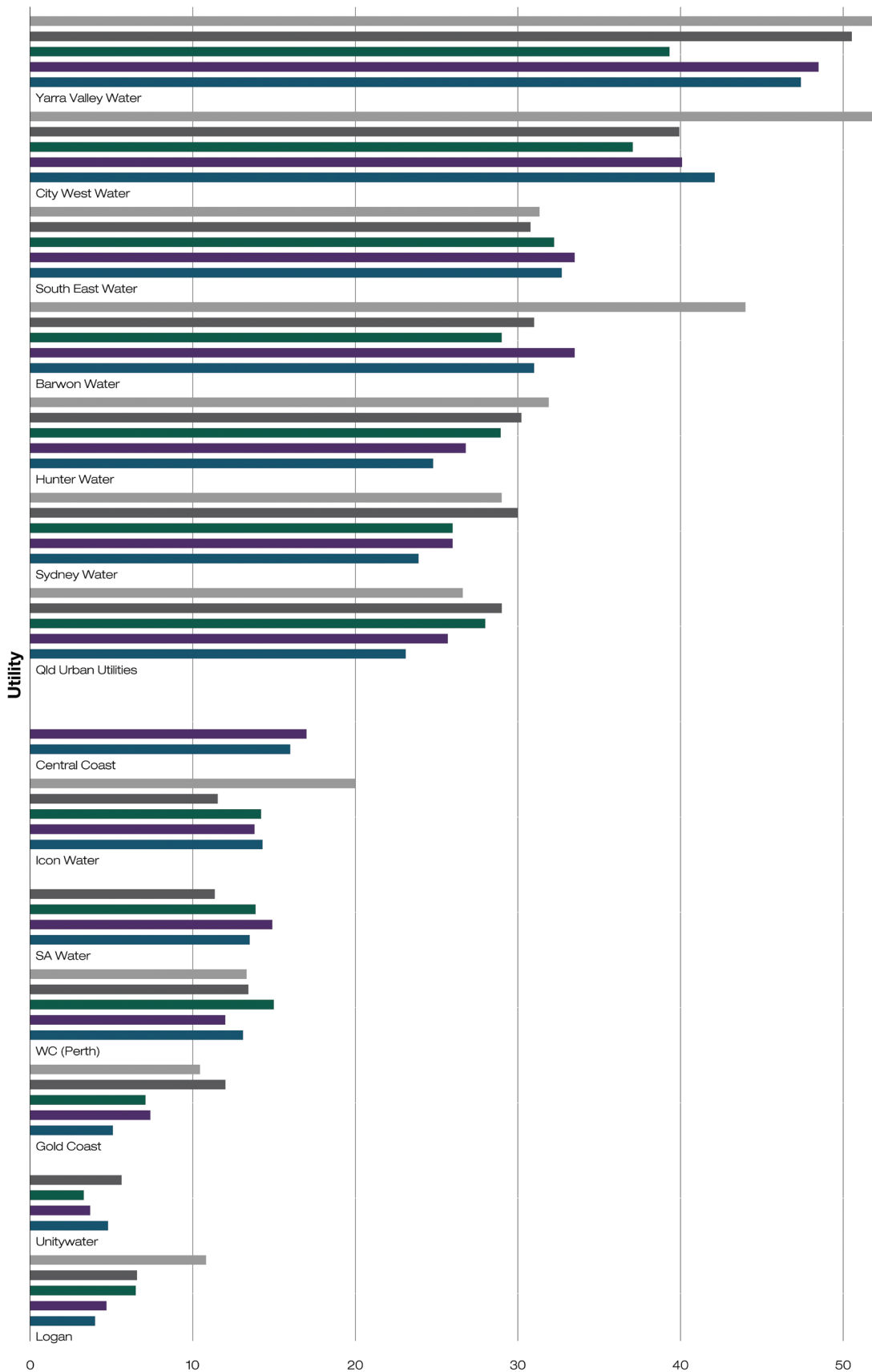
A ranked breakdown of the water main breaks for each utility in the Major utility group from 2012–13 to 2016–17 is presented in Figure 7.2. The figure highlights both the variance within the utility group, and also the broad downward trend for many utilities.

7.2 Sewerage mains breaks and chokes—A14; and property connection sewer breaks and chokes—A15

Indicator A14 reports the number of breaks and chokes per 100 km of sewerage main and A15 reports the number of property connection sewerage breaks and chokes per 1,000 properties. The indicators are presented together to provide a complete picture of sewer-system performance, as utilities have sewer networks with various configurations. For example:

- some utilities have a very long property connection (e.g. from the customer's sanitary drain to the middle of a road), while others have a very short or no property connection (i.e. the sanitary drain may connect straight to the sewer main, which runs down an easement at the back of the property)
- some utilities do not own¹⁹ or maintain the property connections and therefore do not report on them (i.e. in accordance with the definition of the indicator)
- other utilities are responsible for only a portion of property sewer connections and so only report results on those for which they are responsible.

¹⁹ For such utilities, the property owner is responsible for the property's sewer connections.



Legend

Water main breaks (no per 100 km of water main)

2012-13 2013-14 2014-15 2015-16 2016-17

Figure 7.2 Water main breaks per 100 km of water main—Major utility group

The performance of a sewerage system is influenced by the following factors:

- soil type
- pipe material
- network configuration
- age
- tree root intrusion
- management of trade waste
- volume of sewage inflows
- rainfall.

Indicators are a partial indicator of the condition of the network, and the level of customer service, and should be taken into consideration when comparing the performance of utilities against each other, using these indicators.

Sewerage mains breaks and chokes data for all utilities reporting in 2016–17 is in Table A14, Appendix A. Property connection sewer breaks and chokes data for all utilities reporting in 2016–17 is in A15, Appendix A.

7.2.1 Key findings

The national median number of sewerage mains break and chokes per 1,000 connected properties decreased 15 per cent from 2015–16, while the number of property connection breaks and chokes remained steady—despite some movement within each utility group.

A summary of the median number of sewerage mains breaks and chokes, by utility group, is shown Table 7.2 and property connection sewer breaks and chokes in Table 7.3.

Table 7.2 Overview of results: Sewerage mains breaks and chokes per 100 km of sewer main

Utility group	Range		No. utilities with increase/decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	62.8	4.3	5	9	30.2	25.9	–14
	Sydney Water	Gold Coast					
Large	56.9	2.7	3	8	9.6	11.8	23
	Toowoomba	Townsville					
Medium	110.0	1.0	11	8	16.9	18.0	7
	South Gippsland Water	Tweed					
Small	91.0	3.0	7	14	12.8	9.2	–28
	Bathurst	Gympie					
All utility groups (national)	110.0	1.0	26	39	19.3	16.5	–15
	South Gippsland Water	Tweed					

Table note

The median sewerage main breaks (per 100 km of sewer main) is calculated using data from all utilities (dual and single service providers) reporting data against A14 in both 2015–16 and 2016–17.

Table 7.3 Overview of results: Property connection sewer breaks and chokes per 1,000 properties

Utility group	Range		No. utilities with increase/decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	26.0	0.3	8	4	3.3	4.5	36
	SA Water	Sydney Water					
Large	8.9	0.8	7	4	2	2.4	20
	Coliban Water	P&W (Darwin)					
Medium	64.0	0.1	8	6	1.6	2.9	81
	South Gippsland Water	Shoalhaven					
Small	82.0	0.3	10	7	3.2	2.6	–19
	Essential Energy	Orange					
All utility groups (national)	82.0	0.1	33	21	3.0	3.0	0
	Essential Energy	Shoalhaven					

Table note

The median property connection sewer breaks and chokes (per 1,000 properties) is calculated using data from all utilities (dual and single service providers) reporting data against A15 in both 2015–16 and 2016–17.

7.2.2 Results and analysis—Major utility group

A ranked breakdown of the sewerage mains breaks and chokes for each utility from 2012–13 to 2016–17 is shown in Figure 7.3 and for property connection breaks and chokes in Figure 7.4.

Hunter Water Corporation and Sydney Water Corporation reported increases in both sewer mains (16 per cent and 8 per cent respectively) and property connection breaks and chokes (9 per cent and 50 per cent respectively). These increases accorded with the hotter dry summer experienced by the utilities—resulting in dry soil conditions which can contribute to an increase in breaks and chokes (Section 1.4—Key drivers).

Similarly, SA Water Corporation reported a 16 per cent decrease in sewer main breaks and a 19 per cent decrease in property connection breaks and chokes—consistent with the wetter than average conditions experienced.

7.3 Real losses (L/service connection/day)—A10

‘Real’ losses (A10) are leakages and overflows from potable water mains, service reservoirs, and service connections before the customer meter. This indicator excludes metering errors, unauthorised consumption,²⁰ and unbilled authorised consumption.²¹ Performance of this indicator may be influenced by the condition of mains, infrastructure and water pressure.

Real losses are estimated using a range of assumptions, including assumed errors in metered water deliveries, estimates of unmetered components, and metering of night flows, and may not be as accurate as other indicators²² when comparing utilities.

Real loss data for all utilities reporting in 2016–17 is in Table A16, Appendix A.

20 Apparent losses

21 For example water used for fire-fighting

22 For example water main breaks

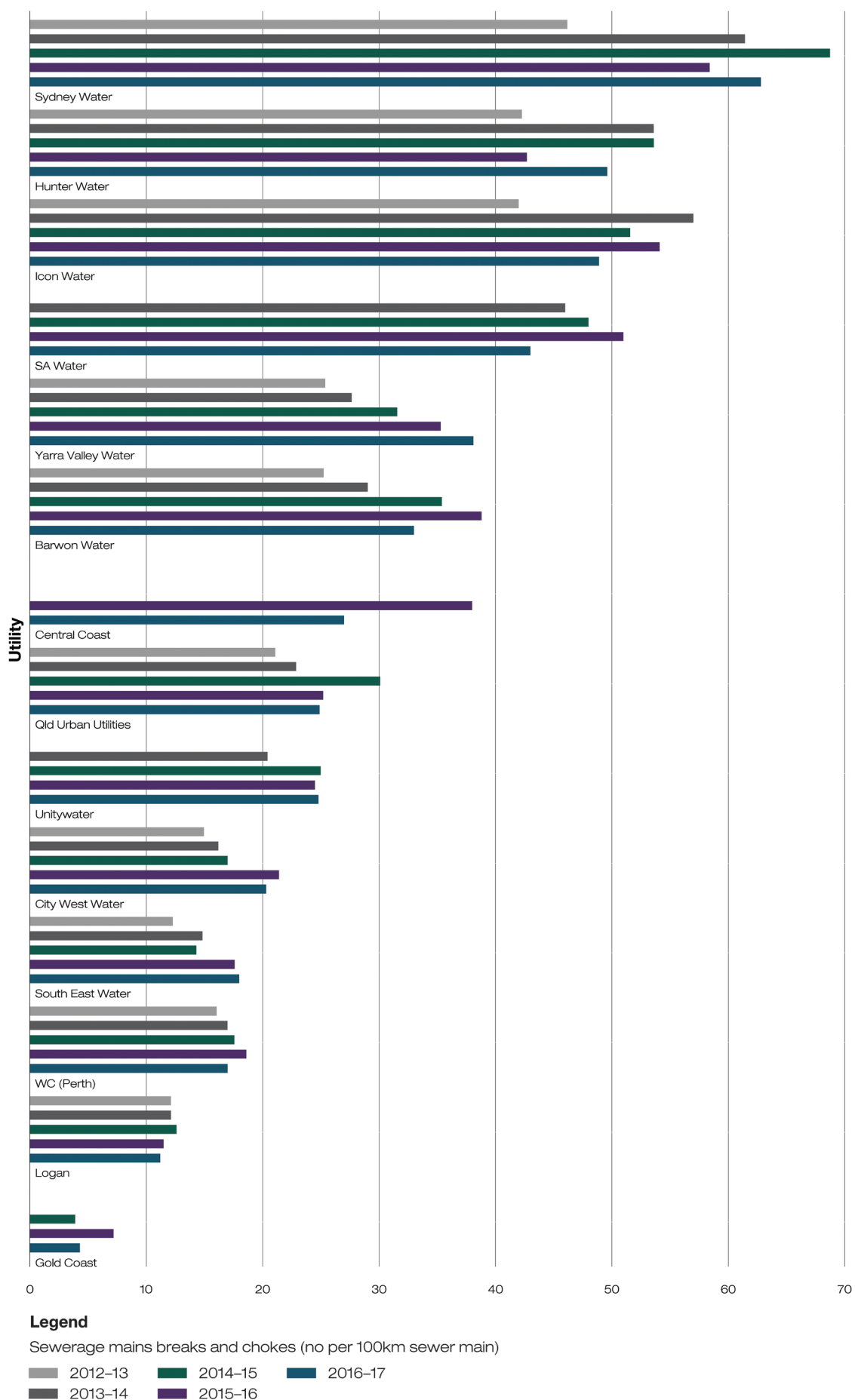
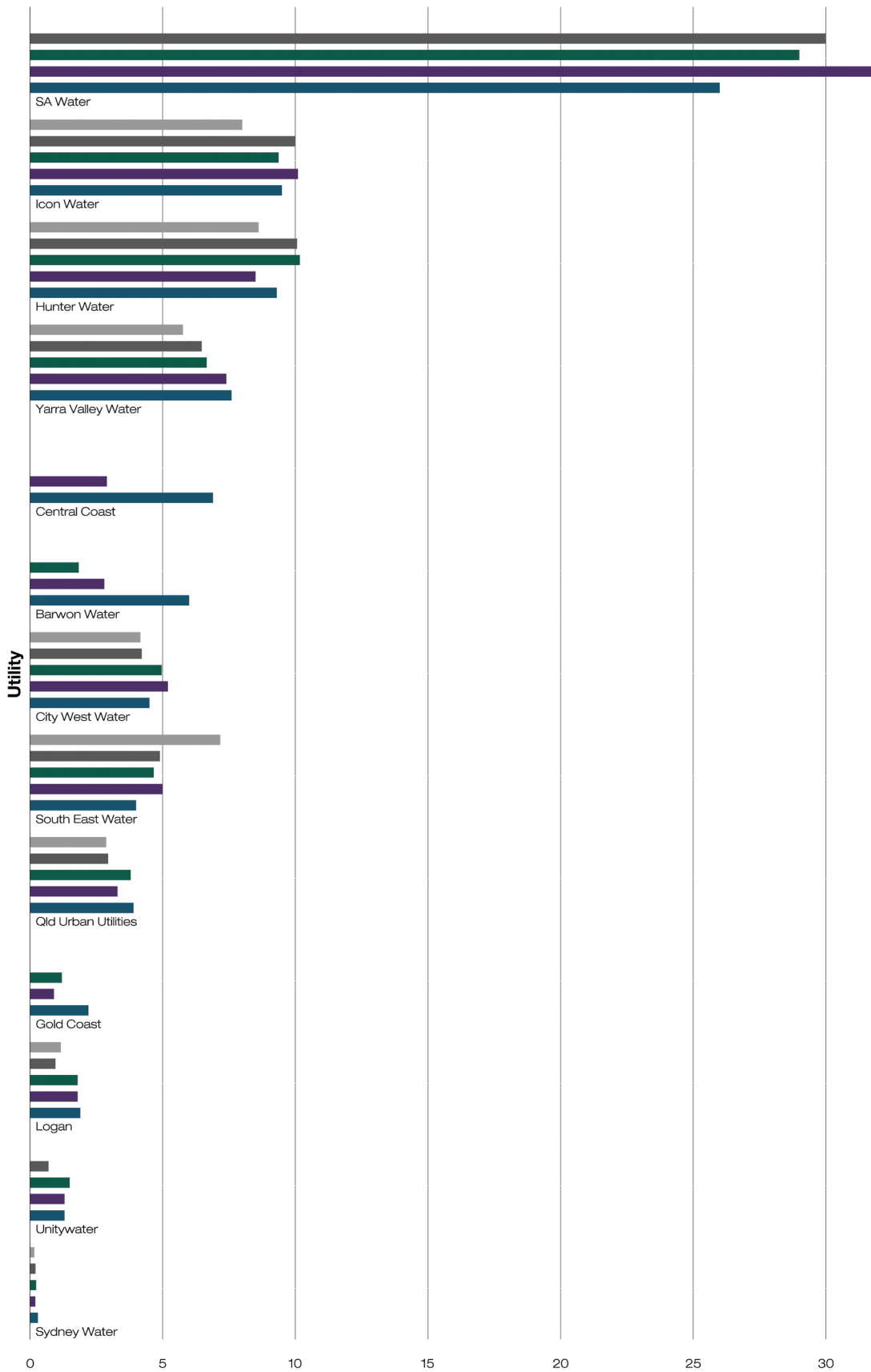


Figure 7.3 Sewerage mains breaks and chokes per 100 km of sewer main—Major utility group



Legend

Property connection sewer breaks and chokes (no per 1000 properties)

2012-13 2014-15 2016-17
 2013-14 2015-16

Figure 7.4 Property connection sewer breaks and chokes—Major utility group

7.3.1 Key findings

In 2016–17, the national median real loss increased by 8 per cent to 82 L/service connections a day. A summary of real losses is shown in Table 7.4.

Cassowary Coast Regional Council reported the highest real losses among the utilities at 464 L/service connection a day.

Table 7.4 Overview of results: Real losses (L/service connection/day)

Utility group	Range		No. utilities with increase/decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	96	34	6	8	71	73	3
	Hunter Water	Central Coast					
Large	143	8	4	7	72	59	–18
	Multiple utilities	Cairns					
Medium	293	40	8	9	78	84	8
	Gladstone	Port Macquarie Hastings					
Small	464	38	12	8	95	99	3
	Cassowary Coast	Lismore					
All utility groups (national)	464	8	30	32	76	82	8
	Cassowary Coast	Cairns					

Table note

The median real losses (L/service connection/day) are calculated using data from all utilities (dual and single service providers) reporting data against A10 in both 2015–16 and 2016–17.

Figure 7.5 shows a box-and-whisker plot of the real losses for all utilities reporting A10 for a given reporting year from 2006–07 to 2016–17.

The figure highlights the consistency of the estimated loss values—this is in part an artefact of the broad use of consistent assumptions in the estimation of the losses.

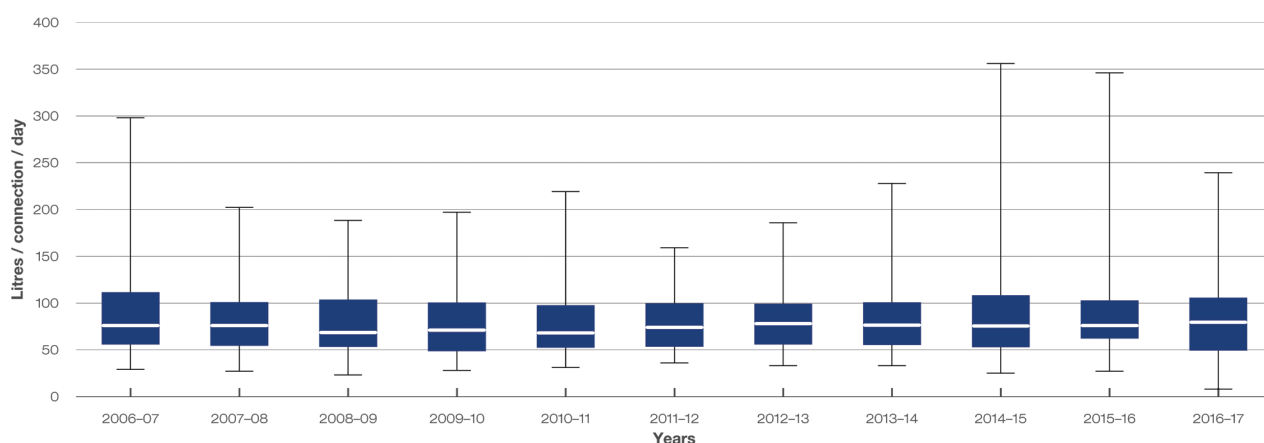


Figure 7.5 Real losses (L/service connection/day)

7.3.2 Results and analysis—Major utility group

Figure 7.6 presents a ranked breakdown of the real losses per annum for each utility from 2012–13 to 2016–17.

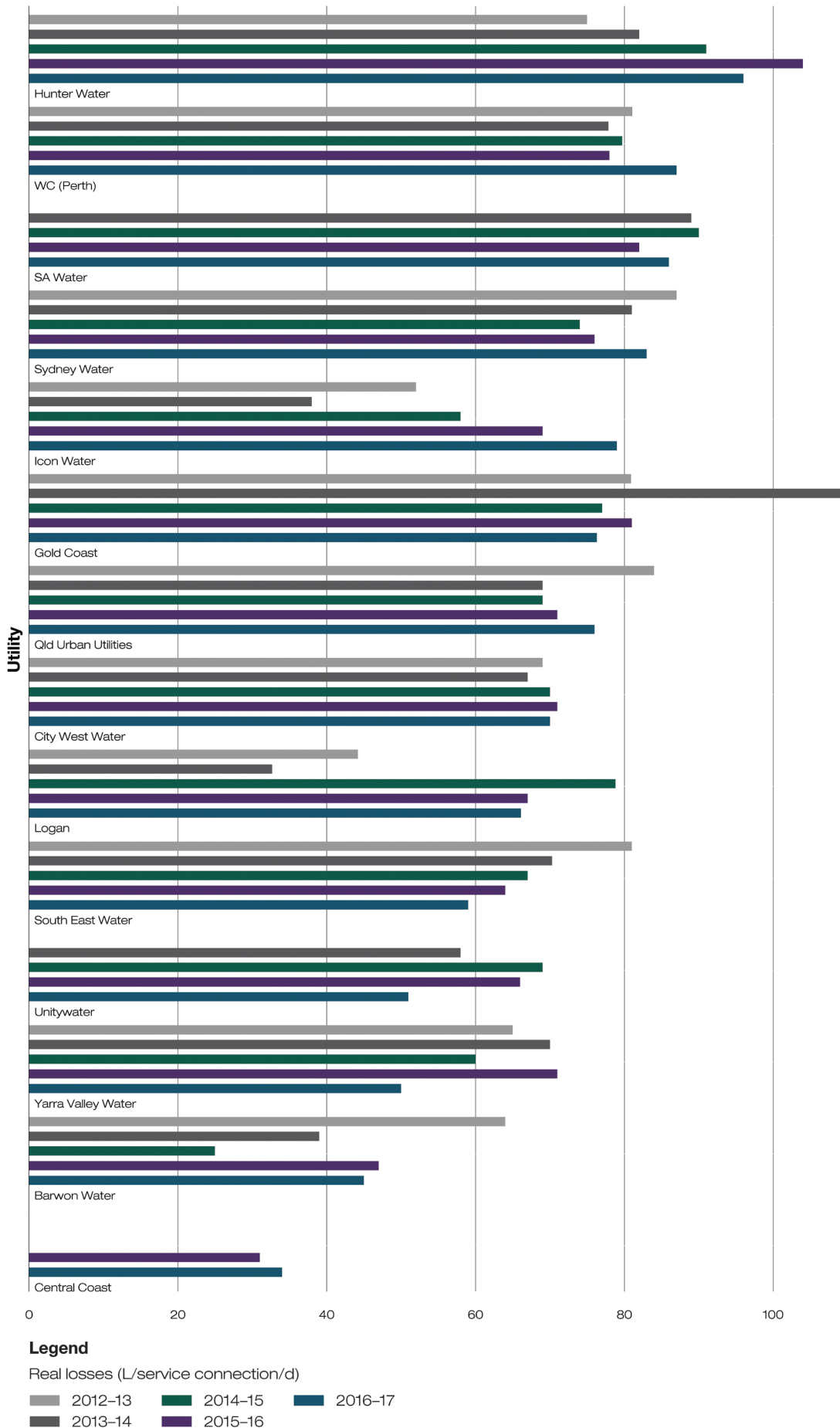


Figure 7.6 Real losses (L/service connection/day) – Major utility group