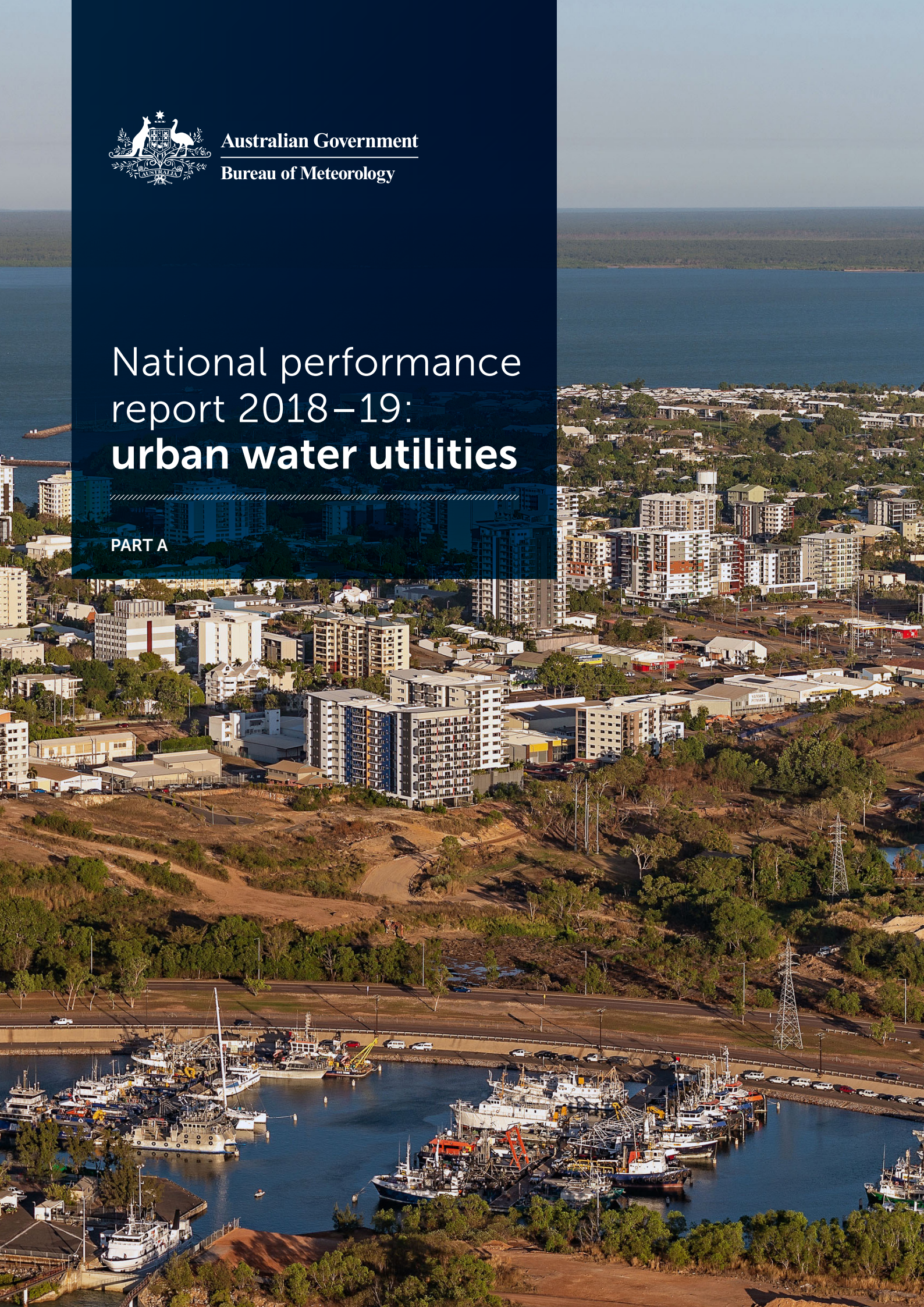




Australian Government  
Bureau of Meteorology

# National performance report 2018–19: **urban water utilities**

PART A





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## Disclaimer

This report has been produced by the Bureau of Meteorology; the Water Services Association of Australia; and the parties to the National Water Initiative (NWI), being the Australian Government and the governments of New South Wales, Victoria, Queensland, South Australia, the Australian Capital Territory, the Northern Territory, Tasmania, and Western Australia (the contributors). These contributors accept no responsibility for the completeness or accuracy of any of the information contained in this report and make no representations about its suitability for any particular purpose. Users of this report should make their own judgements about those matters. To the extent permitted by law, the contributors exclude all liability for loss or damage arising from the use of or reliance on the information contained in this report, whether or not caused by any negligence or wrongdoing on the part of the contributors or their agents.

**Note:** The 2019 Urban NPR was updated on 16 March 2020 to correct an error in the Executive Summary (page 9). Residential bills for Western Australian utilities increased by 3.9 per cent from 2017–18, not 7.2 per cent as previously reported.



Australian Government  
Bureau of Meteorology

# National performance report 2018–19: urban water utilities

## PART A



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# A guide to this report

## Key terms and abbreviations

The following explanatory notes are provided to assist you to read and interpret the report.

Utilities which form part of a city, shire or regional council, or a similar local government entity, are reported under the town or city name within the tables and charts in the report. For example, Dubbo Regional Council is referred to as 'Dubbo' in tables and charts throughout the report.

In addition, several utilities are represented by shorter names to aid presentation in charts and tables:

- Aqwest–Bunbury Water Corporation (W) = Aqwest–Bunbury (W);
- Busselton Water (W) = Busselton (W);
- City of Kalgoorlie–Boulder (S) = Kal–Boulder (S);
- Queanbeyan–Palerang Regional Council = Queanbeyan; and
- Queensland Bulk Water Supply Authority = Seqwater.

Abbreviations used in utility names include:

- P&W = Power and Water; and
- WC = Water Corporation.

The majority of utilities in this report provide both water and sewerage services. Where a utility provides only a single service (for example, only water supply), it is denoted by the use of a code in brackets after the utility's name. The codes are:

- W = water supply only; and
- S = sewerage only.

## Bulk water authorities

Bulk water authorities operate in a number of jurisdictions across Australia and provide wholesale water and wastewater services. These authorities do not have direct relationships with retail customers. For example, Melbourne Water supplies bulk water and wastewater services to the eight retail utilities in and surrounding the Melbourne metropolitan region.<sup>1</sup>

## Utility groups

For the purpose of this report, the contributing utilities are grouped by number of connected properties. The utility groups used are:

- Major—100,000+ connected properties;
- Large—50,000–100,000 connected properties;
- Medium—20,000–50,000 connected properties; and
- Small—10,000–20,000 connected properties.

Bulk water authorities are grouped separately and are not included in the analysis unless explicitly stated.

<sup>1</sup> City West Water, South East Water, Yarra Valley Water, Western Water, Gippsland Water, Barwon Water, South Gippsland Water, and Westernport Water

## Reporting year

References to the 'reporting year' or '2018–19' refer to the reporting year between 1 July 2018 and 30 June 2019 inclusive.

## Missing or unavailable data

Missing or unavailable data are denoted in a table by a blank cell.

## Interpreting 'overview of results' tables

Example Figure 1 shows how to interpret the 'Overview of results' table provided for each indicator.

Size group	Range		Number of utilities with increase/decrease from previous year		Median or Total		Change from previous year (%)
	High	Low	Increase	Decrease	Previous year	Current year	
Major	249	140	10	1	158	162	3
	WC (Perth)	Logan					
Large	454	130	9	1	164	181	10
	P&W (Darwin)	Toowoomba					
Medium	479	143	17	1	175	201	15
	Lower Murray Water	MidCoast Water					
Small	450	80	19	5	174	179	3
	Multiple utilities	Ballina					
<b>All size groups</b>	<b>479</b>	<b>80</b>	<b>55</b>	<b>8</b>	<b>166</b>	<b>177</b>	<b>7</b>
	<b>Lower Murray Water</b>	<b>Ballina</b>					

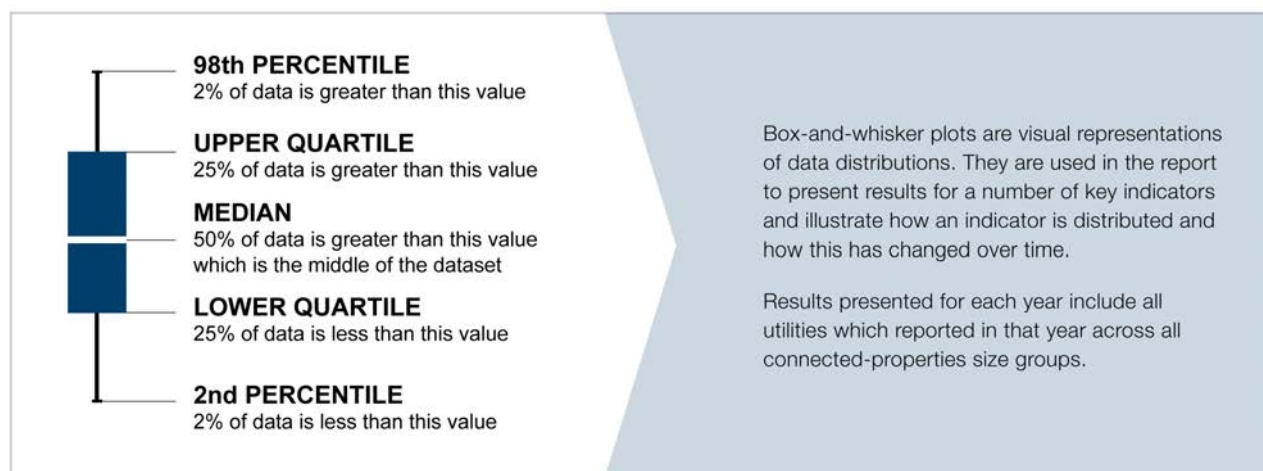
- 1 The range shows the utilities with the highest and lowest result in the current reporting year for each utility group.
- 2 These columns show the number of utilities reporting an increase or decrease from the previous year's results for each utility group. Utilities who did not report in both years are not included in this column.
- 3
  - The median value is the middle number in the range of results. For example, if five utilities reported for this indicator and their results are 190, 195, 206, 207, and 210, the median is 206 as it is the middle number. For indicators that are not represented as an 'average' for the utility (for example, average duration of water interruptions), or are divided by the number of properties (per property), the summary tables presents the sum (or total) of the results.
  - The total is the sum of all results.
  - Utilities who did not report in both years are not included in this column.
- 4 This column shows the percentage change between the current and previous years and is rounded to the nearest integer.
- 5 'Multiple utilities' is used when more than one utility recorded the same value.

Example Figure 1 How to interpret an 'Overview of results' table.



## Interpreting box-and-whisker plots

The report utilises box-and-whisker plots to show trends in the annual distribution of key indicators as shown in Example Figure 2.



Example Figure 2 How to interpret a box-and-whisker plot.

## Interpreting data and commentary

When interpreting data and commentary in the report, it is important to consider:

- The indicator codes are noted in the titles of each section (for example, W12, F3, P7) and can be cross-referenced with the *National urban water utility performance reporting framework: indicators and definitions handbook, January 2018*. The median is the preferred metric for the reporting dataset, as outlier results can affect the average, which can skew results towards the outliers.
- The median is the value at which 50 per cent of utilities fall above and 50 per cent fall below that point. Where average results are presented in addition to the median, they are to be interpreted together with the full dataset.
- Many factors can influence the performance of a utility, and individual performance indicators need to be interpreted in context. A low ranking for one indicator may not accurately reflect the overall performance of a utility. For example, a utility might have a low operating cost per property, but also poor drinking water quality and environmental performance, and a high level of complaints.
- In discussions of indicators the 'normaliser' is often omitted to improve the flow of the commentary about indicators. For example, in the discussion of results for water main breaks per 100 km of water main, the commentary refers to a utility's 'water main breaks'. In this case, it is not the absolute number of water main breaks, rather, the number of breaks per 100 km from the water main.
- Single-service utilities are only included in the analysis of an indicator when a comparison can be made on a like-for-like basis with utilities that provide both water and sewerage services. For example, the overview tables for water and sewerage operating expenditure per connected property and for typical residential bills do not include single-service providers, but the overview tables for sewer overflows per 100 km of sewer main include all utilities that provide sewerage services.
- Financial time series information is given in real 2018–19 dollars; the impact of inflation is removed to ensure that years can be compared on a like-for-like basis. Consumer price index (CPI) figures can be found in Appendix E (CPI Indexation).
- The percentage (%) change is calculated from 2017–18 reporting year to 2018–19 with figures rounded to the nearest integer, except in cases where additional precision is required.



# Executive summary

The *National performance report 2018–19: urban water utilities* (2019 Urban NPR) compares the performance of 80 utilities and councils (utilities) and five bulk water authorities providing urban water services to over 23 million people across Australia. The 2019 Urban NPR is published by the Bureau of Meteorology (the Bureau) with information provided by utilities across Australia's States and Territories. The report is the fourteenth in the series, and the sixth to be produced by the Bureau.

Part A of the report provides commentary and analysis for key indicators. Part B of the report contains data for the full set of 166 indicators reported on by utilities and bulk water authorities for all reporting years.

## Urban water use steady after another warm and dry year

Rainfall during 2018–19 was below average or very much below average for most of Australia, except for northern Queensland. This followed similarly dry conditions for southeastern Australia during 2017–18. The 2018–19 year also saw record high or very-much-above-average temperatures for most of Australia, with the 2018–19 summer being the warmest on record. Given the continued warm and dry conditions in 2018–19, water use in major urban centres was very similar to 2017–18.

## Increased production of desalination, except for Perth

Almost all urban centres that have desalination plants increased the volume of supply compared to 2017–18. This was in response to lower water availability. The exception was Perth, where the volume sourced from desalination decreased by 40 per cent compared to the previous year. Consecutive years of high flows into Perth's storages has meant surface water could be used as a major source of supply in 2018–19. For the first time in several years, Perth's desalination plants were not required to run at near full capacity.

## Typical water bills steady

For a third consecutive year, residential bills have remained steady with a national increase of 1 per cent since 2017–18 despite the country being the driest since 1969–70 and having the fifth driest year on record. There was variation between the States and Territories with Western Australian utilities reporting an increase of 3.9 per cent from 2017–18 and the Australian Capital Territory reporting a decrease of 4.0 per cent.

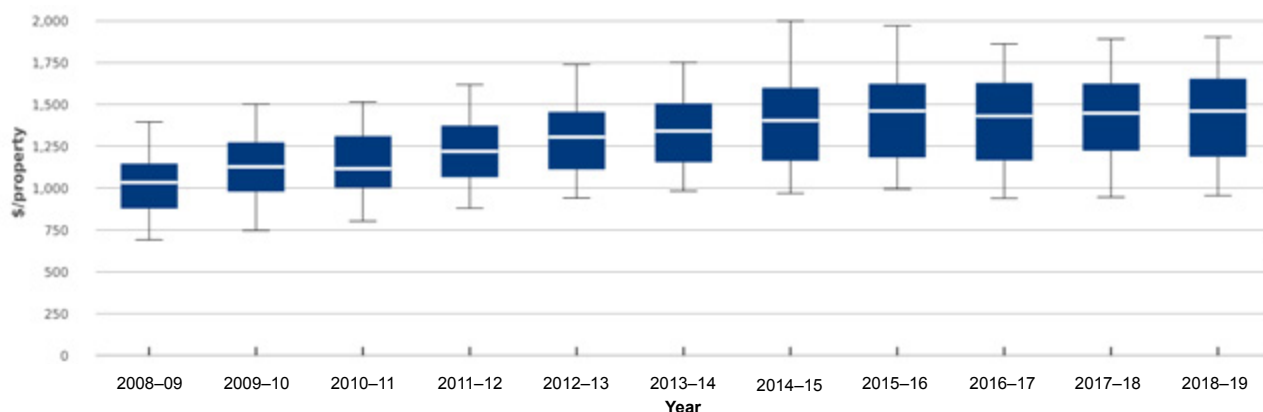


Figure 1 Typical residential bill: water supply and sewerage (\$), 2008–09 to 2018–19.

## Increased capital expenditure on sewerage offsets a decrease in expenditure in the water supply system

In real terms, total capital expenditure on water supply and sewerage services by utilities increased by 5 per cent (\$187.8 million) from 2017–18. This was mainly driven by investments made by the Major water utilities. On a per property basis, all utility groups increased expenditure on the sewerage network. These increases have, however, been partly offset by the decreases the utility groups (except the Major utility group) have made in capital expenditure on water networks.

# 1 Introduction

## 1.1 Context and overview

This *National performance report 2018–19: urban water utilities* (2019 Urban NPR) supports the commitments made by States and Territories under the National Water Initiative (NWI) to report publicly and independently on the performance of water utilities.<sup>2</sup>

The 2019 Urban NPR compares the performance of 80 utilities and councils (utilities) and five bulk water authorities providing urban water and sewerage services to over 23 million people across Australia. It is produced by the Bureau of Meteorology (the Bureau), in conjunction with State and Territory governments and the Water Services Association of Australia.

Part A of this report provides commentary and analysis for key indicators that apply to retail and distribution utilities (the major urban centre analysis in Chapter 2 includes performance data for bulk water suppliers). Part B of this report contains data for the full set of 166 indicators that are reported on by urban water utilities and bulk water authorities for all reporting years.

The analysis and commentary provide a context for each indicator, discuss changes in reporting methodologies, and highlight trends within and/or between different utility groups. The utilities are grouped according to the number of properties they are connected to, as explained in ‘A guide to this report’.

The commentary and analysis in this 2019 Urban NPR are not intended to be a comprehensive explanation of every reported indicator. They present some of the more apparent trends or differences between years and utilities. Most of the information is sourced from publicly available sources, such as annual reports, regulatory decisions, and utility websites.

## 1.2 Reporting

The 85 utilities contributing data to the 2019 Urban NPR (including five bulk water authorities) are listed in Appendix C. A summary of utility type by jurisdiction is shown in Table 1.1.

Seventy-one of the 85 utilities included in this report provide both reticulated water supply and sewerage services. The remaining utilities provide only water supply or sewerage services. In summary, the report includes data for:

- 71 utilities providing water supply and sewerage services;
- five utilities providing only water supply services;
- four utilities providing only sewerage services; and
- five bulk water authorities.

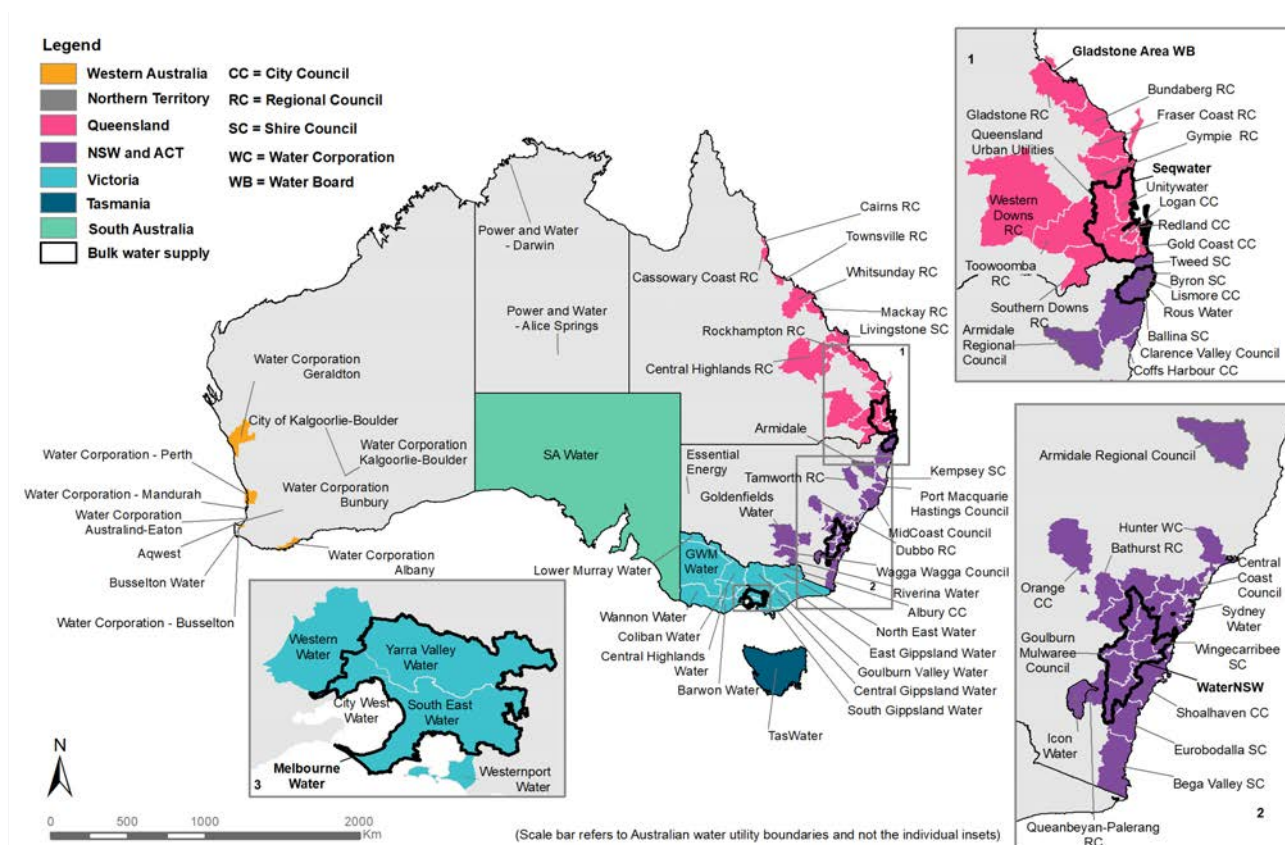
<sup>2</sup> National Water Initiative Clauses 75–76

**Table 1.1 Utilities reporting in the 2019 Urban NPR by size group and jurisdiction.**

Jurisdiction	Bulk	Major	Large	Medium	Small	Total
Australian Capital Territory		1				1
New South Wales	2	3		12	13	30
Northern Territory			1		1	2
Queensland	2	4	4	5	7	22
South Australia		1				1
Tasmania		1				1
Victoria	1	4	5	5	2	17
Western Australia		1		1	9	11
<b>Total</b>	<b>5</b>	<b>15</b>	<b>10</b>	<b>23</b>	<b>32</b>	<b>85</b>

### 1.3 Locations of utilities

The administrative boundaries of all utilities reporting data for the 2019 Urban NPR are shown in Figure 1.1. Further details about the utilities are available from the relevant utility websites.



**Figure 1.1 The administrative boundaries of all utilities reporting data for 2018–19.**



## 1.4 Key drivers

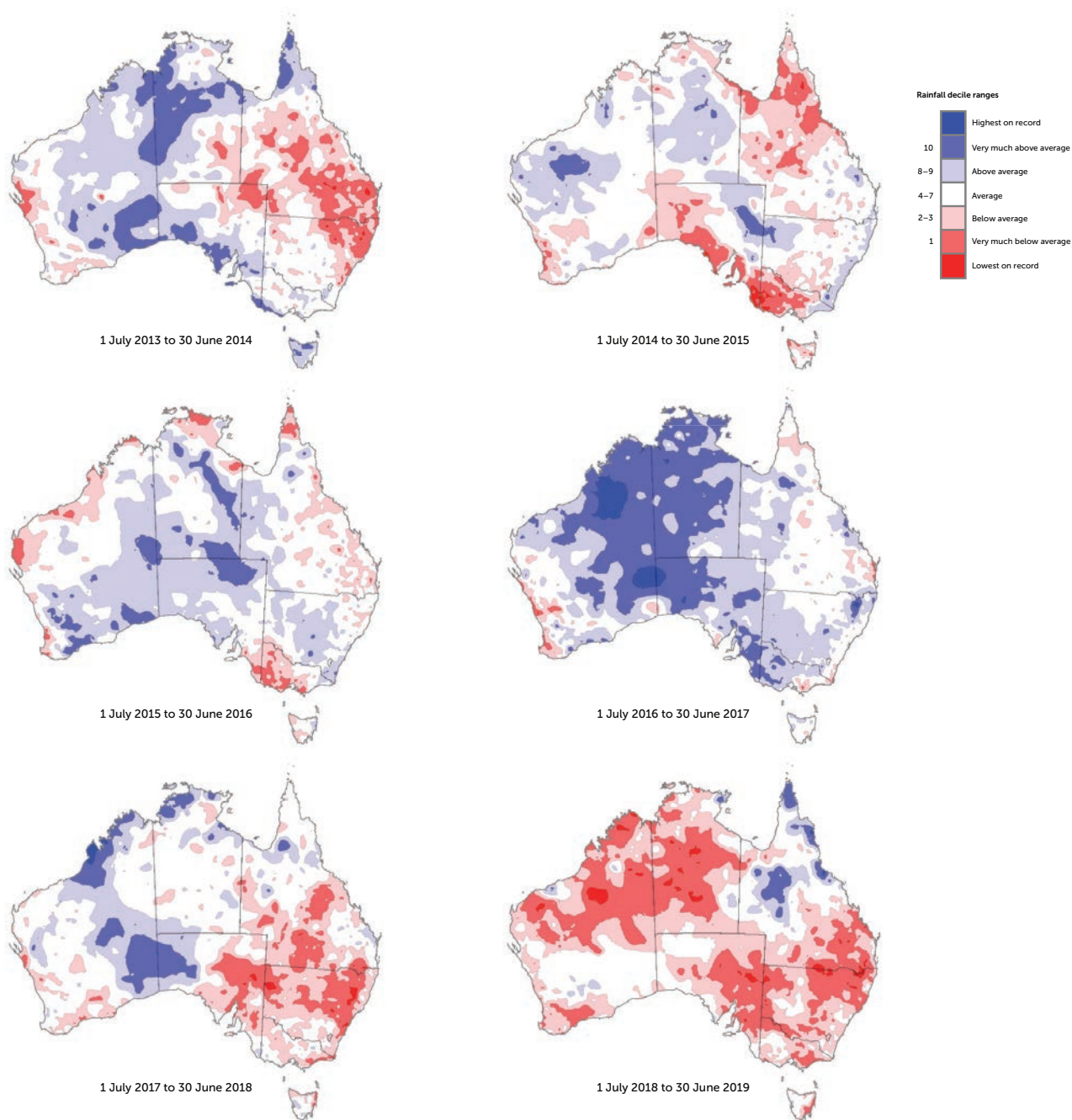
Key drivers of water utility performance presented in the 2019 Urban NPR include rainfall, temperature, utility size, and sources of water.

Other factors—network density, soil types, the age and condition of infrastructure, and government policy and regulation—also affect performance but are not discussed.

### 1.4.1 Rainfall

Rainfall can affect utility performance in many ways.

- Significant droughts with prolonged periods of low rainfall can stress urban water supply systems. Depending on the severity of the drought, security of the system and availability of climate-resilient water sources (for example, desalinated or recycled water), the utility may impose water restrictions to conserve water and assure continuity of the water supply.
- Wet or dry conditions can affect demand for outdoor watering, resulting in a change in the volume of urban water and recycled water supplied to residents, councils, and parklands used for outdoor leisure activities such as golf courses (Water resource indicators W12, W26). Changes in water consumption affect the revenue collected by utilities, their profitability, and the strength of their water-usage pricing signal.
- Wet or dry conditions can affect decisions about the water sources used (Water resource indicators W1–W7). Persistent dry conditions can trigger thresholds for production from desalination plants and the use of particular groundwater and recycled water sources, which affect the operating costs of utilities (Finance indicators F11–F13).
- Increased rainfall can result in infiltration of water into sewer systems, which can increase the volume of sewage to be pumped and treated, increasing the operating costs of utilities (Finance indicators F12, F13) and also greenhouse gas emissions from sewage (Environment indicator E12). Additional rainfall and sewer infiltration can also result in additional sewer overflows—especially during heavy rainfall.
- Extreme wet or dry conditions can cause expansion and shrinking of reactive clay soils in some parts of Australia. This can result in ground movement causing an increase in water or sewer main breaks (Asset indicators A8, A14)—especially when conditions fluctuate rapidly from wet to dry or dry to wet. In periods of more consistent rainfall, the soils maintain more even moisture levels, resulting in less ground movement.



**Figure 1.2 Australian 12-month rainfall deciles from 2013–14 to 2018–19.**

Decile 1 is the group with the lowest 10 per cent of records; decile 2 the next lowest 10 per cent, and so on, up to decile 10, the highest 10 per cent of records.

Figure 1.2 shows most of Australia, except for northern Queensland, experienced below to very-much-below-average rainfall in 2018–19. This followed a similarly dry year in 2017–18 for southeastern Australia. More details on rainfall received in each season during 2018–19 are provided on page 14.

## Winter 2018

Winter rainfall was the fourteenth-driest on record, with an average national rainfall of 42.9 mm and most Australian States and Territories recording below-average rainfall. The exception was Tasmania which recorded 23 per cent above its mean winter rainfall. The dry winter came on the back of long-term rainfall deficiencies for large parts of eastern Australia. Winter rain-bearing systems were weaker and less frequent than usual, and high-pressure systems were dominant over southern Australia for several months. This led to clear skies, warm days and very little rainfall across much of eastern Australia.

Tasmania, the only State to receive above-average rainfall, experienced westerly winds and cold fronts which dominated during July and August.

The most notable rainfall event was towards the end of winter when a complex area of low pressure moved across drought-affected areas of inland Queensland and New South Wales, producing moderate falls over southern Queensland and parts of northern and central New South Wales. These rainfall events slightly eased rainfall deficiencies in these areas.

## Spring 2018

The spring rainfall (68.5 mm) was near average for Australia. September was exceptionally dry for Australia; the driest September on record. October and November received slightly more than average rainfall for the nation overall. However, rainfall for individual States and Territories varied greatly over the season: Victoria and Tasmania experienced below-average rainfall, the ninth and eighth lowest on record, respectively; South Australia was average; while Western Australia and the Northern Territory experienced above-average rainfall. Queensland and New South Wales also experienced below-average rainfall.

## Summer 2018–19

The average national rainfall for summer was 142.7 mm, the seventh lowest on record and lowest since 1982–83, despite very heavy rain in parts of northern Queensland in late January and early February 2019, and storm activity which brought rain to Sydney, Melbourne and Canberra in November and December 2018.

The Northern Territory, Western Australia, and New South Wales recorded very low rainfall. The Northern Territory was fourth lowest on record, Western Australia fifth lowest on record and lowest since 2004–05, and New South Wales tenth lowest on record and lowest since 1984–85.

## Autumn 2019

The average national rainfall for autumn was 94.3 mm, 22 per cent below the long-term average.

All States and Territories experienced below-average rainfall except for Queensland, which received rain from two tropical cyclones in March.

## Winter 2019

Rainfall for winter was below to very much below average for most of Australia, with the exception of western Tasmania, parts of southern Victoria and an area of central Queensland which were above average. Nationally, it was the ninth-lowest winter rainfall on record (36.4 mm) and the lowest since 2002.

### 1.4.2 Temperature

There are many relationships between temperature and utility performance.

- Temperature can influence demand, particularly residential and non-residential outdoor demand. Prolonged periods of above-average temperatures can result in increased potable and recycled water (Water resource indicators W12, W26, W27) supply to residents, councils, and parklands used for outdoor leisure activities such as golf courses. Changes in water consumption affect the revenue collected by water utilities, their profitability (Finance indicators F3, F24), and the strength of their water-usage pricing signal (Finance indicator F4).



- Hot weather can increase the risk of bushfires, resulting in resources being deployed to protect water supply catchments and mitigate the impacts of a bushfire. Emergency deployments can affect operating expenditure (Finance indicators F11–F13). When responding to a bushfire, temporary water restrictions may be put in place to ensure the availability of supply and to meet firefighting requirements during extreme fire weather. These restrictions can affect the volume of water supplied by a utility and its operating cost and revenue. Poor water quality in a burnt catchment can affect water available for supply.
- Extended periods of heat or cold can affect the quality of water sources and supply, and thus decisions about water sources used (Water resource indicators W1–W7) and the level of the treatment required. For example, a heatwave can contribute to the decline in dissolved oxygen levels in a waterbody and can trigger the need to supply water from an alternative source, or increase water treatment, which affects the operating costs of utilities (Finance indicators F11–F13).
- Changes in temperature can affect the quality of treated water. Biological processes are particularly sensitive to extremes of heat or cold and rapid fluctuations in temperature. These events can have consequences for the quality of water supplied (Health indicators H1–H5) and the need for treatment, which affects the operational costs of a utility (Finance indicators F11–F13).
- Extended hot conditions cause dry soil conditions. Consequently, many trees will seek out moisture and their roots can enter the sewer system, causing blockages and breaks (Asset indicators A14, A15), as well as increasing the number of water main breaks (Asset indicator A8).

The 2018–19 year saw record high or very-much-above-average temperatures for most of Australia (Figure 1.3). More details on temperatures experienced in each season during 2018–19 are provided below.

## Winter 2018

Very warm days produced warm mean temperatures for winter 2018 for Australia. All regions observed above-average mean temperatures, with those experienced in the Northern Territory, South Australia, Queensland and New South Wales falling within their ten warmest winters on record. For Australia as a whole, it was the fifth-warmest winter on record.

Daytime maximum temperatures for winter were above average for all Australian States and Territories, while mean minimum temperatures were below average except for Tasmania.

July was an exceptional month with mean maxima very much warmer than average across nearly all the mainland. The national mean maximum temperature was the second warmest on record, while mean maxima for all mainland States and Territories fell within their warmest six records for July.

## Spring 2018

Spring 2018 was warm for Australia: the ninth-warmest spring on record nationally, third warmest for Queensland, seventh warmest for the Northern Territory, and equal eighth warmest for Tasmania. October was an exceptionally warm month across nearly all of the country, and Australia's fourth-warmest October on record. September and November daytime temperatures were also very warm across the tropics.

Nights were also warm for spring across most of the country. Queensland, New South Wales and the Northern Territory all experienced mean minima in their top ten warmest for spring. Very-much-above-average overnight temperatures were observed in areas of the southern interior district in Western Australia, the northwest of the Northern Territory, a large area of inland, western and southern Queensland, across the north-eastern quarter of New South Wales, and parts of coastal Tasmania.

## Summer 2018–19

Summer 2018–19 was Australia's warmest summer on record, with the national mean temperature for summer 2.14 °C warmer than the average over the World Meteorological Organization standard reference periods of 1961–1990.

It was exceptionally warm across most of the country, with summer the warmest on record for New South Wales, Victoria, Western Australia, and the Northern Territory, second warmest for Tasmania and South Australia, and fourth warmest for Queensland.

Exceptional heatwaves affected large areas of Australia from early December to late January. These widespread heatwaves followed an extreme heatwave that affected the tropical Queensland coast during late November. Many records were set across summer for warm individual daily extremes and monthly average temperatures at individual locations, and for long runs of consecutive warm days.

### Autumn 2019

Autumn continued the run of warmer than average temperatures, being the third warmest on record for Australia. All mainland States and Territories ranked the season among the tenth warmest on record.

Mean maximum temperatures for the month were above or very much above average across most of Australia, except for Queensland away from the south, central coast, and from the Gulf Coast to the central Peninsula. Minimum temperatures were also above to very much above average in most areas.

Record high temperatures for autumn (both maximum and minimum) were observed in Tasmania, Victoria, Western Australia, and Queensland.

### Winter 2019

The national mean maximum temperature for winter was the sixth warmest on record for Australia (1.17 °C warmer than average). The mean minimum temperature for Australia was 0.26 °C warmer than average.

All States and Territories recorded above-average maximum temperatures, with Western Australia recording its second highest on record (1.64 °C above average), and New South Wales recording its fifth highest record (1.44 °C above average).

Minimum temperatures for winter 2019 were also above average for all States and Territories except South Australia, which was below average.

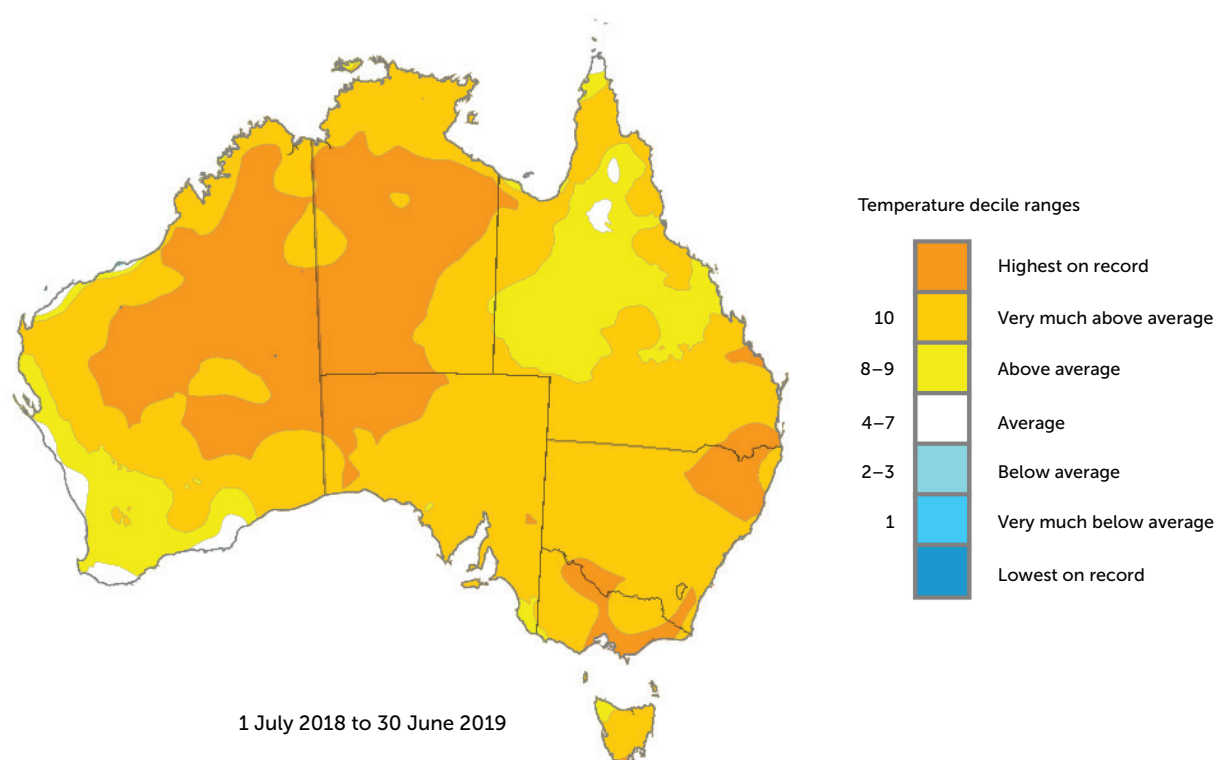


Figure 1.3 Australian 12-month maximum temperature deciles for 2018–19.

### 1.4.3 Utility size

The size of a utility's customer base influences its performance on a range of indicators. This relationship may be causal, coincidental, or due to a related matter (for example, larger utilities are subject to price regulation, unlike smaller utilities).

### 1.4.4 Sources of water

Two important drivers of performance are the sources of water used by a utility and the geographical relationship between the source and the urban centre it supplies. The combination and interaction of these drivers serve to create wide variations in engineering, operations, and social challenges for each utility across the country.

The sources of water available to a utility are an important driver of a number of key performance indicators. For example, the cost of treating water to an acceptable standard and supplying it to users affects the revenue collected by water utilities, their profitability (Finance indicators F3, F24), and the strength of their water-usage pricing signal (Finance indicator F4).

Traditionally, Australians have relied on surface water and, to a lesser extent, groundwater to meet their urban consumption needs. The increased demand for urban water—resulting in a need to further develop and maintain ongoing water supply—is driven by many factors, including population growth and the reliability and security of existing sources (predominantly driven by water quality and climatic variability). Financial, environmental, and social factors reduce the feasibility of developing additional traditional sources of water. In response to this situation, utilities and bulk water authorities across the country are developing non-traditional supply sources—such as desalinated and recycled water—while continuing to explore options for harvesting stormwater and rainwater.

The diversification of water sources affects the performance of utilities by increasing the cost to treat water to an acceptable standard (meeting regulatory requirements) and to supply multiple water types to end users. For example, water from a 'protected' or 'closed' storage catchment is usually higher quality than water from an 'open' storage catchment and requires less treatment, which reduces the cost of supply.

The quality of water from groundwater sources varies greatly depending on the type and depth of the aquifer and has a significant impact on the extraction and treatment processes used and subsequent infrastructure and operational costs. Urban water supplied from recycled sources typically requires dual-pipe supply systems to separate recycled water from potable water, incurring greater infrastructure costs.

Figure 1.4 shows the annual supply from different sources of water, and the total supply, for utilities in each State and Territory from 2013–14 to 2018–19.

- Water sourced from surface water (that is, rivers, streams, and dams; Water resource indicator W1) is the dominant water source in all States and Territories except Western Australia, where most of the water is sourced from groundwater (Water resource indicator W2) and the desalination of marine water (Water resource indicator W3.1).
- Recycled water is represented by W26 from 2017–18, which is not directly comparable to Water resource indicator W4 used in previous years—as W26 includes environmental flows and does not explicitly include recycled water to agriculture.
- In 2018–19, total water sourced across the country from all four categories slightly decreased (0.3 per cent) despite the higher temperature and lower rainfall than last year.
- As in previous years, New South Wales' reported total water sourced was higher than that of the other States and Territories, probably reflecting the drier conditions throughout the region.
- Desalination in New South Wales recommenced for the first time since 2011–12 as a result of the large decreases in Sydney's dam levels and the need for a backup source of drinking water.



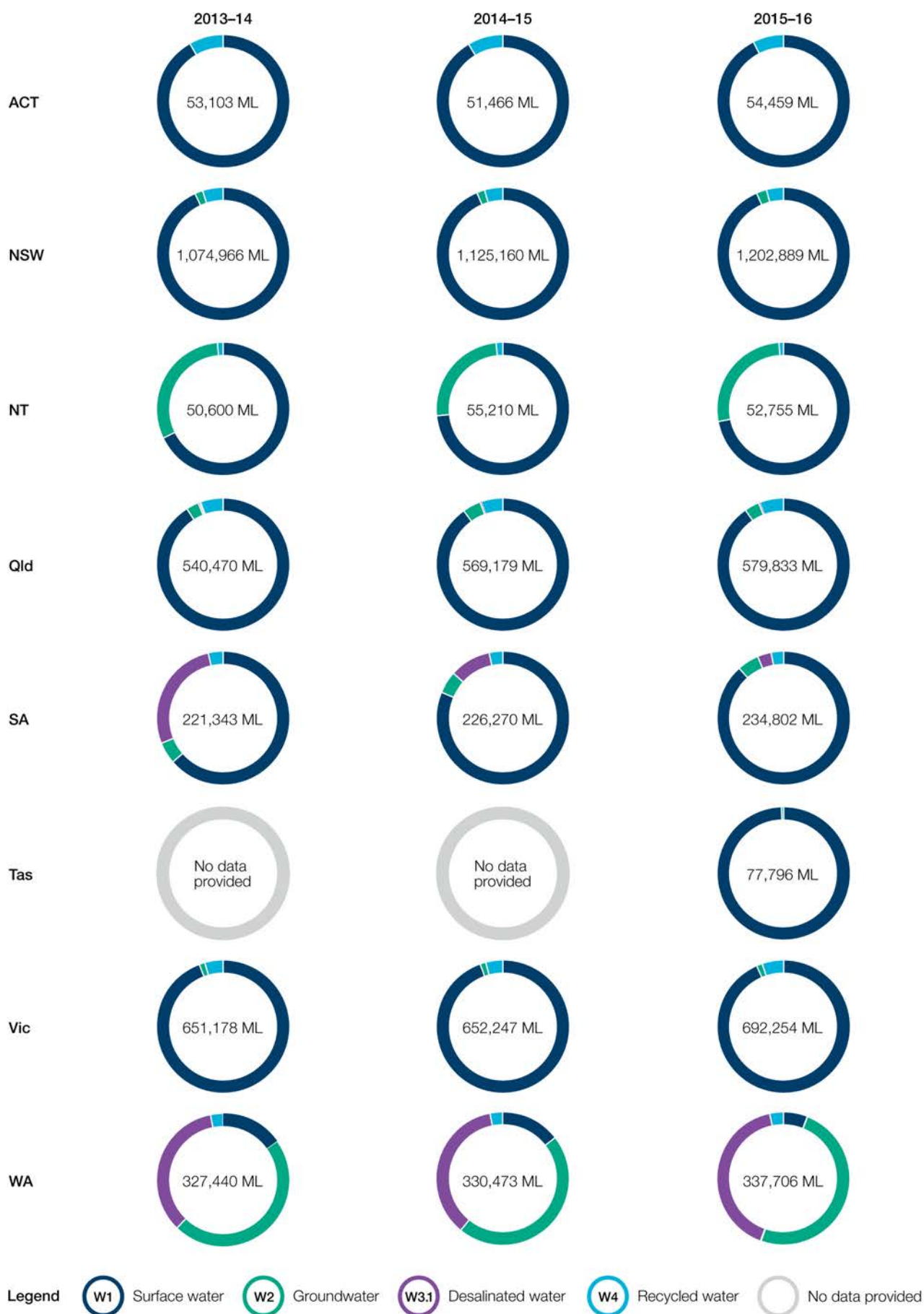


Figure 1.4a Water source breakdown (W1, W2, W3.1, W4) in each State and Territory, 2013-14 to 2015-16.

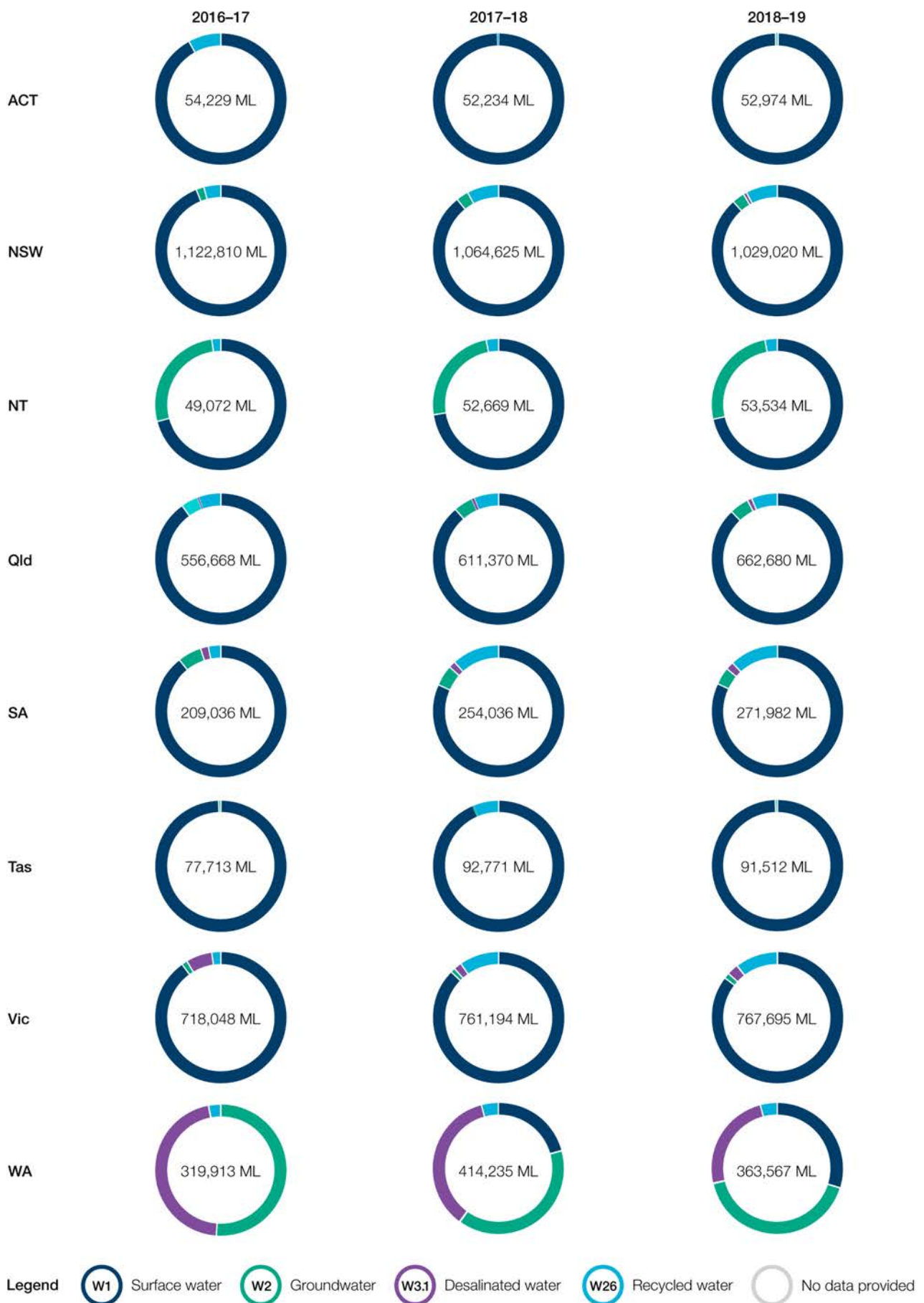


Figure 1.4b Water source breakdown (W1, W2, W3.1, W4/W26) in each State and Territory, 2016-17 to 2018-19.

## 2 Major urban centres

This chapter provides comparative tables and figures for a selection of key indicators for major urban centres, aligned with a capital city and the surrounding area.

The figures and tables are compiled using data supplied by the utilities detailed in Table 2.1.

Utilities' structures vary, and the figures in this chapter should be treated with some caution and read in conjunction with the notes for each of the tables. For example, to provide figures which represent Sydney, Melbourne, and South East Queensland, it may be necessary to aggregate the numbers for both bulk water authorities and utilities servicing those areas. The historical values for all financial indicators have been adjusted using consumer price index (CPI) data to facilitate comparisons in real terms.

**Table 2.1 Data sources for capital city analyses.**

Major urban centre	Utility (B denotes bulk supplier)
Perth	Water Corporation – Perth
Adelaide	SA Water Corporation
Canberra	Icon Water Limited
South East Queensland	Queensland Bulk Water Supply Authority (Seqwater) (B), Queensland Urban Utilities, Unitywater, City of Gold Coast, Redland City Council, Logan City Council
Sydney	WaterNSW (B), Sydney Water Corporation
Melbourne	Melbourne Water (B), City West Water, South East Water Ltd, Yarra Valley Water Corporation
Hobart	No data—Tasmania Water and Sewerage Corporation services this area; performance data are available only on an aggregated basis for the entire State of Tasmania
Darwin	Power and Water – Darwin

### 2.1 Water resources

#### 2.1.1 Volume of water sources—W1, W2, W3.1, W26

Table 2.2 presents the volume of water sourced from surface water (W1), groundwater (W2), desalination (W3.1), and recycled water (W26) for each city.

Nationally, total water sourced was steady between 2017–18 and 2018–19. South East Queensland reported the largest increase (11 per cent) by volume, followed closely by Adelaide with an increase of 8 per cent.

Perth is still the largest supplier of groundwater (122,317 ML) and desalination water (89,295 ML) to the urban centre. Melbourne sourced the highest volume of recycled water of 45,535 ML, just higher than Sydney.

Sydney, Melbourne, Adelaide and South East Queensland increased the volume of supply from desalination plants from 2017–18 to 2018–19. Perth scaled back the production of desalination water due to higher surface water availability.



**Table 2.2 Volume of water sourced in each urban centre (ML).**

Major urban centre	Surface water (W1)		Groundwater (W2)		Desalination (W3.1)		Recycled water (W26)		Total	
	2017–18	2018–19	2017–18	2018–19	2017–18	2018–19	2017–18	2018–19	2017–18	2018–19
Sydney	607,174 <sup>c</sup>	563,283 <sup>c</sup>	0	0	0	7,793	42,833	44,021	650,007	615,097
Melbourne <sup>a</sup>	448,864	438,511	0	0	14,972	22,374	38,147	45,535	501,983	506,420
South East Queensland <sup>b</sup>	325,370	353,324	13,368	17,594	2,803	6,438	13,036	15,445	354,597	392,801
Perth	1,135 <sup>d</sup>	74,014 <sup>d</sup>	131,948	122,317	148,905	89,295	12,100	9,817	294,088	295,443
Adelaide	157,309	167,500	0	0	4,268	4,901	26,564	30,533	188,141	202,934
Canberra	52,157	52,914	0	0	0	0	77	60	52,234	52,974
Darwin	38,292	38,364	4,449	4,860	0	0	451	488	43,192	43,712

**Table notes**

<sup>a</sup> Melbourne's surface water is sourced from Melbourne Water and South East Water, while its recycled water is sourced from Melbourne Water and the three retailers (Yarra Valley Water, South East Water, and City West Water). Western Water is not included in the Melbourne major urban centre.

<sup>b</sup> The volume of South East Queensland's surface water, groundwater, and desalinated water is sourced from Seqwater. The volume of South East Queensland's recycled water is sourced from Seqwater and the retailers (Qld Urban Utilities, Unitywater, and Gold Coast and Redland city councils).

<sup>c</sup> Sydney's surface water (W1) is the total of WaterNSW (bulk water supplier) diverted for Sydney.

<sup>d</sup> Perth's surface water (W1) volume reflects Water Corporation transferring water into surface water storages. In 2018–19, Water Corporation diverted 107,811 ML from surface water (W1) and returned 33,797 ML.

## 2.1.2 Average annual residential water supplied—W12

Table 2.3 reports the average volume (kL/property) of residential water supplied to customers in each major urban centre.

The volume of residential water supplied increased from 2017–18 to 2018–19 for all major urban centres except for Perth, which had no change, and Sydney, which reported a decrease.

See Section 3.1 for annual residential water supplied by all utilities.

**Table 2.3 Average annual residential water supplied (kL/property).**

Major urban centre <sup>a</sup>	2014–15	2015–16	2016–17	2017–18	2018–19	Change from 2017–18 (%)
Adelaide	186	206	171	195	202	4
Canberra	188	196	190	197	204	4
Darwin	409	405	361	368	380	3
Melbourne <sup>b</sup>	149	154	149	148	151	2
Perth	244	240	223	219	219	0
South East Queensland <sup>b</sup>	160	159	158	155	158	2
Sydney	201	201	206	215	199	-7

**Table notes**

<sup>a</sup> The figures exclude bulk utilities because they do not supply to customers.

<sup>b</sup> Melbourne and South East Queensland figures are the weighted averages for their respective retailers (i.e. W8/C2—Total connected residential properties: water supply).

### 2.1.3 Total recycled water supplied—W26

Table 2.4 reports the total volume of recycled water supplied to customers, aggregated for the major urban centres (W26). Unlike W4 (volume of water sourced from recycling plants), W26 includes all recycled water supplied to various uses.

Total recycled water supply across the major urban centres increased by 10 per cent from the previous year, following an increase of 11 per cent from 2016–17 to 2017–18. Large increases in recycled water production were reported for Adelaide, Melbourne and South East Queensland.

See Section 3.2 for recycled water supplied by all utilities.

**Table 2.4 Total recycled water supplied (ML).**

Major urban centre	2014–15 <sup>a</sup>	2015–16 <sup>a</sup>	2016–17 <sup>a</sup>	2017–18	2018–19	Change from 2017–18 (%)
Adelaide	29,177	28,481	21,316	26,564	30,533	15
Canberra	4,352	4,053	4,404	77	60	-22
Darwin	492	80	541	451	488	8
Melbourne <sup>b</sup>	36,428	34,892	32,442	38,147	45,535	19
Perth	9,354	10,212	9,568	12,100	9,817	-19
South East Queensland <sup>b</sup>	18,774 <sup>c</sup>	19,822 <sup>c</sup>	14,755	13,056	15,445	18
Sydney	43,075	43,342	38,340	42,833	44,021	3

**Table notes**

<sup>a</sup> Data for 2016–17 and earlier years are sourced from the 2016–17 published NPR, as the definition of W26 has changed from 2017–18.

<sup>b</sup> Melbourne and South East Queensland figures for W26 are the aggregated figures for the bulk utility and the retailers.

<sup>c</sup> Seqwater did not report against this indicator in 2014–15 and 2015–16.

## 2.2 Pricing

### 2.2.1 Typical residential bill—P8

Table 2.5 reports the typical residential bill for water supply and sewerage in each major urban centre.

Changes in typical residential bills across the major urban centres range from a decrease of 4.0 per cent in Canberra to an increase of 3.9 per cent in Perth from 2017–18 levels. Large decreases were experienced in Canberra (4.0 per cent), Sydney (3.8 per cent), and Melbourne (2.7 per cent). The decreases in Canberra and Sydney are attributed to the above-average rainfall conditions experienced during the summer months, while Melbourne's decrease was attributed to above-average rainfall in November–December 2018.

The typical residential bill for customers in Perth increased by 3.9 per cent. This was due to an increase in water charges of 2.5 per cent and an increase of water consumption during periods of low rainfall in September 2018 and May 2019; some coastal areas experienced their driest May on record.

Customers in Melbourne continued to have the lowest typical residential bill across all regions, while those in Darwin had the highest, continuing the pattern seen in previous years.

See Section 4.1 for the typical bills charged by all utilities.

**Table 2.5 Typical residential bill: water supply and sewerage (\$).**

Major urban centre <sup>a</sup>	2014–15	2015–16	2016–17	2017–18	2018–19	Change from 2017–18 (%)
Adelaide	1,416	1,444	1,207	1,292	1,316	1.9
Canberra	1,172	1,194	1,177	1,188	1,141	-4.0
Darwin	1,999	1,983	1,861	1,850	1,862	0.6
Melbourne <sup>b</sup>	1,046	1,083	1,039	1,033	1,005	-2.7
Perth	1,427	1,444	1,436	1,489	1,547	3.9
South East Queensland <sup>b</sup>	1,397	1,461	1,459	1,424	1,430	0.4
Sydney	1,235	1,232	1,124	1,146	1,103	-3.8

**Table notes**

<sup>a</sup> The figures exclude bulk utilities as they do not supply to customers.

<sup>b</sup> Melbourne and South East Queensland figures are the weighted average of the retail utilities (i.e. P3/C2—Connected residential properties: water supply and P6/C6—Connected residential properties: sewerage).

## 2.3 Environment

### 2.3.1 Total net greenhouse gas emissions—E12

The contribution of the utilities' operations to greenhouse gas (GHG) emissions, aggregated by major urban centre, is reported in Table 2.6.

Total net GHG emissions fluctuated widely across major urban centres. Emissions increased for most of the regions, with the highest increase in emissions (52 per cent) reported for Adelaide. Perth reported a large decrease of 32 per cent due to their reduced use of desalination plants, but continued to have the highest total net greenhouse gas emissions of 510 net tonnes CO<sub>2</sub> equivalent per 1,000 properties.

Adelaide's 52 per cent increase was a result of the extra demands caused by the drier summer and winter, which required more pumping than in previous periods.

Canberra also experienced increased emissions due to increased pumping. The increased dry conditions required pumping of water instead of relying on gravity-fed water supply systems, which have been depleted.

See Section 8.1 for total net greenhouse gas emissions by all utilities.

**Table 2.6 Total net greenhouse gas emissions (net tonnes CO<sub>2</sub> equivalent per 1,000 properties).**

Major urban centre	2014–15	2015–16	2016–17	2017–18	2018–19	Change from 2017–18 (%)
Adelaide	299	421	250	285	434	52
Canberra	257	255	242	268	363	35
Darwin	165	154	179	229	215	-6
Melbourne <sup>a</sup>	215	291	268	243	249	2
Perth	738	817	828	754	510	-32
South East Queensland <sup>b d</sup>				179 <sup>c</sup>	200	12
Sydney	84	145	176	173	180	4

**Table notes**

<sup>a</sup> Melbourne figures are the weighted average of the three retailers (i.e. E12/C4—Total connected properties). Melbourne Water's emissions are expressed on a per-connection basis.

<sup>b</sup> South East Queensland figures are the weighted average of the retailers (i.e. E12/C4—Total connected properties).

<sup>c</sup> Gold Coast did not report against this indicator in 2017–18.

<sup>d</sup> No data were available for South East Queensland before 2016–17.

## 2.4 Finance

### 2.4.1 Combined operating cost of water supply and sewerage—F13

Table 2.7 reports the combined operating cost of the utilities' water and sewerage operations, aggregated by urban centre.

In real terms, combined operating costs increased for four of the major urban centres, with Sydney reporting the highest increase (7 per cent) in combined operating costs of water and sewerage services. Three of the major urban centres reported decreases when compared to 2017–18, with Perth reporting the highest decrease (10 per cent).

See Section 5.3 for combined operating cost for all utilities.

**Table 2.7 Combined operating cost: water supply and sewerage (\$/property).**

Major urban centre <sup>a</sup>	2014–15	2015–16	2016–17	2017–18	2018–19	Change from 2017–18 (%)
Adelaide	591	607	563	556	584	5
Canberra <sup>b</sup>	815	966	1,015	1,012	985	-3
Darwin <sup>c</sup>		1,181	995	935	886	-5
Melbourne	971	1,019	932	905	913	1
Perth	618	629	608	610	547	-10
South East Queensland	1,110	1,142	1,147	1,131	1,167	3
Sydney <sup>d</sup>	709	725	696	675	720	7

**Table notes**

<sup>a</sup> Data for 2017–18 and later are equal to F13; for earlier years the data are equal to F11+F12.

<sup>b</sup> Canberra figures for the 2015–16 and 2016–17 years include a water abstraction charge and a utilities network facility tax.

<sup>c</sup> Power and Water – Darwin did not report against this indicator in 2014–15.

<sup>d</sup> Sydney figures are for Sydney Water and include the bulk water purchases from WaterNSW.

### 2.4.2 Total capital expenditure for water supply and sewerage—F16

Table 2.8 reports the combined capital expenditure related to the utilities' water and sewerage operations, aggregated by major urban centre.

Most major urban centres reported an increase in their total capital expenditure for water and sewerage services. The exceptions were Canberra and Perth, which reported decreases of 1 per cent and 4 per cent, respectively. Sydney reported a significant increase (41 per cent) in capital expenditure from the previous year, and now has the highest total capital expenditure of all major centres.

See Section 5.1 for combined capital expenditure for all utilities.



**Table 2.8 Total capital expenditure: water supply and sewerage (\$000s).**

Major urban centre	2014–15	2015–16	2016–17	2017–18	2018–19	Change from 2017–18 (%)
Adelaide	162,520	192,486	275,753	213,276	281,841	32
Canberra	52,281	88,191	95,134	89,339	88,138	-1
Darwin <sup>a</sup>		51,160	23,047	46,248	33,482	-28
Melbourne <sup>b</sup>	733,023	766,411	820,565	890,817	970,422	9
Perth	375,768	309,692	450,828	480,897	461,199	-4
South East Queensland <sup>b</sup>	520,958	511,998	583,536	604,729	687,820	14
Sydney <sup>b</sup>	685,535	699,717	671,680	822,466	1,160,104	41

**Table notes**

<sup>a</sup> P&W (Darwin) did not report against this indicator in 2014–15.

<sup>b</sup> Melbourne, South East Queensland, and Sydney figures are the aggregate for the bulk utility and the respective retailers.

## 2.5 Customers

### 2.5.1 Total water and sewerage complaints—C13

Table 2.9 reports the total number of complaints received by utilities for water and sewerage services, aggregated by major urban centre.

Four out of the seven major urban centres have experienced improved customer satisfaction (based on complaints as an indicator of satisfaction) with a decrease in the number of complaints they received in 2018–19. Perth had the largest decrease of 33 per cent followed by Canberra with 24 per cent.

Melbourne, Sydney, and South East Queensland were the only major urban centres that experienced increases in complaints. Darwin still has the highest total complaints but since the introduction of smart water meters, which helped to reduce water loss and excessive usage charges, complaints have decreased.

Perth has the lowest level of complaints of all the major urban centres with 0.8 per 1,000 properties.

See Section 6.2 for water and sewerage complaints for all utilities.

**Table 2.9 Total water and sewerage complaints (per 1,000 properties).**

Major urban centre	2014–15	2015–16	2016–17	2017–18	2018–19	Change from 2017–18 (%)
Adelaide		1.6	2.5	2.5	2.1	-16
Canberra	4.3	3.8	4.3	3.7	2.8	-24
Darwin	39.5	86.2	85.1	68.4	60.4	-12
Melbourne	4.1	4.8	6.3	6.2	6.9	12
Perth	0.8	0.8	0.8	1.2	0.8	-33
South East Queensland <sup>a</sup>	3.6	4.3	4.7	5.2	5.3	3
Sydney	2.7	2.6	2.1	2.2	2.4	9

**Table note**

<sup>a</sup> Logan City Council did not report against this indicator before 2017–18.

## 2.5.2 Average duration of an unplanned interruption to water supply—C15

Table 2.10 reports the average duration of unplanned interruptions to water supply in a utility's operation, aggregated by major urban centre.

Canberra and Adelaide were the only two major urban centres that had an increase in the average duration of unplanned interruptions for water, at 8 per cent and 3 per cent, respectively. Adelaide continued experiencing the highest average duration of unplanned interruption (243 minutes) while Melbourne consistently had the shortest (95 minutes).

See Section 6.1 for unplanned interruption to water supply for all utilities.

**Table 2.10 Average duration of an unplanned interruption: water (minutes).**

Major urban centre	2014–15	2015–16	2016–17	2017–18	2018–19	Change from 2017–18 (%)
Adelaide	165	189	195	237	243	3
Canberra	120	135	135	125	135	8
Darwin <sup>a</sup>	94					
Melbourne	99	106	106	101	95	-6
Perth	96	108	103	112	103	-8
South East Queensland	94	128	144	125	124	-1
Sydney	147	136	133	155	143	-8

**Table note**

<sup>a</sup> No data are available for Darwin after year 2014–15.

## 3 Water resources

### 3.1 Average annual residential water supplied (kL/property)—W12

The average annual residential water supplied indicator (W12) reports the average volume (kL/property) of metered and estimated non-metered potable and non-potable water supplied to residential properties during the reporting year. It is derived by dividing the total volume of residential water supplied (W8) by the number of connected residential water properties (C2). The average volume is influenced by a number of factors, including:

- climate;
- rainfall;
- water conservation measures (for example, water restrictions);
- availability of water supply;
- housing density; and
- water prices.

Rainfall is the most influential factor affecting residential consumption. An increase in rainfall should reduce demand, and a decrease in rainfall should increase demand. A decrease in rainfall can result in a significant decrease in runoff into storages and trigger demand-management measures such as water restrictions.

Average annual residential water supply (W12) data for all utilities reporting in 2018–19 are given in Table A1, Appendix A.

#### 3.1.1 Key findings

Table 3.1 presents a summary of the median average annual volume of water supplied to residential customers, by utility group. Nationally, the median increased by 3 per cent.

**Table 3.1 Overview of results: Average annual residential water supplied (kL/property).**

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	219	146	9	6	163	164	1
	WC (Perth)	City West Water					
Large	380	161	10	0	194	203	5
	P&W (Darwin)	Central Highlands Water (Victoria)					
Medium	519	146	14	8	178	200	12
	Lower Murray Water	Shoalhaven					
Small	457	91	11	18	214	200	-7
	P&W (Alice Springs)	Westernport Water					
<b>All size groups (national)</b>	519	91	44	32	186	192	3
	Lower Murray Water	Westernport Water					

The number of utilities reporting an increase in the average annual residential water supplied (44 out of 76) was similar to last year. The Large utility group was the only group where all utilities reported an increase, ranging from 0.5 per cent (Cairns) to 29.7 per cent (Townsville). The Small utility group was the only group that reported more decreases than increases in the average annual residential water supplied. Nationally, there was a large variation in the range of average annual water supplied in 2018–19, ranging from 91 kL/property (Westernport Water) to 519 kL/property (Lower Murray Water). The range in 2017–18 was slightly smaller, from 85 kL/property (Western Water) to 490 kL/property (Lower Murray Water).

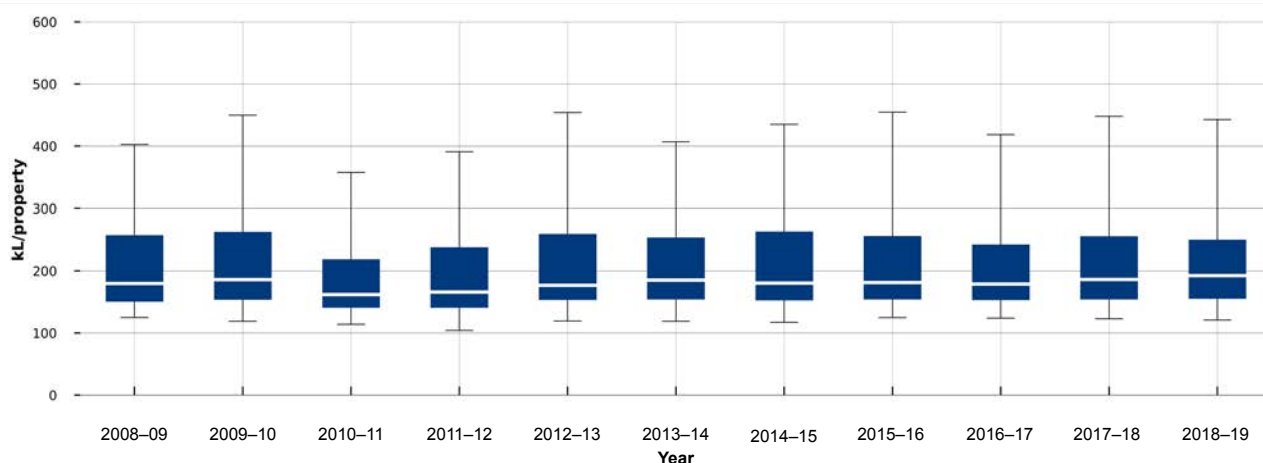


Figure 3.1 Average annual residential water supplied (kL/property).

Figure 3.1 shows a box-and-whisker plot of the average annual volume of residential water supplied for all utilities reporting W12. Across all utilities, the 2018–19 median residential water supply remains consistent with historical trends, reflecting the recent consecutive years (2012–13 to 2018–19) of warmer-than-average conditions across most of Australia.

### 3.1.2 Results and analysis—Major utility group

Figure 3.2 shows a ranked breakdown of the average volume of residential water supplied for each utility in the Major utility group (2014–15 to 2018–19).

The largest volume supplied to residential customers occurred in the Perth and Canberra regions (219 and 204 kL/property, respectively).

Variations ranged from a 7.3 per cent decrease by Sydney Water Corporation to a 5.2 per cent increase by Barwon Water. Above-average temperatures and below-average rainfalls in the Barwon Water region throughout 2018–19 (see Chapter 1 for climate details) would have contributed to the increase in the volume of water supplied to residential customers by Barwon Water.



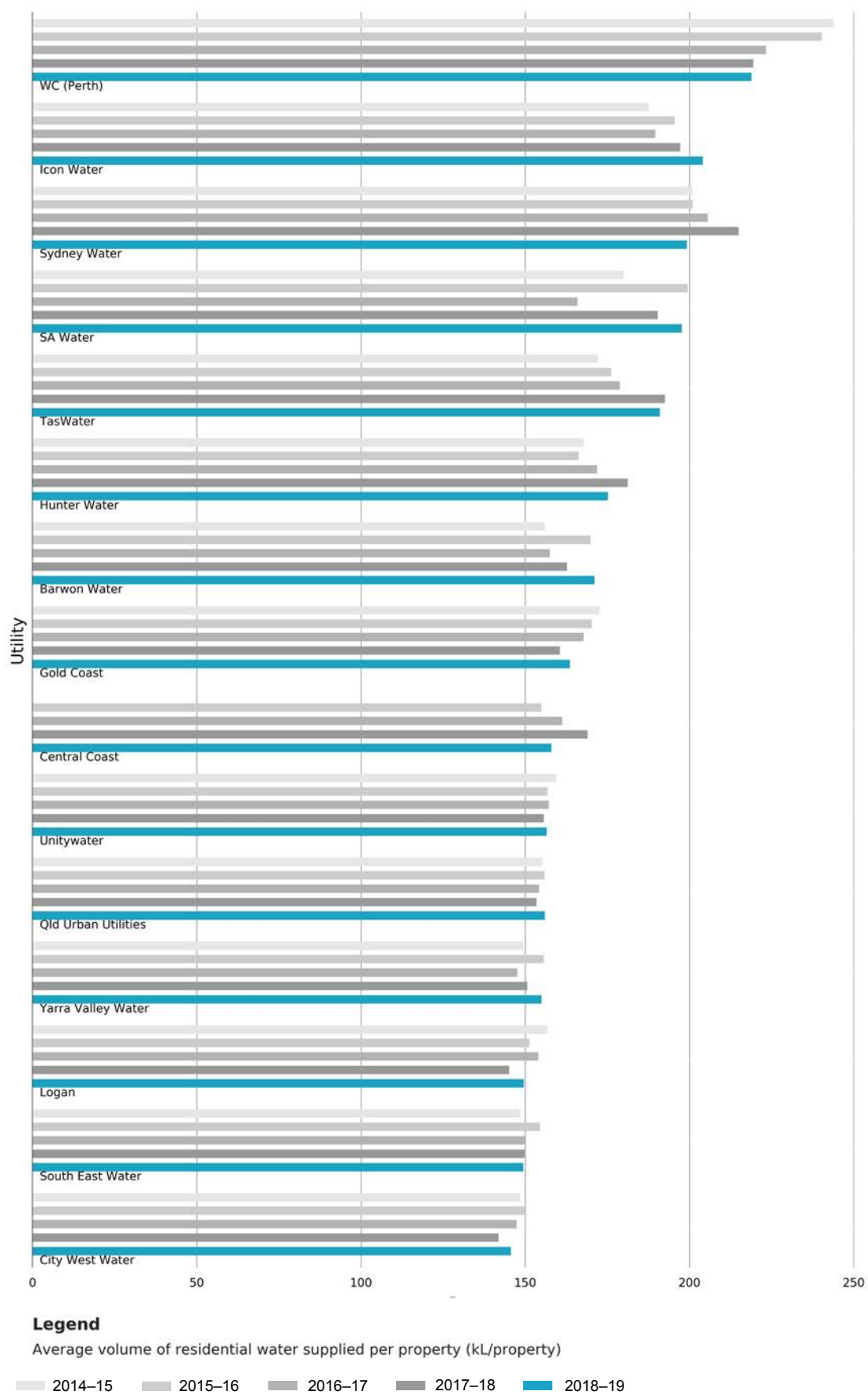


Figure 3.2 Average annual residential water supplied (kL/property)—Major utility group.

## 3.2 Total recycled water supplied (ML)—W26

Total recycled water supplied is the sum of all treated sewage effluent used by the utility and its customers. It includes residential, commercial, industrial, agricultural, and environmental use as well as onsite use by the utility.

The volume of recycled water supplied is affected by a number of factors, including:

- availability of potable water;
- size of the utility;
- the utility's proximity to potential customers (for example, agricultural users, major industrial customers, and recreational facilities);
- fluctuations in sewage received and effluent available for recycling; and
- government policy.

Total recycled water supply (W26) data for all utilities reporting in 2018–19 are presented in Table A2, Appendix A.

### 3.2.1 Key findings

A summary of the total recycled water supplied, by utility group, is shown in Table 3.2.

**Table 3.2 Overview of results: Total recycled water supplied (ML).**

Utility group	Range		No. utilities with increase/decrease from 2017–18		Total		Change in total from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	44,021	60	9	5	121,657	124,302	2
	Sydney Water	Icon Water					
Large	7,627	94	8	2	18,636	19,733	6
	Western Water	Redland City					
Medium	7,955	70	11	8	51,943	49,472	-5
	North East Water	Queanbeyan					
Small	3,074	15	16	11	19,812	21,234	7
	Orange	Lismore					
<b>All size groups (national)</b>	44,021	15	44	26	217,653	220,496	1
	Sydney Water	Lismore					

Nationally, the total volume of recycled water supplied increased by 1 per cent in 2018–19, the third consecutive year of increases. The largest increase (7 per cent) was seen in the Small utility group and the only decrease (5 per cent) in the Medium utility group. The variation between utility groups from year to year reflects the high interannual variability in recycled water production.

### 3.2.2 Results and analysis—Major utility group

In 2018–19, the Major utility group supplied nearly 30 per cent of the total recycled water nationally, and reported an increase of 2 per cent. There was a large variation in the changes between reporting periods, with Logan City Council increasing production by 35.6 per cent while Central Coast Council decreased by 35.3 per cent. Sydney Water Corporation continues to be the largest producer of recycled water with 44,021 ML, followed by SA Water Corporation with 32,312 ML.

## 4 Pricing

### 4.1 Typical residential bill: water supply and sewerage (\$)—P8

The typical residential bill for water supply and sewerage (P8) is the sum of fixed charges and volumetric-usage charges for water and sewage billed to a residential customer. The typical bill is based on each utility's average annual volume of residential water supplied (W12) and its pricing structure (P1, P1.1–P1.7, P4.1–P4.3). Prices are set by government or, in some jurisdictions, by a regulator, council, or utility.

Water bills are influenced by a number of factors, including:

- the size of utility's customer base;
- geographical location;
- distribution of the customer base;
- local topography;
- climate;
- available sources of water; and
- government policy and legislation.

The mix of fixed and usage charges, and the level of water consumption, affects the typical residential bill.

When drawing comparisons between utilities, it is important to note that changes in a typical bill may result from both changes to average consumption and changes to the price of water.

Historically, residential water bill pricing models have varied across the nation. The majority of utilities now have a water supply pricing model based on a two-part structure: a fixed component and a component based on volumetric usage.

Townsville City Council remains an exception: ratepayers have a choice between a flat charge and a tiered structure.<sup>3</sup>

Unlike residential water supply pricing, the majority of utilities have a fixed price model for sewerage services. The exceptions are the Melbourne utilities<sup>4</sup>, Byron Shire Council and Unitywater. These utilities have both a fixed and volumetric component in their sewerage charges.

Billing data are indexed using the consumer price index (CPI) to facilitate comparison in real terms.

Typical residential bill (P8) data for all utilities reporting in 2018–19 are presented in Table A3, Appendix A.

#### 4.1.1 Key findings

A summary of the median typical residential bills, by utility group, is shown in Table 4.1.

Nationally, there was a slight increase (1 per cent) in the typical residential bill for water and sewerage supply with 44 out of 70 utilities reporting an increase. This translated to an increase of \$13 nationally. The Small utility group reported the largest variation in price changes with Wingecarribee Shire Council reporting a 12.1 per cent increase and Gympie reporting a decrease of 9 per cent.

<sup>3</sup> [www.townsville.qld.gov.au/payments-rates-and-permits/rates](http://www.townsville.qld.gov.au/payments-rates-and-permits/rates)

<sup>4</sup> Western Water, Yarra Valley Water, South East Water, and City West Water.

Table 4.1 Overview of results: Typical residential bill: water supply and sewerage (\$).

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	1,608	955	9	6	1,188	1,204	1
	Logan City West Water						
Large	1,862	950	7	2	1,380	1,370	-1
	P&W (Darwin) Goulburn Valley Water						
Medium	1,880	948	12	9	1,458	1,481	2
	MidCoast Council North East Water						
Small	2,014	1,001	16	9	1,659	1,622	-2
	P&W (Alice Springs) South Gippsland Water						
<b>All size groups (national)</b>	2,014	948	44	26	1,447	1,460	1
	P&W (Alice Springs) North East Water						

**Table note**

The typical residential bill is calculated using data from all utilities supplying both water and sewerage services.

Figure 4.1 shows a box-and-whisker plot of typical residential bills for all utilities reporting data in a given year. It shows that customers have experienced small increases over the last four years in the typical residential bill. This contrasts with the larger increases experienced from 2008–09 to 2014–15.

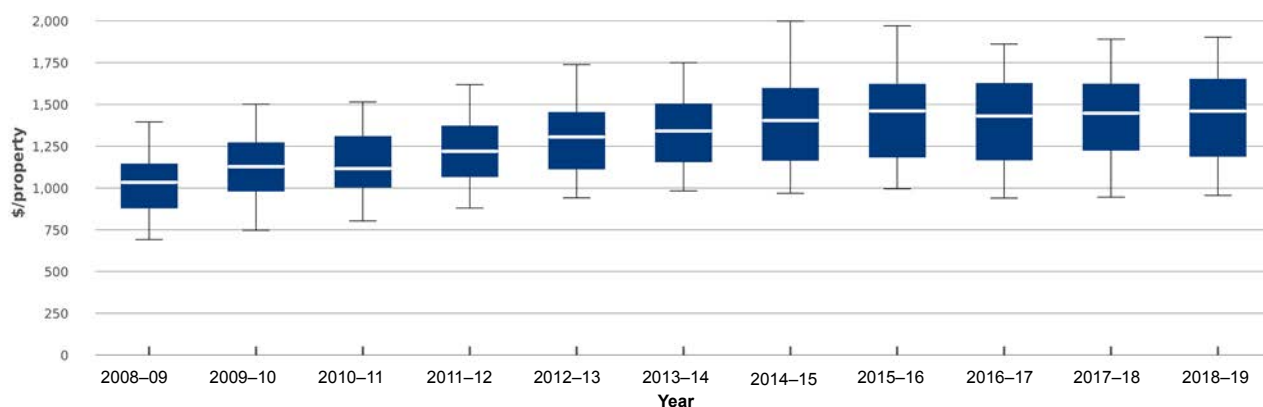


Figure 4.1 Typical residential bill: water supply and sewerage (\$), 2008–09 to 2018–19.

#### 4.1.2 Results and analysis—Major utility group

Figure 4.2 presents a ranked breakdown of the typical residential bill for the Major utility group. The figure highlights the water (P3) and sewerage (P6) components of the bill for each utility.

Unitywater has continued a trend of consecutive yearly reductions in their typical residential bills, although they remain in the top four most expensive retailers in the Major utility group, together with Logan City Council, City of Gold Coast, and Water Corporation – Perth. City West Water has continued to be the cheapest retailer in the Major utility group, with a typical residential bill of \$955.

The variation in the typical residential bill for the Major utility group is smaller than in previous years, with a highest increase of 3.9 per cent (Water Corporation – Perth) and a greatest decrease of 6.6 per cent (South East Water Ltd).



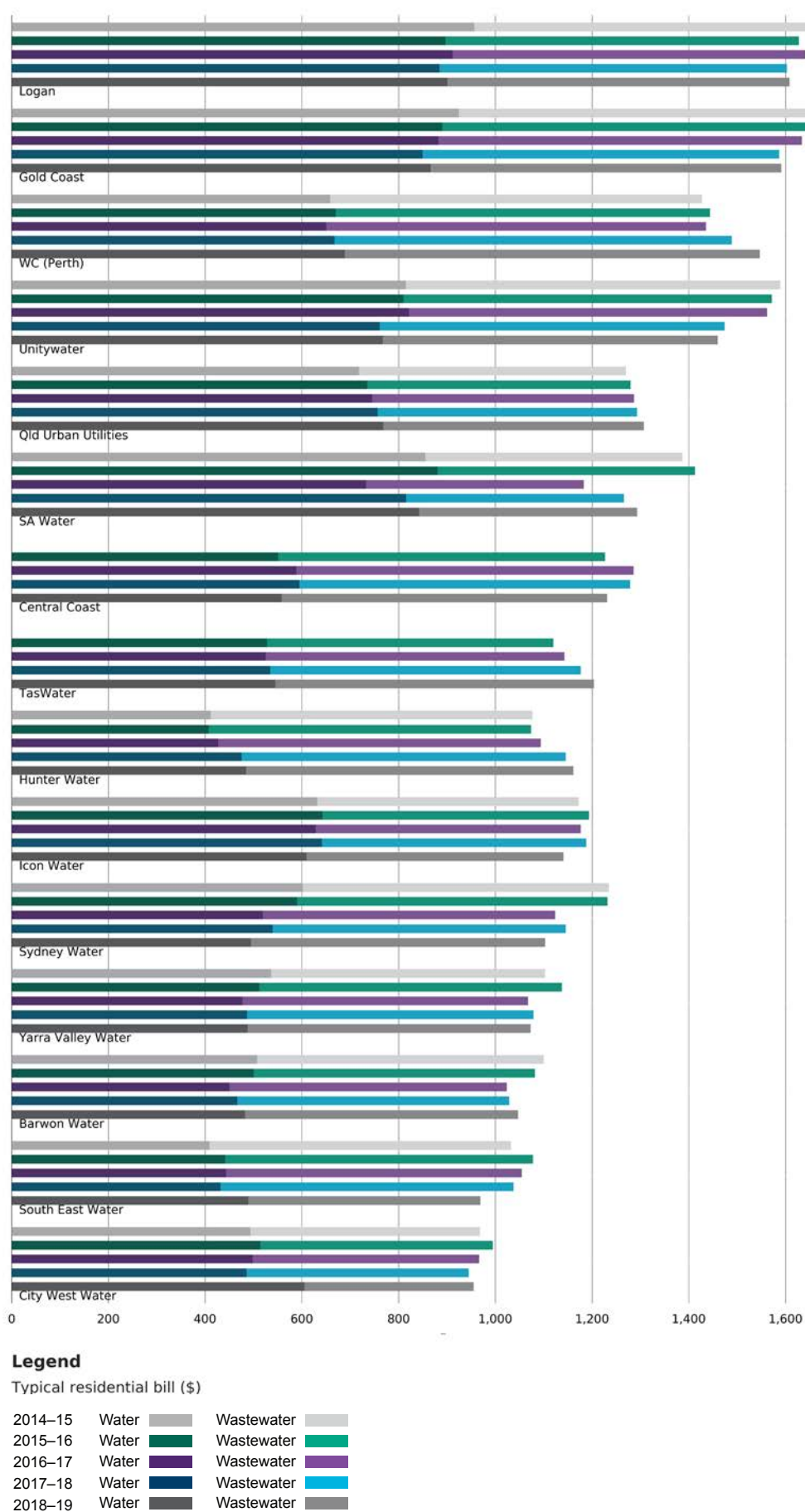


Figure 4.2 Typical residential bill: water supply and sewerage (\$)—Major utility group.

## 4.2 Annual bill based on 200 kL: water supply and sewerage (\$)—P7

The annual bill based on 200 kL for water and sewerage services (P7) is the sum of the annual bill for the supply of 200 kL of water (P2) and the annual bill for the provision of sewerage services for a residential customer using 200 kL of water (P5).

While the typical residential bill (P8) is the best guide to determining the impact of pricing on customers, the annual bill based on 200 kL aids comparisons between utilities. Adopting a consistent 200 kL as the basis for the bill partially normalises the data, correcting for differences in the volumes of water supplied and providing insight into price variations.

Billing data are indexed using the consumer price index (CPI) to facilitate comparison in real terms.

Annual bill based on 200 kL (water supply and sewerage) data for all utilities reporting in 2018–19 are presented in Table A4, Appendix A.

### 4.2.1 Key findings

Table 4.2 presents a summary of the median 200 kL/annum residential bill data, by utility group.

**Table 4.2 Overview of results: Annual bill based on 200 kL: water supply and sewerage (\$).**

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	1,793	1,102	5	10	1,299	1,249	-4
	Logan	Barwon Water					
Large	1,657	849	3	7	1,402	1,383	-1
	Toowoomba	Goulburn Valley Water					
Medium	2,043	783	12	8	1,434	1,429	0
	MidCoast Council	Lower Murray Water					
Small	2,012	1,145	19	6	1,538	1,547	1
	Lismore	South Gippsland Water					
<b>All size groups (national)</b>	2,043	783	39	31	1,414	1,479	5
	MidCoast Council	Lower Murray Water					

**Table note**

The 200 kL residential bill data for water supply and sewerage are calculated using data from all utilities reporting against the P2 and P5 indicators.

On a 200 kL/annum basis, the national median bill increased by 5 per cent from 2017–18 with the majority of the increase coming from the Small utility group. The Small utility group had a large variation in changes, from a 13.1 per cent increase by Wingecarribee Shire Council to a decrease of 7.5 per cent by Gympie Regional Council.

Both the Major and Large utility groups reported decreases in the median annual residential bill based on 200 kL/annum, of 4 per cent and 1 per cent, respectively. Toowoomba was a noticeable increase, compared to its peers in the Large utility group, reporting 6.1 per cent.

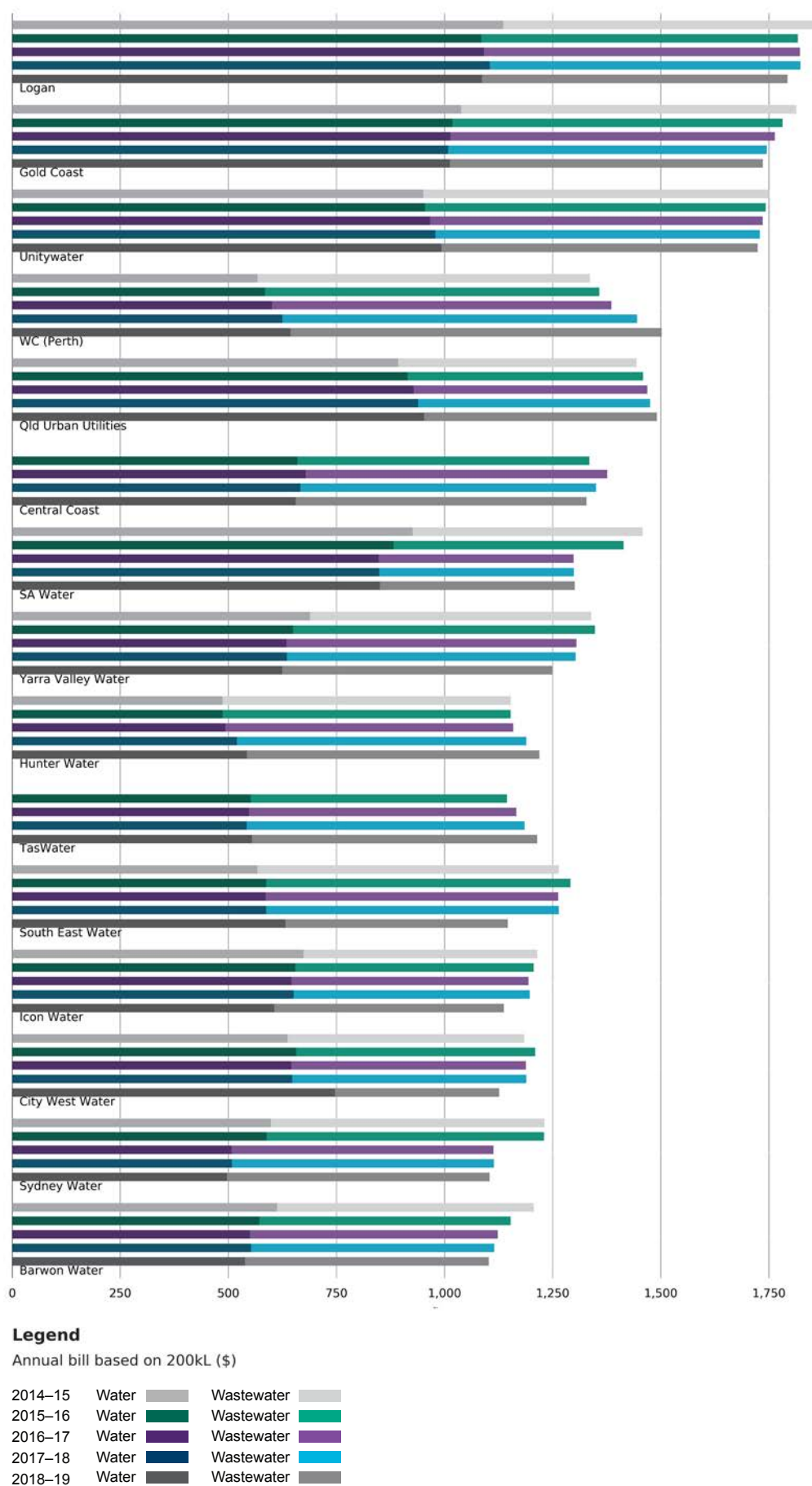


Figure 4.3 Annual bill based on 200 kL: water supply and sewerage (\$)—Major utility group.

#### 4.2.2 Results and analysis—Major utility group

Figure 4.3 presents a ranked breakdown of the annual residential bill based on 200 kL for the Major utility group. The figure reinforces the higher volumetric pricing of water by Queensland's Major utilities, but it also demonstrates the decreasing trend over the last four periods by City of Gold Coast and Unitywater. This was also reflected in the typical residential bill.

Water Corporation – Perth had the highest increase in annual residential bill based on 200 kL in the Major utility group (3.9 per cent). South East Water Ltd, City West Water, Icon Water Limited, and Yarra Valley Water Corporation all reported noticeable decreases compared to their peers in the Major utilities group: 9.3 per cent, 5.3 per cent, 5 per cent, and 4.1 per cent, respectively.



## 5 Finance

### 5.1 Total capital expenditure: water and sewerage (\$000s)—F16

Total capital expenditure on water supply and sewerage (F16) provides a measure of the total level of capital investment by each utility and the size of the utility and its capital responsibilities.

Capital expenditure programs often affect operational expenditure, and are influenced by several factors, including:

- the age of a utility's infrastructure;
- the stage of each asset's lifecycle; and
- the time and duration of a project.

Capital expenditure data are indexed using the consumer price index (CPI) to facilitate comparison in real terms.

Total capital expenditure for water supply and sewerage data for all utilities reporting in 2018–19 are presented in Table A5, Appendix A.

#### 5.1.1 Key findings

Table 5.1 presents a summary of the data for total capital expenditure for water and sewerage, by utility size group. In real terms, total capital expenditure increased by 5 per cent to \$4.3 billion with the majority of this associated with the capital expenditure from the Major utility group. The Large, Medium, and Small utility groups all reported a decrease in capital expenditure from 2017–18.

A summary of the data for total capital expenditure for water and sewerage, by utility group, is shown in Table 5.1.

**Table 5.1 Overview of results: Total capital expenditure: water and sewerage (\$ million).**

Utility group	Range (\$ million)		No. utilities with increase/decrease from 2017–18		Total (\$ million)		Change in total from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	869	77	10	4	3,104	3,452	11
	Sydney Water	Gold Coast					
Large	70	2.3	5	5	365	355	-3
	Western Water	Redland City					
Medium	40	7.8	11	9	409	316	-23
	Shoalhaven	Tamworth					
Small	18	1.9	7	16	258	201	-22
	Ballina	Orange					
<b>All size groups (national)</b>	869	1.9	33	34	4,137	4,325	5
	Sydney Water	Orange					

**Table note**

Total capital expenditure for water and sewerage services is calculated using data from all utilities reporting against F14 and F15.

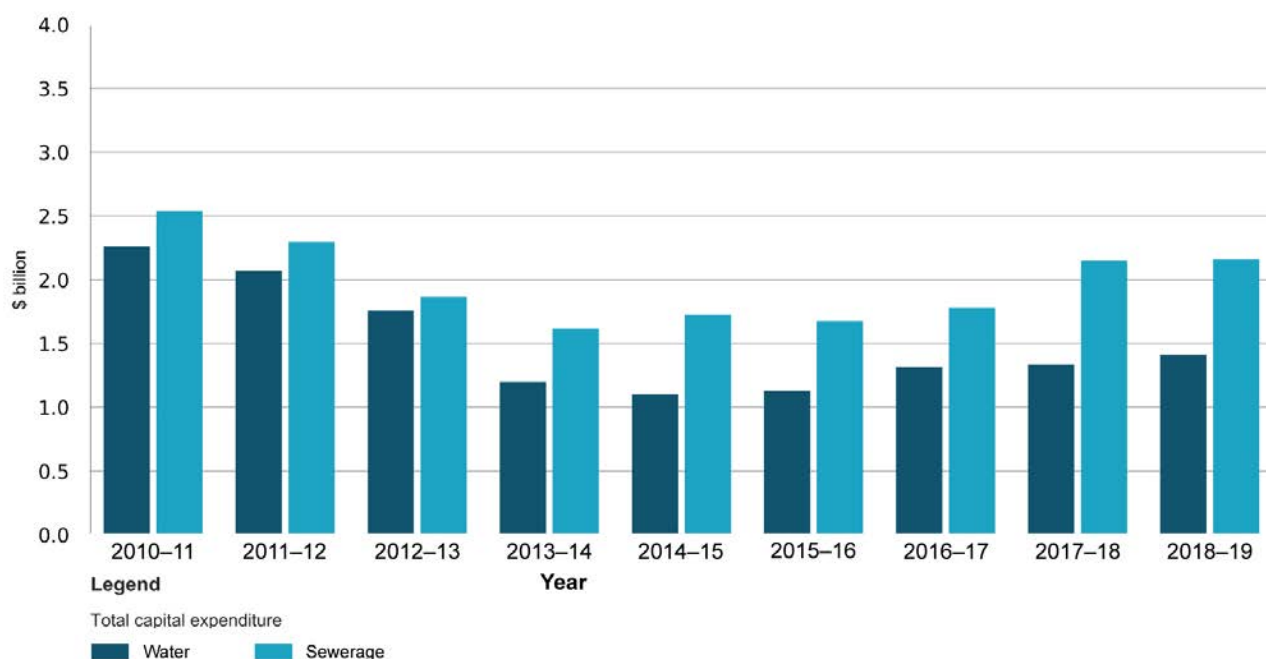


Figure 5.1 Total capital expenditure: water supply and sewerage (\$ billion).<sup>a</sup>

<sup>a</sup> Total is for utilities that reported all ten years and excludes bulk water utilities.

### 5.1.2 Results and analysis—Major utility group

With the exception of Icon Water Limited, Water Corporation – Perth, Unitywater, and Tasmanian Water and Sewerage Corporation, all other utilities in the Major utility size group reported increases in capital expenditure across their water and sewerage operations. Icon Water Limited and Water Corporation – Perth reported moderate decreases, at 1.3 per cent and 4.1 per cent, respectively. Unitywater and Tasmanian Water and Sewerage Corporation reported the highest percentage decreases in their total capital expenditure at 26.0 and 29.9 per cent, respectively. TasWater's decrease follows a large increase in capital expenditure in 2017–18 of 45.9 per cent.

SA Water Corporation had the largest percentage increase of 47.8 per cent followed by South East Water with 35.7 per cent.

## 5.2 Capital expenditure (\$/property): water (F28) and sewerage (F29)

Capital expenditure on water supply (F28) and sewerage (F29), on a per connected property basis, provides a measure of capital investment by each utility relative to its customer base. The normalisation on a per connected property basis facilitates a comparison between utilities.

Capital expenditure data are indexed using the consumer price index (CPI) to facilitate comparison in real terms.

Capital expenditure data per connected property, for water and sewerage services, provided by all utilities reporting in 2018–19 are presented in Tables A6 and A7, Appendix A.

### 5.2.1 Key findings

Tables 5.2 and 5.3 summarise the median capital expenditure of utilities providing water and sewerage services, respectively.

**Table 5.2 Overview of results: Capital expenditure: water (\$/property).**

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	426	53	8	6	156	166	6
	SA Water	Gold Coast					
Large	387	10	4	6	249	237	-5
	Western Water	Redland City					
Medium	690	76	9	11	217	200	-8
	Shoalhaven	Queanbeyan					
Small	637	69	8	15	297	243	-18
	Southern Downs	Orange					
<b>All size groups (national)</b>	690s	10	29	38	245	213	-13
	Shoalhaven	Redland City					

**Table note**

Median capital expenditure: water (\$/property) is calculated using data from utilities providing water and sewerage services that reported against F28 in both 2017–18 and 2018–19.

**Table 5.3 Overview of results: Capital expenditure: sewerage (\$/property).**

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	677	105	9	5	234	249	6
	Logan	City West Water					
Large	704	30	5	5	210	291	39
	Western Water	Redland City					
Medium	646	122	12	8	186	221	19
	Port Macquarie Hastings	WC (Mandurah)					
Small	1,170	38	12	11	217	287	32
	Livingstone	Orange					
<b>All size groups (national)</b>	1,170	30	38	29	217	247	14
	Livingstone	Redland City					

**Table note**

Median capital expenditure: sewerage (\$/property) is calculated using data from all utilities providing water and sewerage services that reported against F29 in both 2017–18 and 2018–19.

In 2018–19, the national median per property capital expenditure on water services decreased by 13 per cent (Table 5.2). This result reflects the decreases reported by 38 utilities in the reporting year.

In 2018–19, the national median per property capital expenditure on sewerage services increased by 14 per cent, (Table 5.3). All size groups reported increases, with the largest increase (39 per cent) in the Large utility group. This is a reversal from the previous year when the Large, Medium, and Small utility groups reported significant decreases.

### 5.2.2 Results and analysis—Major utility group

Figure 5.2 shows a ranked breakdown of capital expenditure on a per connected property basis. The figure highlights the water (F28) and sewerage (F29) components of the total expenditure and reinforces the year-to-year variation.

The capital expenditure in both the water and sewerage components increased by 6 per cent each compared to 2017–18.

SA Water reported high increases in capital expenditure on both water (37.9 per cent) and sewerage services (62.4 per cent) from 2017–18 to 2018–19 compared to other utilities.

## 5.3 Combined operating cost: water supply and sewerage (\$/property)—F13

Combined operating costs for water supply and sewerage on a per property basis (F13) provides a measure of a utility's operation, maintenance, and administration costs in relation to the number of properties serviced. Operating costs are influenced by:

- utility size;
- government policy;
- climate and rainfall;
- distance and method by which water is transported (for example, piped);
- sources of water (for example, purchased from a bulk utility, or sourced from dams, or alternative sources such as desalination plants);
- input costs (for example, fuel, chemicals, and labour);
- level of water and sewage treatment required; and
- capital procurement strategies (for example, public–private partnerships or build–own–operate–transfer [BOOT] schemes).

Operating costs are increasing, particularly for larger utilities; however, operating costs per property can fall as the size of the utility increases, due to economies of scale.

Operating cost data are indexed using the consumer price index (CPI) to facilitate comparison in real terms.

Combined operating cost (water supply and sewerage) data for all the utilities reporting in 2018–19 are presented in Table A8, Appendix A.

### 5.3.1 Key findings

Figure 5.3 is a box-and-whisker plot of combined operating cost (water supply and sewerage) data for all utilities reporting F13 for a given reporting year from 2008–09 to 2018–19. A summary of the median combined operating costs on a per property basis is shown in Table 5.4.

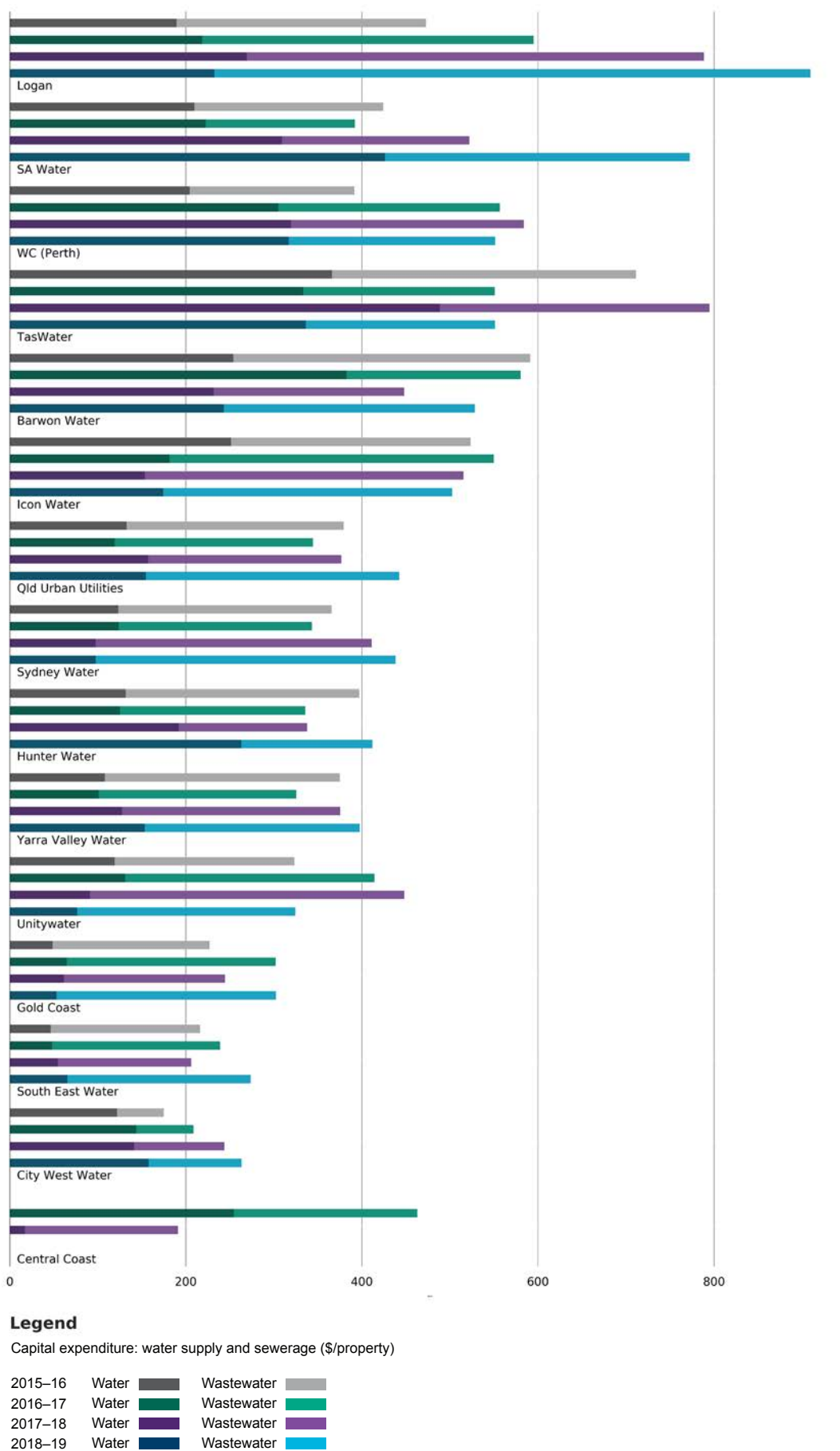
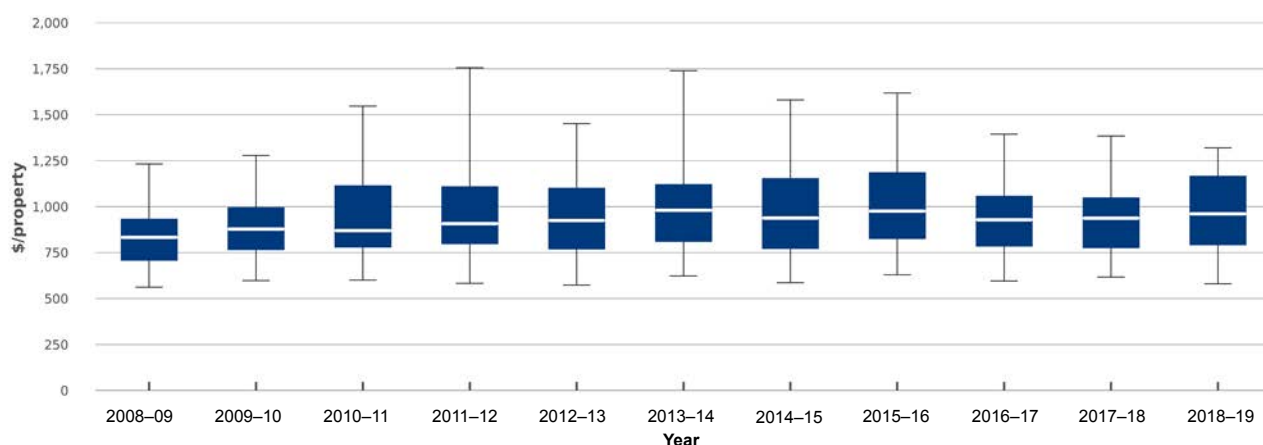


Figure 5.2 Capital expenditure: water supply and sewerage (\$/property) – Major utility group.





**Figure 5.3 Combined operating cost: water and sewerage (\$/property).**

The national 2018–19 median operating cost (on a per property basis for utilities delivering both water and sewerage services) was \$961, an increase of 3 per cent (Table 5.4).

The Large and Medium utility groups reported decreases, whereas the Major and Small utility groups reported increases in their median costs. Nationally, 39 utilities across all size groups reported increases in their operating expenditure per property, while 28 utilities reported decreases.

**Table 5.4 Overview of results: Combined operating cost: water and sewerage (\$/property).**

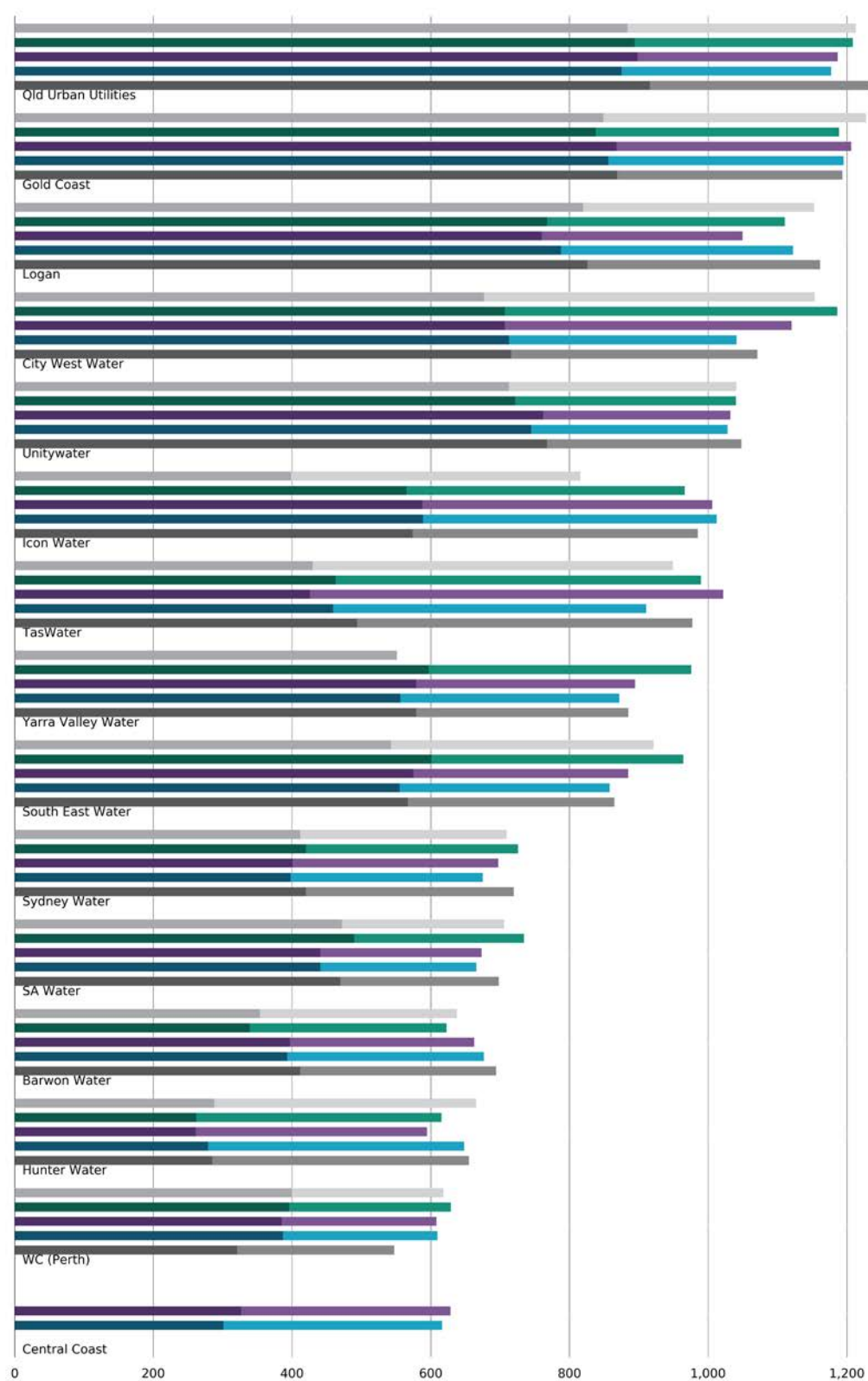
Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	1,234	547	11	3	891	931	4
	Qld Urban Utilities	WC (Perth)					
Large	1,249	703	8	2	918	890	-3
	Gippsland Water	Cairns					
Medium	1,273	580	6	14	980	906	-8
	Gladstone	WC (Mandurah)					
Small	1,726	269	14	9	1,016	1,082	6
	Byron	Gympie					
<b>All size groups (national)</b>	1,726	269	39	28	937	961	3
	Byron	Gympie					

**Table note**

Table 5.4 is based on F13 (Combined operating cost: water and sewerage) for the reporting utilities that provide both reticulated water supply and sewerage services. This is not always a straight addition of F11 and F12 and depends on the relative numbers of connected water properties and connected sewerage properties. For this reason, some figures presented in the charts and tables may differ from those based on a summation of F11 and F12.

### 5.3.2 Results and analysis—Major utility group

Figure 5.4 presents a ranked breakdown of operating expenditure for water supply and sewerage services on a connected property basis. The figure highlights the contribution of operating expenditure for water (F11) and sewerage (F12) expenditure for each utility in the Major utility group from 2014–15 to 2018–19.



### Legend

Combined operating cost per property: water supply and sewerage (\$/property)

2014-15	Water	Wastewater
2015-16	Water	Wastewater
2016-17	Water	Wastewater
2017-18	Water	Wastewater
2018-19	Water	Wastewater

Figure 5.4 Combined operating cost: water and sewerage (\$/property) – Major utility group.

## 5.4 Revenue from community service obligations (%)—F8

Revenue from community service obligations (CSOs) as a percentage of a utility's total income (F8) is a measure of the extent to which activities undertaken by a utility are subsidised.

Payments for CSOs (F25) to a utility by a State or Territory government are made when a utility is directed to undertake activities that they would not perform on a solely commercial basis. CSOs in the water sector may be provided to:

- allow reductions on bills to certain disadvantaged customer groups (for example, pensioners);
- allow utilities to charge common tariffs across all geographical regions despite cost differences;
- ensure the delivery of government policy (for example, by administering rebates); and
- allow utilities to provide services to high-cost areas where full cost recovery would otherwise result in unaffordable bills.

CSO data for all utilities reporting in 2018–19 are presented in Table A9, Appendix A.

### 5.4.1 Key findings

Table 5.5 presents a summary of the data for revenue from CSOs, by utility size group.

In 2018–19, 19 utilities reported increases and 36 utilities reported decreases in the revenue received from CSOs. This resulted in a 9 per cent decrease in the national median from the last reporting period, with the majority of this decrease coming from the Large utility group.

**Table 5.5 Overview of results: Revenue from community service obligations (%).**

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	9.29	0	3	8	2.95	3.74	27
	SA Water	Multiple utilities					
Large	5.33	0	3	6	3.19	2.77	-13
	Goulburn Valley Water	Toowoomba					
Medium	6.5	-12.63	8	10	1.04	1	-4
	GWMWater	WC (Mandurah)					
Small	13.88	-136.87	9	9	0.91	0.8	12
	P&W (Alice Springs)	WC (Geraldton)					
<b>All size groups (national)</b>	13.88	-136.87	23	33	1.14	1.04	-9
	P&W (Alice Springs)	WC (Geraldton)					

### 5.4.2 Results and analysis—Major utility group

The Major size utility group was the only group to report an increase in CSO payments, reporting a 26 per cent increase in contrast to the increase of 3 per cent reported in the 2018 Urban NPR.

SA Water Corporation and Water Corporation – Perth continued to have the highest proportions of revenue from CSOs with 9.3 per cent and 6.6 per cent, respectively. For these utilities, CSO payments are used to subsidise non-profitable water services, to provide water services in country areas at metropolitan water prices.

Icon Water again reported the highest decrease, with its CSO revenue decreasing from 2.0 per cent to 1.6 per cent in 2018–19.

## 6 Customer

### 6.1 Average duration of an unplanned interruptions: water—C15

The average duration of an unplanned interruption (C15), is the average time a customer is without water supply due to an unforeseen interruption that requires attention by the utility.

Unplanned interruptions include scheduled interruptions which exceed the time limit in the original notification. The indicator is a measure of customer service, the condition of the water network, and how effectively the network is managed.

The average duration is influenced by:

- the scale of the event causing the interruption;
- the location of the interruption—for example, the proximity to a repair crew and the depth of the burst pipe;
- the utility's response policy for outlying areas; and
- the number of maintenance and repair staff at the utility's disposal.

Note that a single event affecting a small number of properties for a long duration can cause large annual variations in this indicator, especially for smaller utilities.

Data on the average duration of an unplanned interruption (water supply) for all utilities reporting in 2018–19 are presented in Table A10, Appendix A.

#### 6.1.1 Key findings

A summary of the data for unplanned interruptions, by utility group, is shown in Table 6.1.

**Table 6.1 Overview of results: Average duration of an unplanned interruption: water (minutes).**

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	265.0	83.8	7	7	122.3	126.3	3
	Central Coast	South East Water					
Large	1,798.8	44.5	5	4	102.5	98.6	-4
	Toowoomba	Cairns					
Medium	420.0	19.1	10	9	79.3	94.0	19
	Tamworth	Mackay					
Small	341.0	16.3	8	12	135.0	120.0	-11
	Wingecarribee	Livingstone					
<b>All size groups (national)</b>	1,798.8	16.3	30	32	117.2	113.8	-3
	Toowoomba	Livingstone					

Nationally, the median average duration of unplanned interruptions remained consistent with 2017–18, with a slight decrease from 118 minutes to 114 minutes (3 per cent). Toowoomba had the highest duration of unplanned interruptions of all utility groups (1,798.8 minutes); it also recorded the highest duration in the previous two reporting periods. Gladstone Regional Council and Port Macquarie Hastings Council both reported large percentage increases (201 per cent and 200 per cent, respectively).

### 6.1.2 Results and analysis—Major utility group

Figure 6.1 presents a ranked breakdown of the average duration of an unplanned interruption for this utility group from 2014–15 to 2018–19. The figure highlights the large year-to-year variation in the indicator that can result from a single major mains break.

Central Coast Council reported the highest median, and Barwon Water reported an increase of 42 per cent compared to 2017–18.

Central Coast Council reported a fourth consecutive year of average duration well above the national and group median. This result in part reflects the more distributed nature of the area served by the utility.

SA Water reported the second-highest average duration. As reported in previous Urban NPRs, these results are explained by the procedures followed to mitigate the safety hazards associated with the repair of cast iron mains. Cast iron pipes have been used extensively in South Australia and are more likely to fail from pressure issues. Previously, these pipes were repaired under pressure; however, work, health, and safety measures require the water supply to be shut down and the area excavated before the pipe is repaired.

## 6.2 Total complaints: water and sewerage (per 1,000 properties)—C13

The total number of water and sewerage complaints per 1,000 properties (C13) is a measure of a utility's customer satisfaction and operational performance. A complaint can be a written or verbal expression of dissatisfaction made about an action, a proposed action or a failure to act by the water utility, its employees, or contractors.

Complaints from different customers about the same issue are counted as separate complaints.

Total water and sewerage complaints data for all utilities reporting in 2018–19 are presented in Table A11, Appendix A.

### 6.2.1 Key findings

A summary of data for total water and sewerage complaints by utility group is shown in Table 6.2. Nationally, there was a 38 per cent increase in the median number of complaints; this arose from increases for the Large and Small utility groups.

**Table 6.2 Overview of results: Total complaints: water and sewerage (per 1,000 properties).**

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	14.3	0.8	8	7	3.5	3.5	0
	Logan	WC (Perth)					
Large	60.4	0.5	4	4	3.6	3.9	8
	P&W (Darwin)	Townsville					
Medium	88.4	0	9	11	6.0	3.8	-37
	Queanbeyan	Gladstone					
Small	121.9	0.2	16	8	5.4	6.9	28
	P&W (Alice Springs)	Western Downs					
<b>All utility groups (national)</b>	121.9	0	37	30	3.9	5.4	38
	P&W (Alice Springs)	Gladstone					

**Table note**

Median total complaints: water and sewerage (per 1,000 properties) are calculated for the all non-bulk reporting utilities that provide both reticulated water supply and sewerage services.



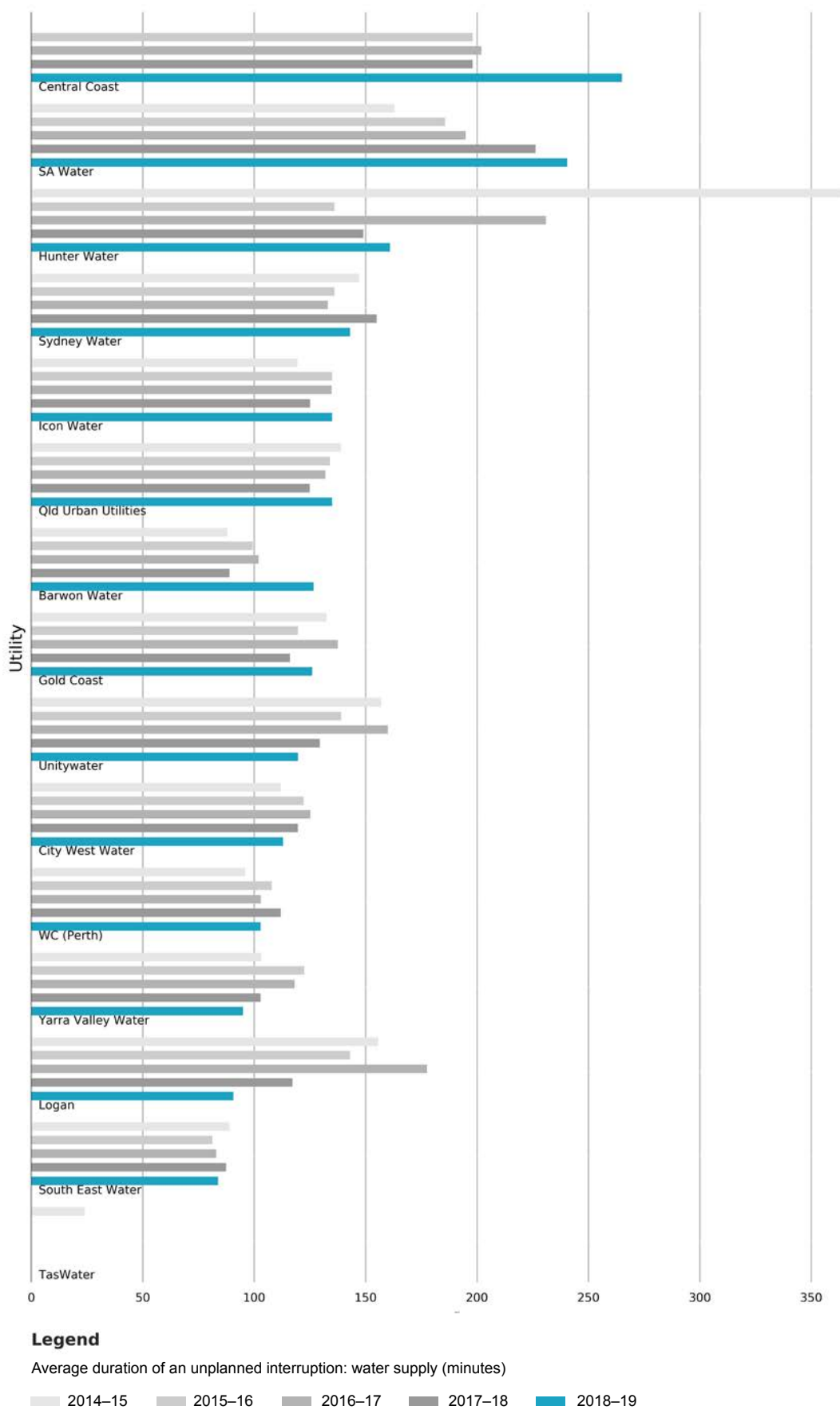


Figure 6.1 Average duration of an unplanned interruption: water (minutes)—Major utility group.

## 6.2.2 Results and analysis—Major utility group

Figure 6.2 shows a ranked breakdown of the total water and sewerage complaints from 2014–15 to 2018–19.

Logan City Council, Tasmanian Water and Sewerage Corporation, Yarra Valley Water and Central Coast Council reported the highest number of total complaints among the Major utilities for 2018–19. Tasmanian Water and Sewerage Corporation and Central Coast Council reported a decrease of 19 per cent and 7 per cent, respectively, compared to the previous year.

## 6.3 Percentage of calls answered by an operator within 30 seconds—C14

The percentage of calls answered by an operator within 30 seconds (C14) measures the number of calls answered within 30 seconds after the ‘operator’ option is selected. It is a measure of the efficiency of a utility’s customer service centre and is affected by:

- the ratio of customer service staff to customers; and
- severe events, such as storms or floods, that result in a large increase in customer calls.

Data on the percentage of calls answered by an operator within 30 seconds for all utilities reporting in 2018–19 are presented in Table A12, Appendix A.

**Table 6.3 Overview of results: Percentage of calls answered within 30 seconds.**

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	90.2	50.5	7	5	72.5	68	-6
	Yarra Valley Water	City West Water					
Large	96.7	67.8	2	4	81.8	78.4	-4
	Goulburn Valley Water	Gippsland Water					
Medium	99	69	3	8	96	93	-3
	East Gippsland Water	Tweed					
Small	100	60	7	5	87.7	88.3	1
	Multiple utilities	Essential Energy					
<b>All size groups (national)</b>	100	50.5	19	22	84.9	82	-3
	Bathurst	City West Water					

**Table note**

Median percentage of calls answered by an operator within 30 seconds is calculated for all utilities reporting data in both 2017–18 and 2018–19.

### 6.3.1 Key findings

Nationally, the median percentage of calls answered within 30 seconds remained consistent with 2017–18, decreasing by 3 per cent from 2017–18, to 82 per cent of calls answered within 30 seconds. The challenge faced by Major utilities in managing call volumes and Major and Small utilities in supporting effective customer service staff to customer ratios is highlighted by the variation in median response times of the groups.

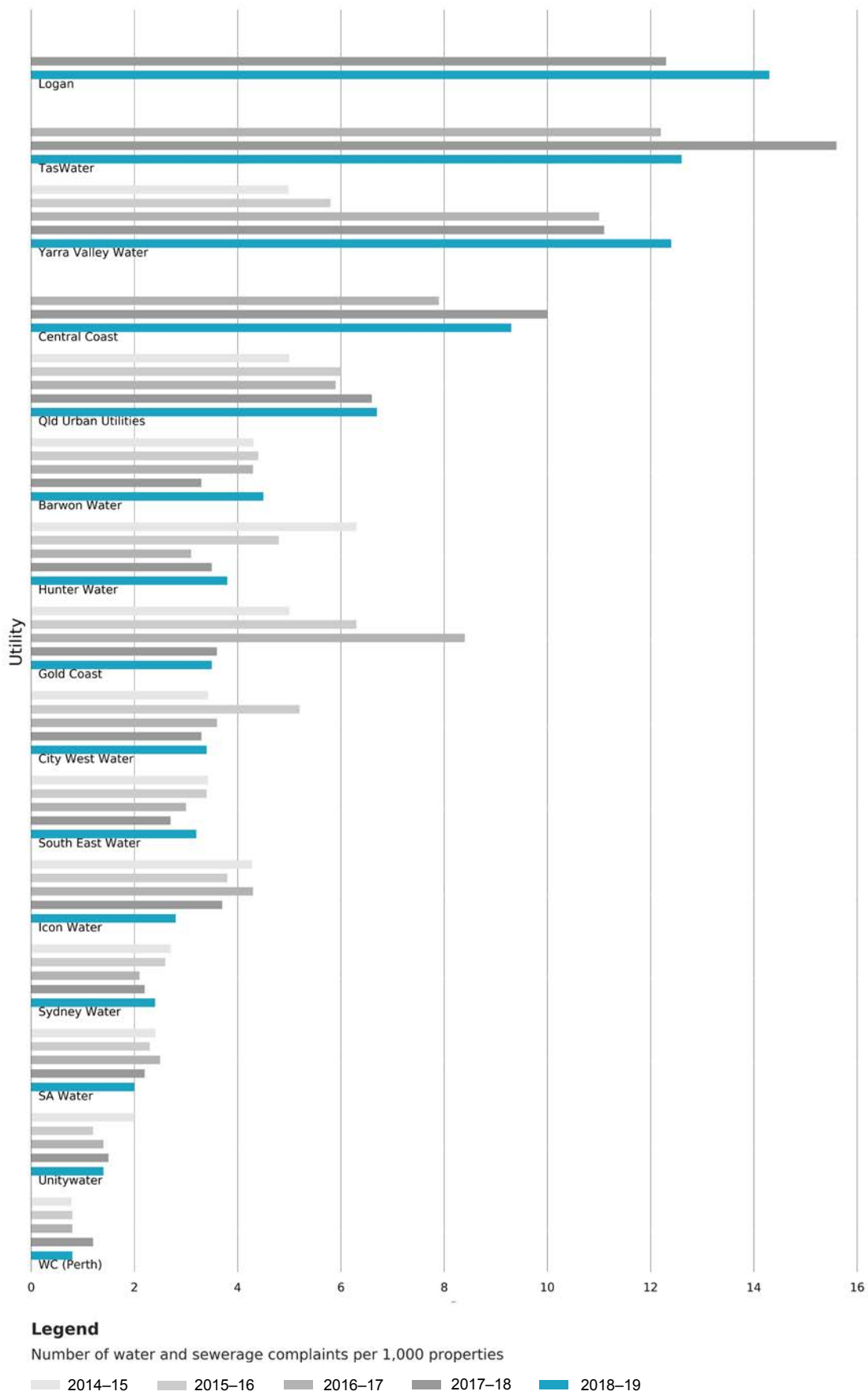


Figure 6.2 Total complaints: water and sewerage (per 1,000 properties)—Major utility group.

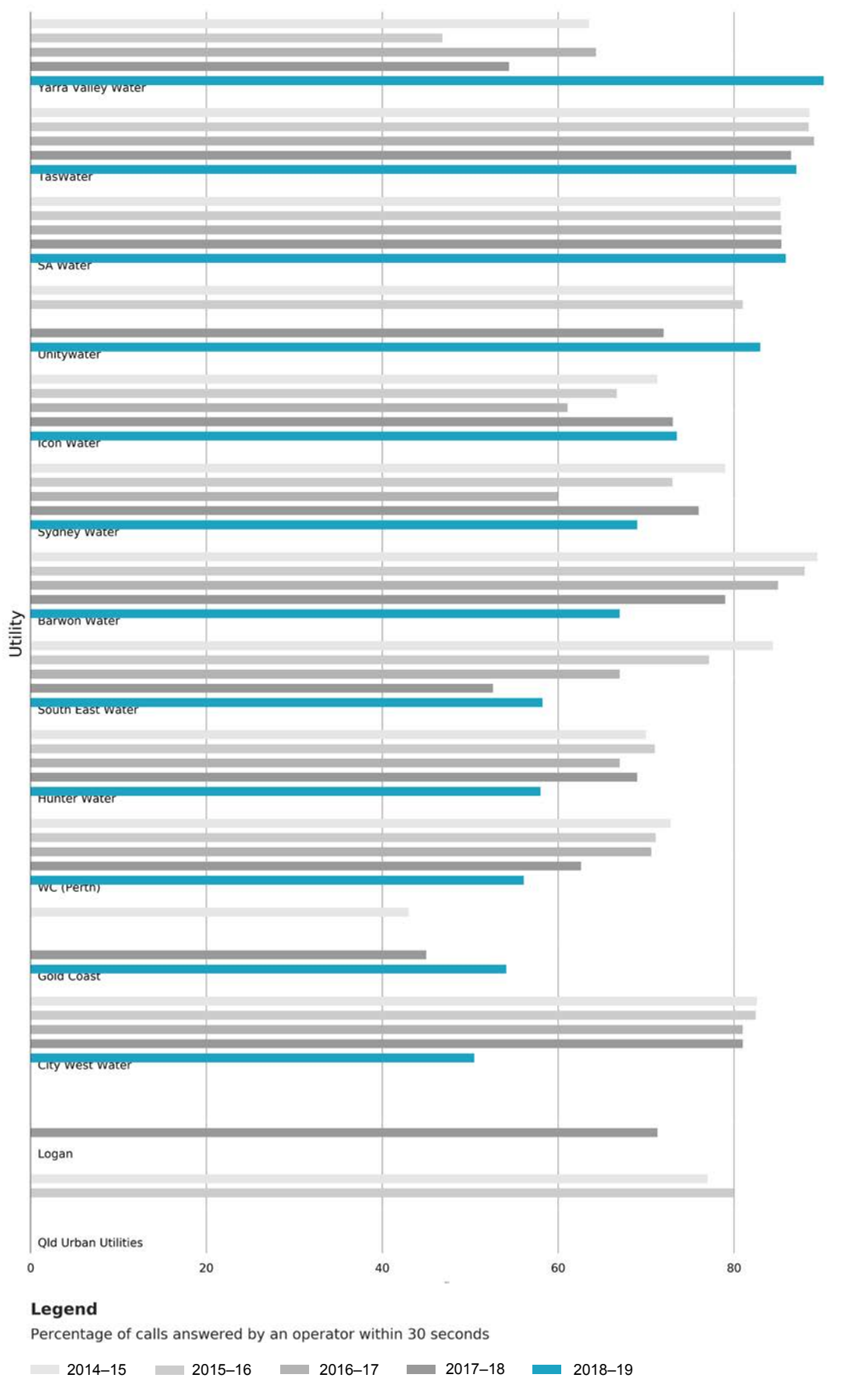


Figure 6.3 Percentage of calls answered by an operator within 30 seconds—Major utility group.

### 6.3.2 Results and analysis—Major utility group

Figure 6.3 shows a ranked breakdown of the percentage of calls answered by an operator within 30 seconds from 2014–15 to 2018–19.

Yarra Valley Water Corporation reported the highest percentage at 90.2, and also the largest increase compared to last year (up from 54.4 per cent in 2017–18). City West Water reported the biggest decrease in performance (37.7 per cent) for this indicator.



## 7 Asset

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

The number of water main breaks per 100 km of water main (A8) is the total number of breaks, bursts, and leaks in all distribution system mains<sup>5</sup>, excluding breaks associated with headworks and transfer mains. It provides an indication of both customer service and the condition of the network. The number of main breaks is influenced by various factors, including:

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

Data on the number of water main breaks per 100 km of water mains for all utilities reporting in 2018–19 are presented in Table A13, Appendix A.

#### 7.1.1 Key findings

Figure 7.1 shows the downward trend in water main breaks data for all utilities reporting A8 from 2008–09 to 2017–18. In 2018–19, there was a modest increase for all but the Large utility group which reported a decrease.

Table 7.1 presents a summary of the number of water main breaks per 100 km of water main, by utility size group.

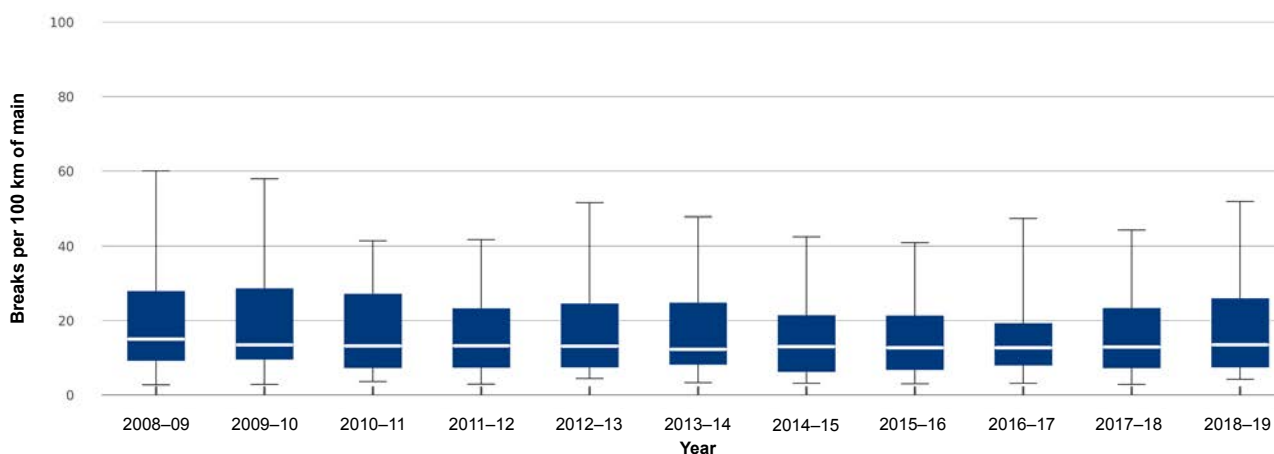


Figure 7.1 Water main breaks per 100 km of water main.

<sup>5</sup> The figure includes both potable and non-potable water mains.

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

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	51.8	4.2	8	6	19.4	19.9	3
	City West Water	Unitywater					
Large	26.9	4	4	6	20.6	18.5	-10
	Gippsland Water	Redland City					
Medium	98.5	4.6	12	9	8.1	8.3	2
	Gladstone	Bundaberg					
Small	43.2	3.5	12	15	15	15.1	1
	Lismore	Livingstone					
<b>All utility groups (national)</b>	98.5	3.5	36	36	13.1	12.4	-5
	Gladstone	Livingstone					

**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.

### 7.1.2 Results and analysis—Major utility group

Figure 7.2 presents a ranked breakdown of the water main breaks for each utility in the Major utility group from 2014–15 to 2018–19. The figure highlights both the variance within the utility group and a broad downward trend for some utilities (for example, Central Coast Council and Water Corporation – Perth).

Eight utilities, including Queensland Urban Utilities, City West Water, Logan City Council and SA Water Corporation, reported an increase in water main breaks from 2017–18 to 2018–19. Gold Coast Council reported the largest relative increase of 42 per cent compared to 2017–18. However, their 2018–19 result of 9.1 water main breaks per 100 km of water main still meets their annual target of less than 12 breaks.<sup>6</sup> Sydney Water Corporation reported the largest relative decrease with a 25 per cent decrease in breaks and leaks compared to 2017–18. However, this decrease followed a large increase from 2016–17 to 2017–18, so their 2018–19 result is close to their long-term average again.

## 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.

- Some utilities have a very long property connection (from the customer's sanitary drain to the middle of a road), while others have a very short or no property connection (that is, 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 own<sup>7</sup> or maintain the property connections and therefore do not report on them (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.

<sup>6</sup> City of Gold Coast Annual Report 2018–19.

<sup>7</sup> For such utilities, the property owner is responsible for the property's sewer connections.

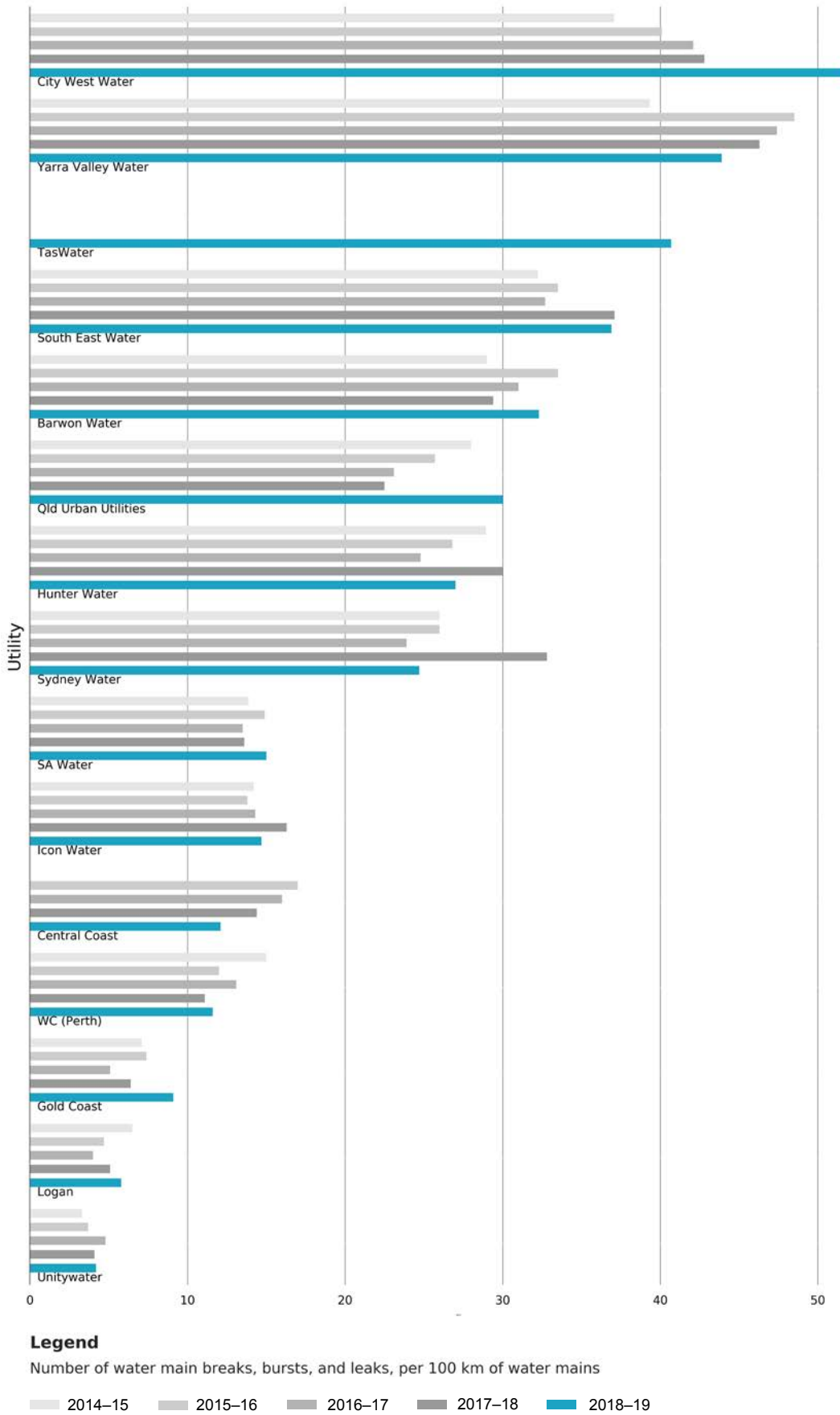


Figure 7.2 Water main breaks per 100 km of water main—Major utility group.

The performance of a sewerage system is influenced by:

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

Results reflect both the condition of the network and the level of customer service. For the reasons given above, care should be taken in comparing the performance of utilities against each other using these indicators.

Data on sewerage mains breaks and chokes for all utilities reporting in 2018–19 are presented in Table A14, Appendix A. Property connection sewer breaks and chokes for all utilities reporting in 2018–19 are presented in A15, Appendix A.

### 7.2.1 Key findings

Table 7.2 presents a summary of the number of sewerage mains breaks and chokes per 100 km of sewer main, by utility group.

Table 7.3 presents a summary of the property connection sewer breaks and chokes, by utility group.

In 2018–19, there were 17.6 sewerage main breaks and chokes per 100 km of sewer, which was a 14 per cent increase in the national median from 2017–18 (Table 7.2). There was an 11 per cent increase in the sewer breaks and chokes per 1,000 properties (Table 7.3). Almost all size groups reported increases in sewerage mains breaks and chokes, except for Large which reported a 6 per cent decrease. All utility groups reported an increase in property connection sewer breaks and chokes; the Small utility group reported a 43 per cent increase while the others were in the range of 7 to 11 per cent.

**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 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	74	4.9	8	6	30.7	36.6	19
	Sydney Water	Gold Coast					
Large	44.2	2.3	5	5	13.5	12.7	-6
	Toowoomba	Redland City					
Medium	101	0	13	6	11.5	12.1	5
	Queanbeyan	Tweed					
Small	115	3	12	14	14	17	21
	Essential Energy	WC (Busselton) (S)					
<b>All size groups (national)</b>	115	0	38	31	15.5	17.6	14
	Essential Energy	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.

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 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	28	0.3	9	3	4	4.4	10
	SA Water	Sydney Water					
Large	5.5	1	3	6	3	3.2	7
	Townsville	Multiple utilities					
Medium	34.9	0	8	9	3	3.2	7
	GWMWater	Queanbeyan					
Small	51.7	0	11	10	4.7	6.7	43
	Essential Energy	Kal–Boulder (S)					
<b>All utility groups (national)</b>	51.7	0	31	28	3.8	4.2	11
	Essential Energy	Multiple utilities					

**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 2017–18 and 2018–19.

### 7.2.2 Results and analysis—Major utility group

Figures 7.3 and 7.4 show a ranked breakdown of the sewerage mains breaks and chokes for each utility from 2014–15 to 2018–19 and a ranked breakdown for property connection sewer breaks and chokes, respectively.

Eight utilities reported an increase in sewerage main breaks and chokes per 100 km sewer main, and nine utilities reported an increase in sewer breaks and chokes per 1,000 properties from 2017–18. This is consistent with these utilities experiencing consistent above-average temperatures and below-average rainfall in 2018–19. Dry conditions can result in more ground movement and an increase in sewerage main breaks (see Section 1.4 Key drivers).

Barwon Water reported the largest increase (42 per cent) in breaks and chokes per 100 km of sewer main compared with 2017–18 (Figure 7.3). This is consistent with continued below-average rainfall for eastern Australia. Temperatures also remained very much above average in 2018–19, resulting in dry soil conditions which can contribute to an increase in breaks and chokes (see Section 1.4 Key drivers).

## 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 (apparent losses), and unbilled authorised consumption (for example, water used for firefighting). 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 indicators (such as water main breaks), when comparing utilities.

Real loss data for all utilities reporting in 2018–19 are presented in Table A16, Appendix A.

### 7.3.1 Key findings

Table 7.4 presents a summary of the real losses, by utility size group.

In 2018–19, the national median across all size groups decreased by 5 per cent since 2017–18 to 79 L/service connection/day.



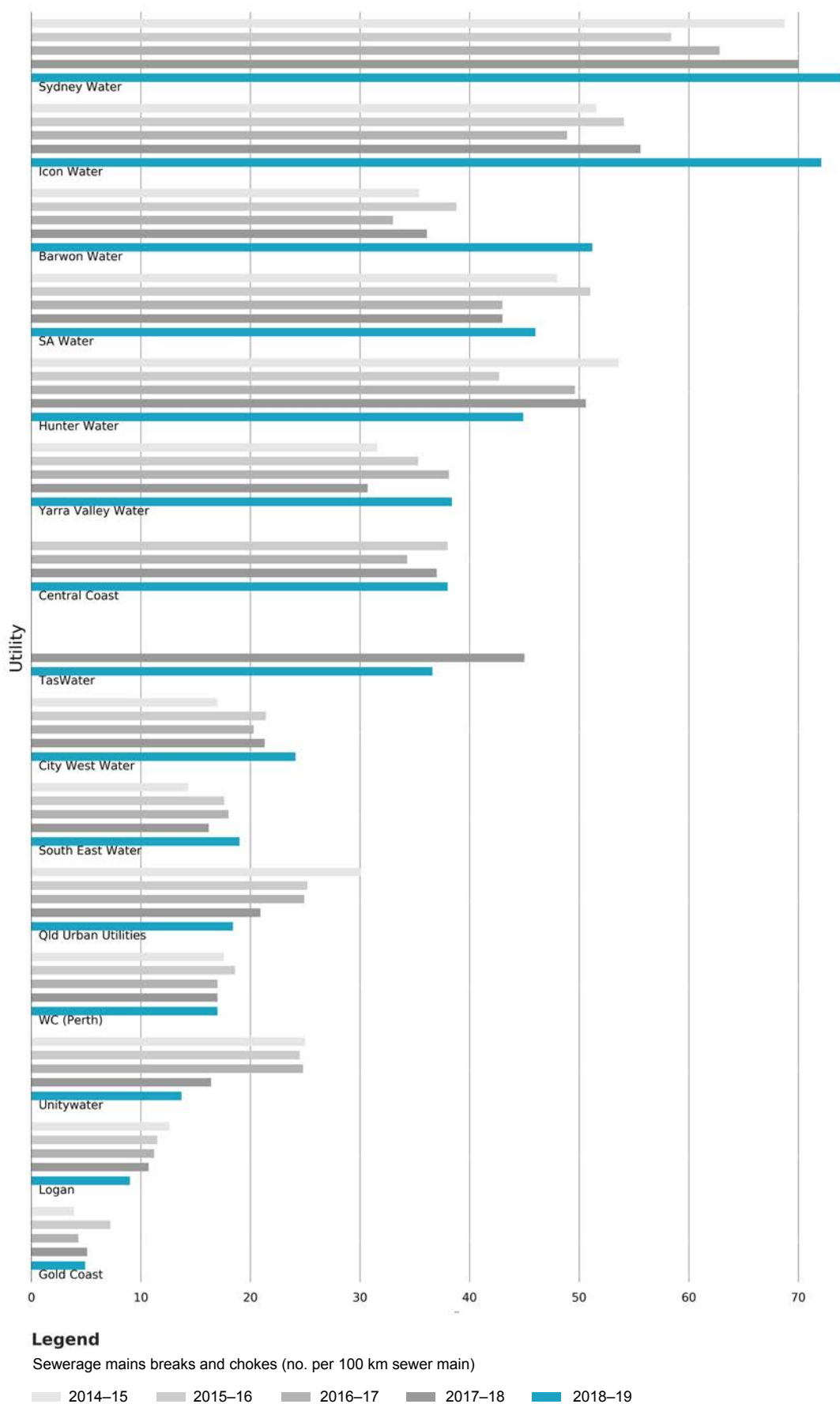
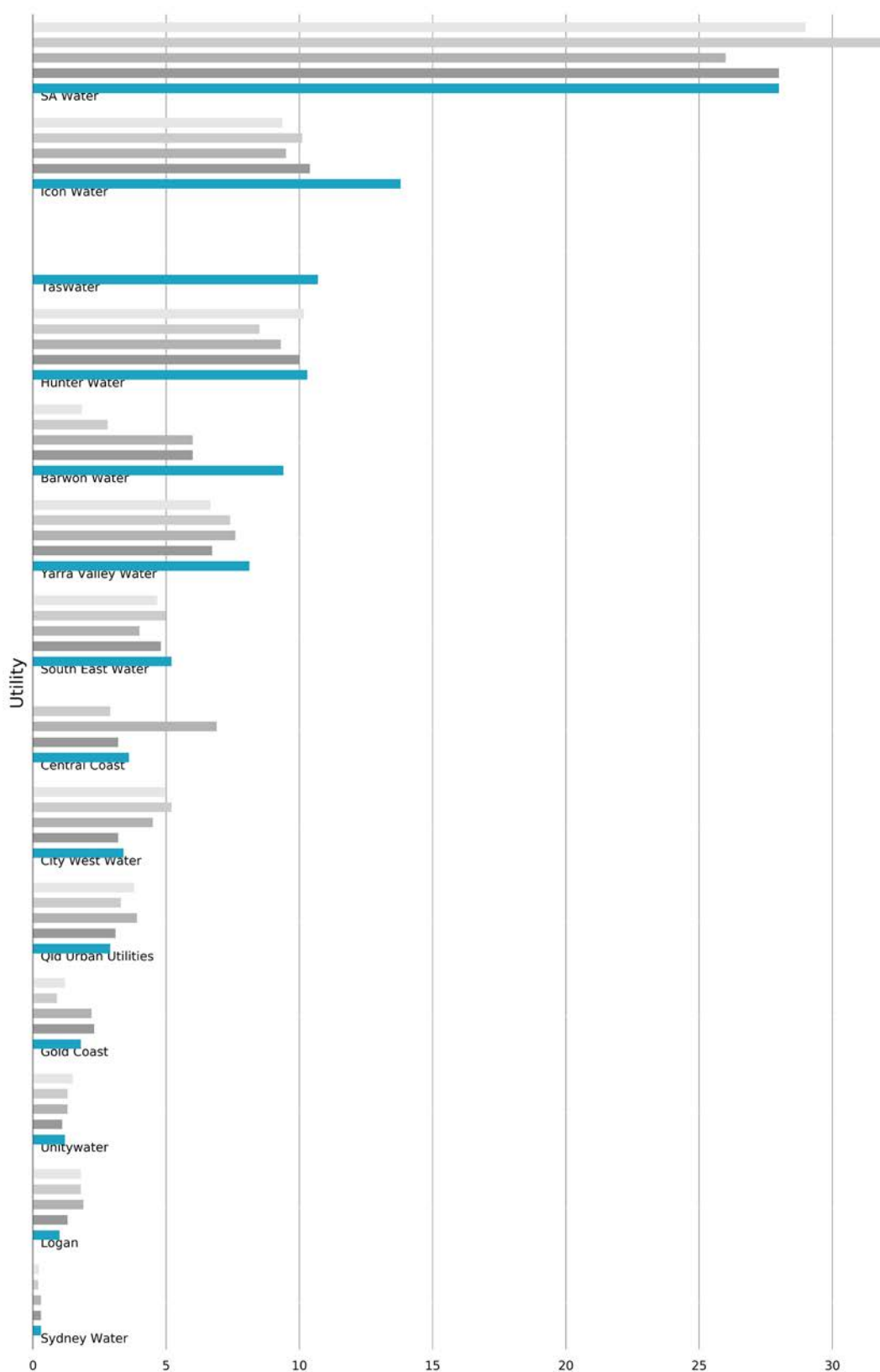


Figure 7.3 Sewerage mains breaks and chokes per 100 km of sewer main—Major utility group.



### Legend

Property connection sewer breaks and chokes (no. per 1,000 properties)

2014-15 2015-16 2016-17 2017-18 2018-19

Figure 7.4 Property connection sewer breaks and chokes per 1,000 properties—Major utility group.

As in 2016–17 and 2017–18, Cassowary Coast Regional Council reported the highest real losses among the utilities (461 L/service connection/day in 2018–19). Dubbo reported the highest proportional increase in real losses since 2017–18.

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

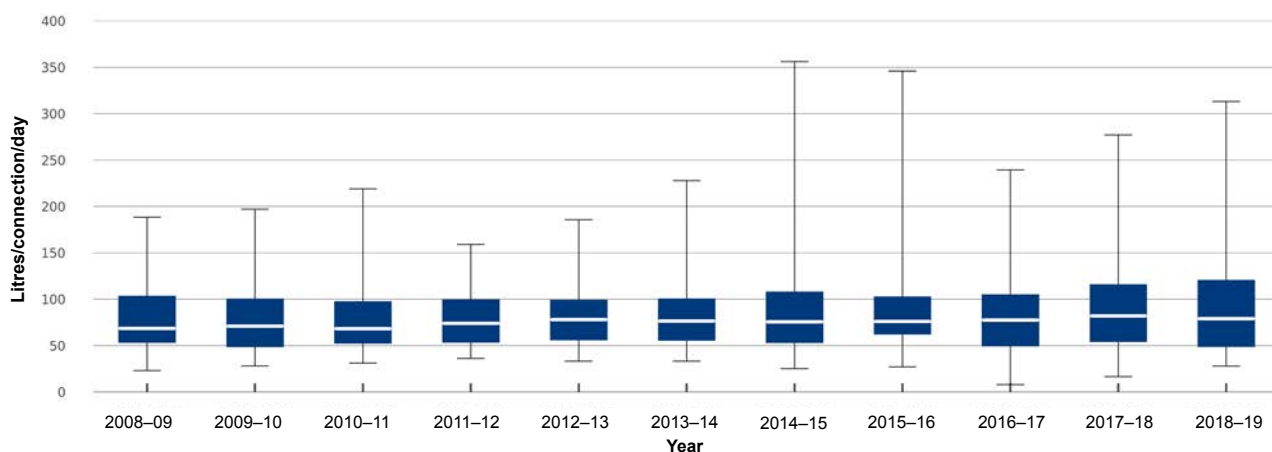
Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	313	34	7	8	76.4	69.3	-9
	TasWater	Barwon Water					
Large	342.9	11.6	5	5	70	69.5	-1
	Townsville	Redland City					
Medium	186	27.8	8	11	63	70	11
	Mackay	East Gippsland Water					
Small	461.8	11	13	16	111	100	-10
	Cassowary Coast	Westernport Water					
<b>All utility groups (national)</b>	461.8	11	33	40	83	79	-5
	Cassowary Coast	Westernport Water					

**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.

Figure 7.5 shows a box-and-whisker plot of the real losses for all utilities reporting A10 for a given reporting year from 2008–09 to 2018–19.

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 2014–15 to 2018–19. Seven utilities reported an increase in real losses between 2017–18 and 2018–19. South East Water Ltd reported the highest increase of 40 per cent (from 47 L/service connection/day in 2017–18 to 66 L/service connection/day in 2018–19).

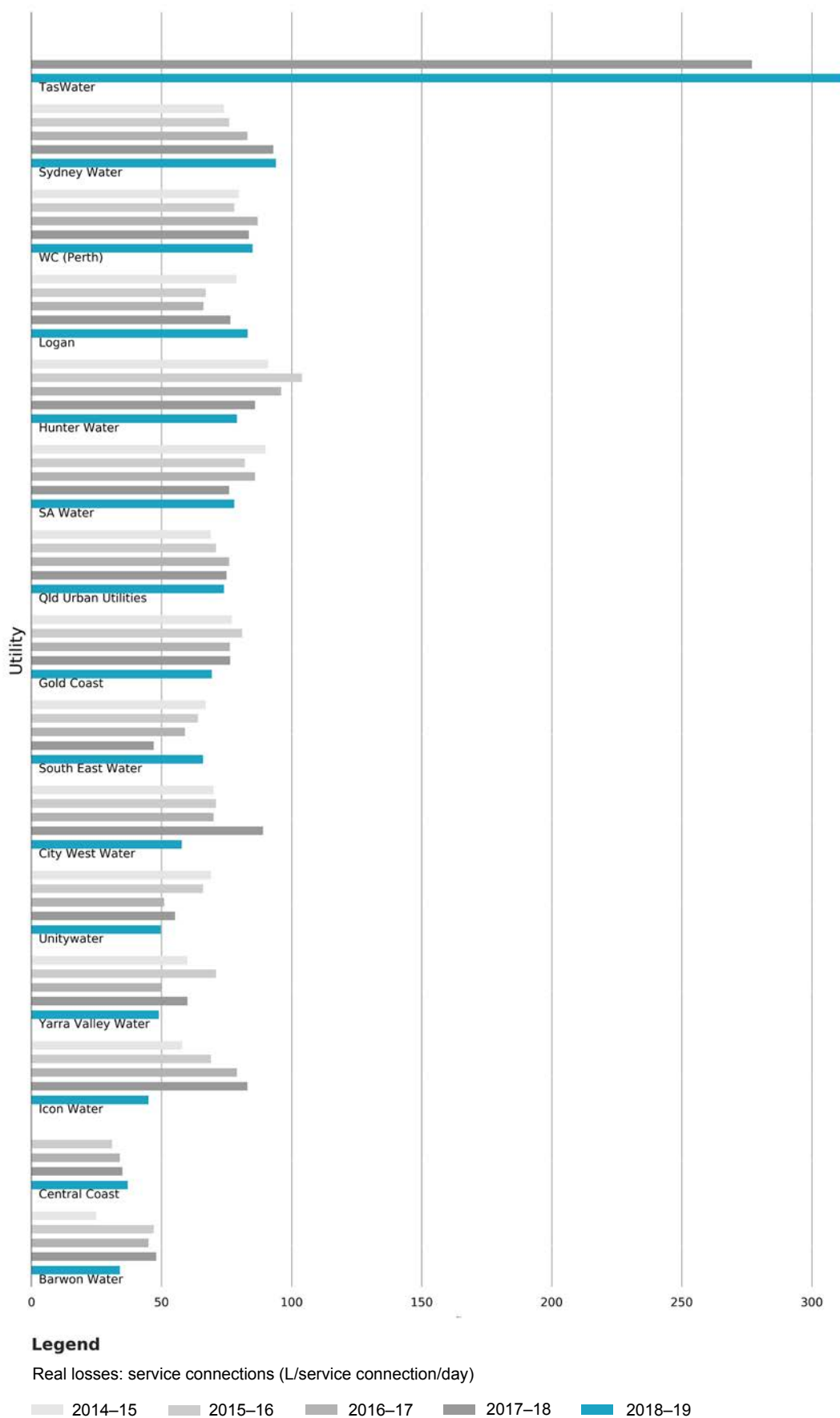


Figure 7.6 Real losses (L/service connection/day)—Major utility group.

## 8 Environment

### 8.1 Total net greenhouse gas emissions—E12

The total net greenhouse gas emissions (net tonnes CO<sub>2</sub> equivalent per 1,000 properties) indicator (E12) reports the contribution of a utility's operations to greenhouse gas (GHG) emissions. Utilities' calculations are required to refer to the National Greenhouse Accounts (NGA) Factors issued by the Department of the Environment and Energy and must also be updated annually. Greenhouse gas emissions are reported in net terms—any quantity of carbon sequestered through activities, such as the purchase of carbon offsets, is deducted.

The NGA outline three distinct types of emissions factors that may need to be calculated to estimate the full greenhouse impact of an organisation's activities:

- direct emission factors (Scope 1), which calculate the quantity of carbon dioxide equivalent (CO<sub>2</sub> equivalent) emitted per unit of activity at the point of emission release;
- indirect emission factors (Scope 2), which calculate the greenhouse impact of purchasing and consuming electricity (that is, the impact of burning fuels—coal or gas—at the power station); and
- various emission factors (Scope 3), including the impact of various activities—disposal of waste, employee business travel, and the transportation of products.

Comparing different utilities' net GHG emissions is a difficult exercise and should be undertaken with caution due to the number of variables affecting emissions, including:

- sources of water;
- gravity versus pumped networks;
- geographical conditions (influencing the need for pumping);
- the number of large-volume customers;
- the extent of industry within the customer base;
- the prevailing greenhouse policy in the jurisdiction; and
- the method of calculation.

Total net GHG emissions data for 2018–19 are presented in Table A17, Appendix A.

### 8.1.1 Key findings

A summary of the total net GHG emissions, by utility group, is shown in Table 8.1.

Table 8.1 Overview of results: Total net greenhouse gas emissions (net tonnes CO<sub>2</sub> equivalent per 1,000 properties).

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2017–18 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	510	28	8	6	185	204	10
	WC (Perth)	City West Water					
Large	1,080	190	8	2	339	405	19
	Goulburn Valley Water	Redland City					
Medium	754	169	7	9	472	449	-5
	Shoalhaven	Queanbeyan					
Small	859	223	9	11	392	428	9
	P&W (Alice Springs)	Lismore					
<b>All size groups (national)</b>	1,080	28	32	28	381	414	9
	Goulburn Valley Water	City West Water					

**Table note**

The median total net GHG emissions is calculated using data from all utilities supplying both water and sewerage services reporting data for E12 for both 2016–17 and 2017–18.

The median total net GHG emissions increased for the first time since 2014–15 (by 9 per cent).

### 8.1.2 Results and analysis—Major utility group

The Major utility group reported a 10 per cent increase in median net GHG emissions from 2017–18 to 2018–19. The notable changes from 2017–18 include a very high increase in emissions by Hunter Water Corporation— from 163 net tonnes CO<sub>2</sub> equivalent per 1,000 properties to 357 (120 per cent)—and a large decrease by Water Corporation – Perth (32 per cent).

The increase of net GHG emissions by Hunter Water Corporation is due to the inclusion of the Veolia Treatment Operation contract for the first time.

Water Corporation – Perth is still the highest net GHG emitter in the Major utility group with 510 tonnes of CO<sub>2</sub> equivalents in 2018–19, but its emissions did decrease by 318 tonnes of CO<sub>2</sub> equivalents per 1,000 properties due to its reduced supply of desalinated water in 2018–19.

Ongoing drought in the Icon Water Limited area of responsibility (ACT) has led to a large increase in emissions (36 per cent) due to pumping raw water.

SA Water Corporation's increase in emissions (41 per cent) is mostly due to a 65 per cent increase in greenhouse gas emissions generated in the water supply system due to more pumping and associated electricity emissions in a drier summer and winter.



## 9 Health

### 9.1 Percentage of population for whom microbiological compliance was achieved—H3

This indicator reports the percentage of the population serviced by the utility for whom microbiological compliance was achieved.

Compliance is assessed against the *Australian Drinking Water Guidelines 2011*<sup>8</sup>, or licence conditions imposed on the utility by their regulator. Typically, utilities record very high compliance; however, unforeseen events may deliver a lower compliance result, with the cause of non-compliance not always traceable.

Microbiological compliance data for 2018–19 are presented in Table A18, Appendix A.

#### 9.1.1 Key findings

A summary of the percentage of population for which microbiological compliance was achieved, by utility group, is shown in Table 9.1.

In 2018–19, nationwide and across all utility groups, all utilities achieved 100 per cent microbiological compliance except Cassowary Coast Regional Council (98.9 per cent) and South Gippsland Water (99.0 per cent).

**Table 9.1 Overview of results: Percentage of population for which microbiological compliance was achieved (%)**

Utility group	Range		No. utilities with increase/decrease from 2017–18		Median		Change in median from 2018–19 (%)
	High	Low	Increase	Decrease	2017–18	2018–19	
Major	100	100	1	0	100	100	0
	Multiple utilities	Multiple utilities					
Large	100	100	2	0	100	100	0
	Multiple utilities	Multiple utilities					
Medium	100	100	1	0	100	100	0
	Multiple utilities	Multiple utilities					
Small	100	98.9	1	2	100	100	0
	Multiple utilities	Cassowary Coast					
<b>All size groups (national)</b>	100	98.9	5	2	100	100	0
	Multiple utilities	Cassowary Coast					

**Table note**

The median percentage of population for which microbiological compliance was achieved was calculated using data from all utilities supplying both water services reporting data against H3.

#### 9.1.2 Results and analysis—Major utility group

All utilities in this Major utility group reported achieving microbiological compliance for 100 per cent of the population. The Tasmanian Water and Sewerage Corporation reported 100 per cent compliance this year for the first time.

<sup>8</sup> [www.nhmrc.gov.au/guidelines/publications/eh52](http://www.nhmrc.gov.au/guidelines/publications/eh52), updated May 2019

## Appendix A Individual utility group tables

- Tables A1 to A18 present a summary of key indicators by utility group for the period 2014–15 to 2018–19.
- Utilities are sorted in descending order based on their changes in values from 2018–19 within each utility size group.
- Unlike the summary tables contained within the body of this report, median and average values presented at the end of each utility group are based on all utilities reporting within the year.

**Table A1 W12—Average annual residential water supplied (kL/property) by utility size group, 2014–15 to 2018–19.**

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
Barwon Water	156	170	158	163	171	5.2
SA Water	180	200	166	190	198	3.8
Icon Water	188	196	190	197	204	3.5
Logan	157	151	154	145	150	3.1
Yarra Valley Water	150	156	148	151	155	2.9
City West Water	148	150	147	142	146	2.7
Gold Coast	173	170	168	161	164	1.9
Qld Urban Utilities	155	156	154	153	156	1.6
Unitywater	159	157	157	156	157	0.6
WC (Perth)	244	240	223	219	219	-0.2
South East Water	149	154	150	150	149	-0.3
TasWater	172	176	179	193	191	-0.8
Hunter Water	168	166	172	181	175	-3.3
Central Coast		155	161	169	158	-6.5
Sydney Water	201	201	206	215	199	-7.3
<b>Median</b>	<b>164</b>	<b>166</b>	<b>161</b>	<b>163</b>	<b>164</b>	
<b>Mean</b>	<b>171</b>	<b>173</b>	<b>169</b>	<b>172</b>	<b>173</b>	
<b>Large</b>						
Townsville	435	369	243	242	314	29.7
Goulburn Valley Water	265	287	242	264	285	8.2
Toowoomba	146	145	155	152	163	6.9
Western Water	178	193	179	186	196	5.3
Gippsland Water	164	170	166	168	177	5.2
Coliban Water	192	210	185	201	210	4.7
Redland City	168	166	172	164	169	3.1
P&W (Darwin)	409	405	361	368	380	3.0
Central Highlands Water	149	163	150	157	161	2.6
Cairns	263	244	251	253	254	0.5
<b>Median</b>	<b>185</b>	<b>202</b>	<b>182</b>	<b>194</b>	<b>203</b>	
<b>Mean</b>	<b>237</b>	<b>235</b>	<b>210</b>	<b>216</b>	<b>231</b>	
<b>Medium</b>						
Gladstone	245	243	224	132	239	80.4
Fraser Coast	181	181	201	164	186	13.5
Bundaberg	230	236	234	218	243	11.8
Riverina Water (W)	311	333	298	311	343	10.3

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Fitzroy River Water	317	363	345	343	375	9.4
MidCoast Council	142	139	144	142	155	9.2
North East Water	197	214	198	208	224	7.4
Albury	205	223	204	237	252	6.3
Lower Murray Water	475	504	428	490	519	5.8
Mackay	214	196	175	180	187	3.7
Clarence Valley	147	158	162	155	159	2.6
Wannon Water	144	153	136	144	147	2.2
East Gippsland Water	140	146	148	157	160	1.6
Tweed	178	165	178	176	177	0.6
WC (Mandurah)	238	234	221	216	212	-1.5
Queanbeyan		163	150	167	158	-5.4
Port Macquarie Hastings	151	158	152	172	160	-7.0
Shoalhaven	143	150	151	157	146	-7.0
Coffs Harbour	167	167	167	170	154	-9.4
Dubbo		322	300	386	337	-12.7
Tamworth	188	251	230	291	247	-15.1
GWMWater	237	254	210	316	249	-21.4
<b>Median</b>	<b>192</b>	<b>205</b>	<b>200</b>	<b>178</b>	<b>200</b>	
<b>Mean</b>	<b>212</b>	<b>225</b>	<b>212</b>	<b>224</b>	<b>229</b>	
<b>Small</b>						
Western Downs	176		181	188	204	8.7
Westernport Water	80	77	84	85	91	7.1
Livingstone	260	294	281	296	317	7.1
Armidale				214	226	5.6
Ballina	181	168	192	179	183	2.2
P&W (Alice Springs)	382	455	418	448	457	2.1
WC (Kal–Boulder) (W)	320	295	279	280	284	1.1
South Gippsland Water	117	125	120	118	119	0.9
Lismore	155	156	155	147	148	0.7
Goulburn Mulwaree	139	162	156	149	150	0.7
Byron	180	169	156	199	200	0.5
Essential Energy	257	233	242	277	275	-0.7
Aqwest–Bunbury (W)	265	261	248	242	240	-0.9
Eurobodalla	114	117	124	123	121	-1.6
WC (Australind/Eaton)	329	315	288	288	283	-1.8
Bega Valley	137	135	150	149	145	-2.7
Southern Downs	210	145	158	157	152	-3.4
WC (Geraldton)	306	306	298	289	279	-3.6
WC (Albany)	188	178	176	176	169	-4.0
Wingecarribee	178	186	190	216	206	-4.6
Cassowary Coast	298	294	251	237	219	-7.5
Kempsey	155	149	141	159	147	-7.5
Gympie	300	182	170	171	158	-8.0
Central Highlands	632	520	445	487	443	-9.2

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Busselton (W)	284	288	275	294	265	-9.8
Orange	170	173	173	186	166	-10.8
Whitsunday	281	292	238	319	268	-16.1
Bathurst	225	235	231	254	194	-23.6
Goldenfields Water (W)			261	287	199	-30.7
<b>Median</b>	<b>210</b>	<b>184</b>	<b>191</b>	<b>214</b>	<b>200</b>	
<b>Mean</b>	<b>234</b>	<b>227</b>	<b>217</b>	<b>228</b>	<b>217</b>	

Table A2 W26—Total recycled water supplied (ML), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
Logan	681	784	738	461	625	35.6
Qld Urban Utilities	9,322	8,828	4,188	4,037	4,776	18.3
Unitywater	1,215	969	1,461	1,030	1,160	12.6
SA Water	31,666	31,181	23,890	29,421	32,312	9.8
South East Water	3,891	3,968	3,233	7,433	8,073	8.6
Barwon Water	10,157	6,187	5,541	5,655	5,998	6.1
City West Water	140	2,567	2,581	2,605	2,739	5.1
Gold Coast	7,269	9,241	8,256	7,439	7,712	3.7
Sydney Water	43,075	43,342	38,339	42,833	44,021	2.8
Yarra Valley Water	3,817	3,905	4,107	2,601	2,473	-4.9
WC (Perth)	9,354	10,212	9,568	12,100	9817	-18.9
Hunter Water	4,600	5,373	5,384	4,923	3,862	-21.6
Icon Water	4,352	4,053	4,404	77	60	-22.1
Central Coast		895	724	1,042	674	-35.3
<b>Median</b>	<b>4,600</b>	<b>5,373</b>	<b>4,404</b>	<b>4,480</b>	<b>4,319</b>	
<b>Mean</b>	<b>10,738</b>	<b>10,819</b>	<b>9,246</b>	<b>8,690</b>	<b>8,879</b>	
<b>Large</b>						
Toowoomba	2,864	2,773	2,854	1,743	2,597	49.0
Goulburn Valley Water	7,687	7,194	5,698	314	390	24.2
P&W (Darwin)	492	80	541	451	488	8.2
Townsville	2,877	1,606	1,719	1,283	1,367	6.5
Redland City	287		105	89	94	5.6
Central Highlands Water	1,530	2,055	1,104	1,593	1,680	5.5
Western Water	5,747	8,956	9,073	7,244	7,627	5.3
Coliban Water	3,198	3,444	9,739	1,509	1,510	0.1
Cairns	2,212	2,278	2,184	2,119	1,926	-9.1
Gippsland Water	1,701	1,958	2,169	2,291	2,054	-10.3
<b>Median</b>	<b>2,538</b>	<b>2,278</b>	<b>2,177</b>	<b>1,551</b>	<b>1,595</b>	
<b>Mean</b>	<b>2,859</b>	<b>3,372</b>	<b>3,519</b>	<b>1,864</b>	<b>1,973</b>	
<b>Medium</b>						
Bundaberg	642	758	452	352	533	51.4
Lower Murray Water	3,855	2,791	3,759	387	483	24.8
GWMWater	2,233	2,108	4,416	2,147	2,569	19.7
Fraser Coast	3,830	4,933	4,893	4,739	5,591	18.0
Wannon Water	1,979	1,725	1,656	1,779	2,008	12.9
Tamworth	4,278	4,071	4,188	4,060	4,563	12.4
MidCoast Council	1,327	944	1,033	1,290	1,432	11.0
Port Macquarie Hastings	386	340	481	400	440	10.0
WC (Mandurah)	131	137	168	226	239	5.8
Tweed	551	695	824	852	879	3.2
Gladstone	3,521	3,572	2,899	3,166	3,174	0.3
Mackay	5,076	4,967	2,602	4,263	4,263	0.0
Queanbeyan		100	158	70	70	0.0

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Clarence Valley	195	385	329	376	376	0.0
Wagga Wagga (S)	5,620	5,679	5,923	5,008	4,986	-0.4
Shoalhaven	1,705	1,551	1,576	2,289	2,185	-4.5
Fitzroy River Water	696	682	801	755	717	-5.0
North East Water	2,561	2,590	2,391	8,432	7,955	-5.7
Dubbo		2,599	2,327	3,043	2,448	-19.6
Albury	2,398	2,503	4,655	3,885	2,457	-36.8
Coffs Harbour	1,013	1,113	1,229	1,650	965	-41.5
East Gippsland Water	2,754	3,172	2,933	2,774	1,139	-58.9
<b>Median</b>	<b>2,106</b>	<b>1,917</b>	<b>1,992</b>	<b>1,963</b>	<b>1,720</b>	
<b>Mean</b>	<b>2,169</b>	<b>2,012</b>	<b>2,159</b>	<b>2,361</b>	<b>2,249</b>	
<b>Small</b>						
Lismore	5	5	8	6	15	150.0
Livingstone	458	0	786	789	1,480	87.6
Orange	2,826	2,051	786	2,020	3,074	52.2
Westernport Water	261	295	299	85	109	28.2
Ballina	517	500	701	623	782	25.5
WC (Busselton) (S)	230	225	221	247	287	16.2
WC (Geraldton)	227	216	220	214	248	15.9
Central Highlands		1,753	1,619	1,621	1,857	14.6
Eurobodalla	243	195	186	228	239	4.8
Wingecarribee	163	232	187	179	186	3.9
Gympie	549	160	118	108	111	2.8
South Gippsland Water	146	221	136	108	111	2.8
WC (Australind/Eaton)	1,433	1,469	1,181	714	733	2.7
Bathurst	3,712	0	0	674	691	2.5
Byron	444	367	661	629	642	2.1
Western Downs	1,025		1,097	1,073	1,075	0.2
Southern Downs	1,545	1,538	1,524	1,298	1,279	-1.5
WC (Albany)	2,009	2,131	2,145	2,172	2,081	-4.2
Goulburn Mulwaree	1,806	1,730	1,843	1,618	1,533	-5.3
Armidale				1,263	1,188	-5.9
Bega Valley	446	401	535	680	628	-7.6
Kempsey	77	96	123	158	145	-8.2
WC (Bunbury) (S)	102	109	114	139	124	-10.8
Whitsunday	727	667	460	403	358	-11.2
P&W (Alice Springs)	910	1,121	1,078	1,146	1,001	-12.7
Kal-Boulder (S)	1,607	1,449	946	955	773	-19.1
Essential Energy	776	669	704	662	484	-26.9
<b>Median</b>	<b>517</b>	<b>517</b>	<b>517</b>	<b>662</b>	<b>642</b>	
<b>Mean</b>	<b>890</b>	<b>890</b>	<b>890</b>	<b>734</b>	<b>786</b>	

Definition of W26 changed from 2017–18, data for 2014–15, 2015–16 and 2016–17 calculated based on the previous definition.



Table A3 P8—Typical annual bill (\$), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
WC (Perth)	1,427	1,444	1,436	1,489	1,547	3.9
TasWater		1,120	1,143	1,177	1,204	2.3
SA Water	1,387	1,413	1,183	1,266	1,293	2.1
Barwon Water	1,100	1,082	1,024	1,029	1,047	1.7
Hunter Water	1,077	1,074	1,094	1,146	1,161	1.3
Qld Urban Utilities	1,270	1,280	1,287	1,293	1,307	1.1
City West Water	968	995	967	945	955	1.1
Logan	1,689	1,628	1,643	1,603	1,608	0.3
Gold Coast	1,700	1,654	1,634	1,587	1,591	0.3
Yarra Valley Water	1,103	1,138	1,068	1,079	1,073	-0.6
Unitywater	1,589	1,572	1,562	1,474	1,460	-0.9
Sydney Water	1,235	1,232	1,124	1,146	1,103	-3.8
Central Coast		1,227	1,286	1,279	1,231	-3.8
Icon Water	1,172	1,194	1,177	1,188	1,141	-4.0
South East Water	1,032	1,078	1,055	1,038	969	-6.6
<b>Median</b>	<b>1,235</b>	<b>1,227</b>	<b>1,177</b>	<b>1,188</b>	<b>1,204</b>	
<b>Mean</b>	<b>1,288</b>	<b>1,275</b>	<b>1,246</b>	<b>1,249</b>	<b>1,246</b>	
<b>Large</b>						
Toowoomba	1,402	1,399	1,434	1,448	1,557	7.5
Redland City	1,484	1,550	1,572	1,481	1,504	1.6
Goulburn Valley Water	952	975	916	941	950	1.0
P&W (Darwin)	1,999	1,983	1,861	1,850	1,862	0.6
Gippsland Water	1,324	1,317	1,342	1,348	1,352	0.3
Western Water	1,030	1,094	990	1,012	1,015	0.3
Townsville	1,589	1,579	1,552	1,555	1,559	0.3
Coliban Water	1,371	1,416	1,352	1,389	1,389	0.0
Central Highlands Water	1,266	1,292	1,252	1,263	1,260	-0.2
Cairns	1,363	1,305	1,350	1,370	1,352	-1.3
<b>Median</b>	<b>1,367</b>	<b>1,358</b>	<b>1,351</b>	<b>1,380</b>	<b>1,370</b>	
<b>Mean</b>	<b>1,378</b>	<b>1,391</b>	<b>1,362</b>	<b>1,366</b>	<b>1,380</b>	
<b>Medium</b>						
Gladstone	1,389	1,659	1,568	1,492	1,654	10.9
Queanbeyan		1,511	1,494	1,572	1,657	5.4
MidCoast Council	1,640	1,677	1,715	1,789	1,880	5.1
North East Water	901	932	891	909	948	4.3
WC (Mandurah)	1,501	1,608	1,610	1,657	1,704	2.8
Fitzroy River Water	1,213	1,263	1,266	1,290	1,326	2.8
Tweed	1,406	1,461	1,528	1,526	1,565	2.6
Lower Murray Water	984	1,011	939	984	1,006	2.2
Bundaberg	1,810	1,553	1,466	1,449	1,481	2.2
Mackay	1,557	1,503	1,427	1,458	1,486	1.9
Clarence Valley	1,497	1,640	1,650	1,626	1,633	0.4
Albury	1,061	1,181	1,175	1,229	1,233	0.3
Shoalhaven	1,131	1,159	1,173	1,197	1,195	-0.2

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Wannon Water	1,176	1,184	1,108	1,115	1,111	-0.4
Coffs Harbour	1,483	1,471	1,451	1,447	1,435	-0.8
Port Macquarie Hastings	1,393	1,463	1,474	1,546	1,516	-1.9
GWMWater	1,406	1,433	1,343	1,389	1,360	-2.1
Fraser Coast	1,589	1,606	1,660	1,591	1,534	-3.6
Tamworth	1,360	1,471	1,439	1,528	1,468	-3.9
East Gippsland Water	1,177	1,193	1,232	1,239	1,184	-4.4
Dubbo		1,663	1,591	1,784	1,700	-4.7
<b>Median</b>	<b>1,393</b>	<b>1,471</b>	<b>1,451</b>	<b>1,458</b>	<b>1,481</b>	
<b>Mean</b>	<b>1,351</b>	<b>1,412</b>	<b>1,390</b>	<b>1,420</b>	<b>1,432</b>	
<b>Small</b>						
Wingecarribee	1,284	1,312	1,344	1,384	1,551	12.1
Lismore	1,536	1,626	1,682	1,694	1,809	6.8
Armidale				1,250	1,292	3.4
WC (Albany)	1,475	1,578	1,621	1,688	1,738	3.0
Kempsey	1,465	1,522	1,587	1,689	1,735	2.7
WC (Australind/Eaton)	1,771	1,777	1,764	1,811	1,860	2.7
WC (Geraldton)	1,680	1,780	1,809	1,864	1,903	2.1
Western Downs	1,156		1,419	1,417	1,439	1.6
Ballina	1,455	1,485	1,588	1,561	1,584	1.5
Cassowary Coast	1,617	1,671	1,661	1,659	1,683	1.4
Central Highlands	2,161	1,970	1,792	1,896	1,920	1.3
P&W (Alice Springs)	2,041	2,076	1,976	2,007	2,014	0.3
Westernport Water	1,145	1,138	1,150	1,173	1,176	0.3
Bega Valley	1,763	1,796	1,830	1,818	1,822	0.2
South Gippsland Water	1,022	1,022	992	999	1,001	0.2
Eurobodalla	1,638	1,666	1,693	1,704	1,707	0.2
Southern Downs	1,436	1,535	1,537	1,561	1,559	-0.1
Goulburn Mulwaree	1,440	1,488	1,417	1,372	1,353	-1.4
Essential Energy	1,353	1,307	1,321	1,384	1,358	-1.9
Orange	1,054	1,141	1,175	1,209	1,177	-2.6
Livingstone	1,648	1,613	1,760	1,669	1,622	-2.8
Whitsunday	1,701	1,692	1,692	1,757	1,680	-4.4
Byron	1,781	1,797	1,886	1,890	1,802	-4.7
Bathurst	1,069	1,137	1,169	1,249	1,190	-4.7
Gympie	1,461	1,286	1,268	1,318	1,200	-9.0
<b>Median</b>	<b>1,470</b>	<b>1,578</b>	<b>1,604</b>	<b>1,659</b>	<b>1,622</b>	
<b>Mean</b>	<b>1,506</b>	<b>1,540</b>	<b>1,547</b>	<b>1,561</b>	<b>1,567</b>	

Table A4 P7—Annual bill based on 200 kL (\$), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
WC (Perth)	1,336	1,358	1,386	1,445	1,502	3.9
Hunter Water	1,153	1,153	1,159	1,189	1,219	2.5
TasWater		1,144	1,166	1,185	1,214	2.4
Qld Urban Utilities	1,444	1,459	1,469	1,475	1,491	1.1
SA Water	1,458	1,414	1,298	1,299	1,301	0.2
Unitywater	1,750	1,743	1,736	1,729	1,724	-0.3
Gold Coast	1,813	1,782	1,764	1,745	1,736	-0.5
Sydney Water	1,231	1,230	1,113	1,114	1,104	-0.9
Barwon Water	1,206	1,153	1,123	1,115	1,102	-1.2
Central Coast		1,335	1,376	1,350	1,328	-1.6
Logan	1,867	1,817	1,822	1,823	1,793	-1.6
Yarra Valley Water	1,339	1,348	1,305	1,303	1,249	-4.1
Icon Water	1,214	1,206	1,194	1,197	1,137	-5.0
City West Water	1,184	1,210	1,188	1,189	1,126	-5.3
South East Water	1,264	1,291	1,263	1,264	1,146	-9.3
<b>Median</b>	<b>1,336</b>	<b>1,335</b>	<b>1,298</b>	<b>1,299</b>	<b>1,249</b>	
<b>Mean</b>	<b>1,405</b>	<b>1,376</b>	<b>1,357</b>	<b>1,361</b>	<b>1,345</b>	
<b>Large</b>						
Toowoomba	1,528	1,528	1,544	1,561	1,657	6.1
Redland City	1,484	1,570	1,585	1,596	1,607	0.7
Townsville	1,589	1,579	1,552	1,555	1,559	0.3
Western Water	1,075	1,109	1,023	1,065	1,064	-0.1
P&W (Darwin)	1,576	1,568	1,541	1,520	1,511	-0.6
Central Highlands Water	1,374	1,369	1,355	1,354	1,344	-0.7
Gippsland Water	1,398	1,378	1,411	1,414	1,400	-1.0
Cairns	1,288	1,291	1,289	1,308	1,287	-1.6
Coliban Water	1,396	1,392	1,386	1,389	1,366	-1.7
Goulburn Valley Water	874	870	865	864	849	-1.7
<b>Median</b>	<b>1,397</b>	<b>1,385</b>	<b>1,398</b>	<b>1,402</b>	<b>1,383</b>	
<b>Mean</b>	<b>1,358</b>	<b>1,365</b>	<b>1,355</b>	<b>1,363</b>	<b>1,364</b>	
<b>Medium</b>						
Queanbeyan		1,667	1,697	1,702	1,819	6.9
WC (Mandurah)	1,423	1,535	1,564	1,620	1,676	3.5
MidCoast Council	1,809	1,864	1,898	1,983	2,043	3.0
Tweed	1,464	1,561	1,598	1,596	1,635	2.4
Coffs Harbour	1,576	1,563	1,545	1,532	1,569	2.4
Shoalhaven	1,230	1,246	1,261	1,273	1,286	1.0
Dubbo		1,416	1,417	1,411	1,424	0.9
North East Water	908	901	895	890	896	0.7
Tamworth	1,378	1,392	1,395	1,389	1,397	0.6
Mackay	1,508	1,488	1,463	1,473	1,479	0.4
Port Macquarie Hastings	1,527	1,584	1,607	1,626	1,632	0.4
Fitzroy River Water	1,112	1,121	1,141	1,165	1,166	0.1

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Wannon Water	1,299	1,288	1,244	1,236	1,236	0.0
Clarence Valley	1,597	1,723	1,743	1,737	1,735	-0.1
Lower Murray Water	785	787	782	784	783	-0.1
Bundaberg	1,348	1,393	1,434	1,434	1,429	-0.3
Albury	1,056	1,150	1,170	1,148	1,134	-1.2
Gladstone	1,303	1,526	1,521	1,601	1,575	-1.6
GWMWater	1,341	1,336	1,336	1,337	1,309	-2.1
East Gippsland Water	1,303	1,308	1,345	1,335	1,300	-2.6
Fraser Coast	1,622	1,671	1,661	1,657	1,560	-5.9
<b>Median</b>	<b>1,348</b>	<b>1,416</b>	<b>1,434</b>	<b>1,434</b>	<b>1,429</b>	
<b>Mean</b>	<b>1,347</b>	<b>1,406</b>	<b>1,415</b>	<b>1,425</b>	<b>1,433</b>	
<b>Small</b>						
Wingecarribee	1,326	1,338	1,357	1,356	1,534	13.1
Central Highlands	1,370	1,376	1,343	1,328	1,485	11.8
Armidale				1,120	1,230	9.8
Lismore	1,682	1,777	1,850	1,887	2,012	6.6
Bathurst	1,026	1,074	1,110	1,139	1,205	5.8
Kempsey	1,564	1,640	1,715	1,789	1,868	4.4
WC (Albany)	1,500	1,625	1,676	1,742	1,811	4.0
WC (Geraldton)	1,459	1,552	1,592	1,661	1,715	3.3
WC (Australind/Eaton)	1,497	1,528	1,572	1,611	1,663	3.2
Cassowary Coast	1,551	1,601	1,618	1,628	1,673	2.8
Livingstone	1,453	1,510	1,557	1,587	1,622	2.2
Orange	1,121	1,206	1,240	1,243	1,259	1.3
Bega Valley	1,930	1,980	1,973	1,966	1,983	0.9
Southern Downs	1,481	1,595	1,611	1,634	1,648	0.9
Whitsunday	1,537	1,533	1,538	1,538	1,547	0.6
Eurobodalla	1,952	1,972	1,969	1,981	1,990	0.5
Ballina	1,496	1,554	1,609	1,619	1,625	0.4
South Gippsland Water	1,176	1,159	1,140	1,143	1,145	0.2
Byron	1,864	1,913	1,929	1,893	1,896	0.2
P&W (Alice Springs)	1,576	1,568	1,541	1,520	1,511	-0.6
Westernport Water	1,390	1,388	1,407	1,410	1,399	-0.8
Essential Energy	1,248	1,247	1,243	1,243	1,223	-1.6
Goulburn Mulwaree	1,623	1,601	1,546	1,517	1,492	-1.6
Western Downs	1,182	1,224	1,411	1,390	1,352	-2.7
Gympie	1,314	1,331	1,347	1,351	1,250	-7.5
<b>Median</b>	<b>1,488</b>	<b>1,542</b>	<b>1,552</b>	<b>1,538</b>	<b>1,547</b>	
<b>Mean</b>	<b>1,472</b>	<b>1,512</b>	<b>1,537</b>	<b>1,532</b>	<b>1,566</b>	

Table A5 F16—Total capital expenditure: water and sewerage (\$000s), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
SA Water	228,982	289,967	275,753	372,821	551,180	47.8
South East Water	237,130	152,337	171,920	152,888	207,443	35.7
Gold Coast	38,339	54,278	73,489	61,278	76,655	25.1
Hunter Water	82,686	93,133	80,156	82,839	102,911	24.2
Barwon Water	67,836	84,192	86,298	67,193	81,025	20.6
Logan	79,743	48,464	62,552	84,433	101,318	20.0
Qld Urban Utilities	203,525	211,878	200,435	225,583	268,491	19.0
City West Water	63,640	74,940	92,603	111,586	124,304	11.4
Yarra Valley Water	185,570	275,649	242,316	286,907	312,771	9.0
Sydney Water	670,604	683,043	654,391	799,177	868,691	8.7
Icon Water	52,281	88,191	95,134	89,339	88,138	-1.3
WC (Perth)	375,768	309,692	450,828	480,897	461,199	-4.1
Unitywater	90,220	91,903	120,639	132,701	98,190	-26.0
TasWater	109,484	135,566	107,418	156,708	109,831	-29.9
<b>Median</b>	<b>99,85</b>	<b>114,350</b>	<b>114,028</b>	<b>142,794</b>	<b>117,068</b>	
<b>Mean</b>	<b>177,558</b>	<b>185,231</b>	<b>193,852</b>	<b>221,739</b>	<b>246,582</b>	
<b>Large</b>						
Toowoomba	27,802	41,243	29,782	25,263	33,135	31.2
Cairns	31,231	18,350	34,211	36,872	47,879	29.9
Central Highlands Water	16,306	18,704	19,504	17,712	22,751	28.4
Goulburn Valley Water	32,582	32,138	34,675	28,455	32,319	13.6
Western Water	28,159	16,571	72,024	63,766	70,030	9.8
Gippsland Water	50,955	33,897	31,861	40,140	39,497	-1.6
Coliban Water	21,174	35,614	23,001	20,736	20,300	-2.1
P&W (Darwin)		51,160	23,047	46,248	33,482	-27.6
Townsville	50,255	54,816	53,071	79,888	53,795	-32.7
Redland City	16,495	19,350	15,369	6,109	2,304	-62.3
<b>Median</b>	<b>28,159</b>	<b>33,018</b>	<b>30,822</b>	<b>32,664</b>	<b>33,308</b>	
<b>Mean</b>	<b>30,551</b>	<b>32,184</b>	<b>33,654</b>	<b>36,519</b>	<b>35,549</b>	
<b>Medium</b>						
Albury	4,412	8,888	9,522	5,454	10,172	86.5
Clarence Valley	27,247	19,453	3,569	4,373	7,959	82.0
Mackay	28,139	16,930	11,447	12,439	20,465	64.5
Port Macquarie Hastings	16,947	19,920	27,198	19,573	31,228	59.5
Coffs Harbour	14,929	5,753	5,586	7,140	9,633	34.9
East Gippsland Water	8,125	7,637	11,532	8,495	11,066	30.3
GWMWater	11,566	6,768	6,946	16,331	19,601	20.0
Tweed	7,475	8,913	7,100	8,444	9,628	14.0
Fraser Coast	12,172	18,873	22,196	19,790	22,329	12.8
Wannon Water	13,605	15,082	19,084	19,091	21,059	10.3
Lower Murray Water	8,289	10,171	5,135	12,782	13,132	2.7
Fitzroy River Water	16,927	19,853	16,950	17,307	15,248	-11.9
WC (Mandurah)	23,124	14,799	22,040	18,808	15,977	-15.1
Queanbeyan			56,150	12,272	10,091	-17.8

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
North East Water	10,470	14,433	9,129	18,493	14,284	-22.8
Tamworth	9,651	5,993	16,088	10,464	7,820	-25.3
MidCoast Council	7,253	15,108	9,571	15,651	11,008	-29.7
Gladstone	10,771	13,335	23,279	27,107	15,287	-43.6
Bundaberg	23,265	16,466	32,923	27,382	9,597	-65.0
Shoalhaven	24,175	22,875	61,447	127,992	40,367	-68.5
<b>Median</b>	<b>12,172</b>	<b>14,799</b>	<b>13,810</b>	<b>15,991</b>	<b>13,708</b>	
<b>Mean</b>	<b>14,660</b>	<b>13,750</b>	<b>18,845</b>	<b>20,469</b>	<b>15,798</b>	
<b>Small</b>						
Orange	23,351	12,334	0	0	1,860	
Byron	1,279	4,220	2,727	1,883	5,277	180.2
Livingstone		1,825	5,723	6,889	13,963	102.7
Gympie	5,774	9,494	5,275	3,123	4,544	45.5
WC (Geraldton)	14,081	11,703	10,150	9,302	12,490	34.3
Ballina	8,782	4,875	3,750	16,327	18,083	10.8
Bathurst	13,904	8,057	15,103	8,473	9,265	9.3
Westernport Water	5,048	4,422	6,023	4,686	4,682	-0.1
Wingecarribee	6,340	6,318	16,123	16,988	16,555	-2.5
P&W (Alice Springs)		5,428	6,871	6,554	6,344	-3.2
Western Downs	18,008	11,880	16,586	4,493	4,248	-5.5
Southern Downs	3,453	2,685	3,703	8,583	8,034	-6.4
WC (Australind/Eaton)	4,949	6,979	6,958	5,947	5,520	-7.2
Eurobodalla	6,954	13,872	16,768	20,351	15,174	-25.4
Armidale				3,136	2,306	-26.5
Cassowary Coast	6,075	7,771	8,431	11,766	8,607	-26.8
Kempsey	7,460	6,706	9,015	8,300	5,602	-32.5
Central Highlands	29,066	930	5,541	16,801	10,571	-37.1
Whitsunday	772	5,475	6,806	9,754	5,516	-43.4
South Gippsland Water	12,975	8,520	5,535	30,030	16,762	-44.2
Lismore	6,345	8,760	11,493	21,232	11,282	-46.9
Goulburn Mulwaree	9,020	5,719	14,572	22,922	7,887	-65.6
WC (Albany)	5,196	10,230	13,965	20,490	6,578	-67.9
<b>Median</b>	<b>6,650</b>	<b>6,842</b>	<b>6,914</b>	<b>8,583</b>	<b>7,887</b>	
<b>Mean</b>	<b>9,442</b>	<b>7,191</b>	<b>8,687</b>	<b>11,219</b>	<b>8,746</b>	



Table A6 F28—Capital expenditure: water (\$/property), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
SA Water	161	210	223	309	426	37.9
Hunter Water	164	132	125	192	263	36.9
Yarra Valley Water	94	108	101	127	153	20.3
South East Water	72	47	48	55	66	19.8
Icon Water	163	251	181	154	174	13.5
City West Water	116	122	144	141	158	11.8
Barwon Water	235	254	383	232	243	4.9
Sydney Water	85	123	124	98	98	0.1
WC (Perth)	208	204	305	320	317	-0.9
Qld Urban Utilities	138	133	119	158	155	-1.8
Gold Coast	66	49	65	62	53	-13.7
Logan	203	190	219	269	232	-13.7
Unitywater	117	119	131	91	76	-16.2
TasWater	268	366	333	489	336	-31.1
<b>Median</b>	<b>149</b>	<b>132</b>	<b>138</b>	<b>156</b>	<b>166</b>	
<b>Mean</b>	<b>149</b>	<b>165</b>	<b>179</b>	<b>193</b>	<b>197</b>	
<b>Large</b>						
Western Water	207	82	446	173	387	124.5
Toowoomba	206	174	206	224	357	59.1
Central Highlands Water	136	148	179	164	184	12.2
Cairns	224	56	266	334	344	2.8
Goulburn Valley Water	455	281	363	305	298	-2.4
P&W (Darwin)		650	242	273	260	-4.7
Coliban Water	124	202	211	173	137	-20.4
Gippsland Water	157	207	201	322	213	-33.7
Redland City	27	13	22	17	10	-40.5
Townsville	339	477	388	397	172	-56.8
<b>Median</b>	<b>206</b>	<b>188</b>	<b>226</b>	<b>249</b>	<b>237</b>	
<b>Mean</b>	<b>208</b>	<b>229</b>	<b>252</b>	<b>238</b>	<b>236</b>	
<b>Medium</b>						
Shoalhaven	233	294	362	298	690	131.7
Albury	94	113	258	128	234	82.4
Port Macquarie Hastings	347	216	341	251	416	65.9
Tweed	65	103	120	112	170	51.9
East Gippsland Water	119	115	244	220	271	23.2
Clarence Valley	96	164	96	129	158	22.5
GWMWater	191	141	102	394	472	19.8
WC (Mandurah)	183	137	133	209	219	4.8
Fraser Coast	275	368	454	301	303	0.9
Tamworth	325	194	384	198	195	-1.6
Mackay	465	171	123	229	216	-5.8
Fitzroy River Water	312	383	299	279	258	-7.6
Bundaberg	94	111	98	151	118	-22.2

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Lower Murray Water	175	258	83	270	205	-24.0
Wannon Water	156	236	252	206	142	-31.4
North East Water	141	207	134	214	142	-33.5
Coffs Harbour	57	51	51	161	106	-34.1
Queanbeyan			85	150	76	-49.3
MidCoast Council	85	223	194	328	150	-54.3
Gladstone	145	217	402	789	168	-78.7
<b>Median</b>	<b>156</b>	<b>194</b>	<b>164</b>	<b>217</b>	<b>200</b>	
<b>Mean</b>	<b>187</b>	<b>195</b>	<b>211</b>	<b>251</b>	<b>235</b>	
<b>Small</b>						
Orange	1,127	575	0	0	69	
Byron	33	256	53	138	212	53.5
WC (Geraldton)	523	417	260	406	546	34.3
Whitsunday	2	156	219	245	320	30.7
Gympie	168	221	148	147	184	25.1
Central Highlands	2,457	36	173	98	107	9.2
Wingecarribee	156	118	298	332	363	9.2
Southern Downs	294	178	294	586	637	8.7
Goulburn Mulwaree	589	248	283	288	268	-6.8
Kempsey	458	339	321	297	276	-7.0
Westernport Water	49	91	188	146	131	-10.5
Armidale				136	117	-14.1
Ballina	230	114	86	252	212	-15.9
P&W (Alice Springs)		292	316	509	404	-20.6
Bathurst	505	346	679	354	273	-22.8
Cassowary Coast	326	377	474	666	505	-24.2
Western Downs	657	336	1,441	343	243	-29.2
Lismore	93	333	257	295	195	-33.8
WC (Australind/Eaton)	229	183	282	369	239	-35.1
Eurobodalla	140	157	163	406	253	-37.6
Livingstone		88	167	284	135	-52.4
South Gippsland Water	143	87	180	1,384	473	-65.9
WC (Albany)	224	331	429	431	127	-70.6
<b>Median</b>	<b>230</b>	<b>234</b>	<b>259</b>	<b>297</b>	<b>243</b>	
<b>Mean</b>	<b>420</b>	<b>240</b>	<b>305</b>	<b>353</b>	<b>273</b>	

Table A7 F29—Capital expenditure: sewerage(\$/property), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
SA Water	180	214	169	213	346	62.4
South East Water	275	170	191	151	208	37.6
Gold Coast	99	179	237	183	249	36.2
Barwon Water	248	337	198	217	285	31.7
Qld Urban Utilities	231	247	225	219	288	31.3
Logan	613	283	377	519	677	30.4
Sydney Water	279	242	219	314	341	8.6
City West Water	38	53	65	103	105	2.8
Hunter Water	191	265	211	146	149	2.1
Yarra Valley Water	162	267	224	248	244	-1.5
Icon Water	153	272	368	362	328	-9.3
WC (Perth)	284	187	252	264	235	-11.2
TasWater	316	345	218	306	215	-29.9
Unitywater	208	204	283	357	248	-30.5
<b>Median</b>	<b>220</b>	<b>244</b>	<b>222</b>	<b>234</b>	<b>249</b>	
<b>Mean</b>	<b>234</b>	<b>233</b>	<b>231</b>	<b>257</b>	<b>280</b>	
<b>Large</b>						
Cairns	226	201	224	180	311	72.9
Central Highlands Water	130	153	124	105	158	50.6
Goulburn Valley Water	138	319	268	204	278	36.3
Gippsland Water	693	329	293	283	383	35.4
Coliban Water	188	315	110	114	141	24.3
Toowoomba	337	651	358	216	204	-5.5
Townsville	308	201	276	619	523	-15.5
Western Water	305	215	787	891	704	-21.0
P&W (Darwin)		224	154	510	303	-40.5
Redland City	292	366	264	93	30	-67.8
<b>Median</b>	<b>292</b>	<b>269</b>	<b>266</b>	<b>210</b>	<b>291</b>	
<b>Mean</b>	<b>291</b>	<b>297</b>	<b>286</b>	<b>321</b>	<b>304</b>	
<b>Medium</b>						
Mackay	211	226	154	43	247	467.9
Clarence Valley	1,713	1,079	101	108	321	197.6
MidCoast Council	113	176	52	62	153	146.4
Coffs Harbour	569	189	179	123	283	129.5
Albury	83	247	111	90	178	98.1
Lower Murray Water	88	56	80	124	207	67.0
Port Macquarie Hastings	230	473	559	422	646	53.3
Gladstone	338	355	617	273	404	48.2
Wannon Water	196	140	228	277	403	45.5
East Gippsland Water	283	257	297	165	225	36.8
Fraser Coast	77	178	174	266	332	24.9
GWMWater	219	91	142	148	178	20.7
Queanbeyan			2,605	427	390	-8.6

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
North East Water	81	93	52	163	146	-10.4
Tweed	175	179	101	150	131	-12.9
Fitzroy River Water	242	259	248	273	227	-16.8
Tamworth	132	86	352	282	171	-39.3
WC (Mandurah)	391	213	387	207	122	-40.9
Bundaberg	824	536	1,142	995	217	-78.1
Shoalhaven	315	212	1,023	2,473	151	-93.9
<b>Median</b>	<b>219</b>	<b>212</b>	<b>203</b>	<b>186</b>	<b>221</b>	
<b>Mean</b>	<b>331</b>	<b>265</b>	<b>430</b>	<b>354</b>	<b>257</b>	
<b>Small</b>						
Orange	218	117	0	0	38	
Byron	85	118	206	38	321	736.7
P&W (Alice Springs)		161	262	17	116	575.7
Livingstone		64	351	298	1,170	292.2
South Gippsland Water	600	395	108	102	382	275.5
Western Downs	1,132	889	22	62	166	166.1
WC (Australind/Eaton)	262	525	355	122	241	96.7
Bathurst	376	155	246	158	287	82.2
Gympie	303	526	303	107	176	65.6
WC (Geraldton)	355	309	417	116	152	31.1
Ballina	389	218	166	835	1,052	26.0
Westernport Water	299	205	200	151	159	5.4
Wingecarribee	213	248	626	622	567	-8.9
Eurobodalla	233	586	736	655	555	-15.2
Cassowary Coast	312	481	373	501	324	-35.4
Armidale				202	120	-40.7
Central Highlands	44	52	360	1,596	939	-41.1
Lismore	392	320	609	1,266	735	-41.9
Kempsey	177	272	524	451	230	-49.0
WC (Albany)	139	407	569	1,085	354	-67.4
Goulburn Mulwaree	227	269	1,037	1,745	443	-74.6
Southern Downs	14	73	44	217	45	-79.4
Whitsunday	64	222	299	516	71	-86.3
<b>Median</b>	<b>247</b>	<b>258</b>	<b>327</b>	<b>217</b>	<b>287</b>	
<b>Mean</b>	<b>292</b>	<b>300</b>	<b>355</b>	<b>472</b>	<b>376</b>	

Table A8 F13—Combined operating cost: water and sewerage (\$/property), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
TasWater	949	990	1,022	911	977	7.3
Sydney Water	709	726	697	675	720	6.6
SA Water	706	734	673	666	698	4.8
Qld Urban Utilities	1,213	1,209	1,187	1,177	1,234	4.8
Logan	1,153	1,111	1,050	1,122	1,161	3.5
City West Water	1,154	1,187	1,120	1,041	1,071	2.9
Barwon Water	638	623	663	677	694	2.6
Unitywater	1,041	1,040	1,032	1,028	1,048	1.9
Yarra Valley Water		976	895	872	885	1.5
Hunter Water	665	615	595	648	655	1.1
South East Water	921	964	885	858	865	0.8
Gold Coast	1,228	1,189	1,206	1,195	1,193	-0.2
Icon Water	816	966	1,006	1,012	985	-2.7
WC (Perth)	618	629	608	610	547	-10.2
<b>Median</b>	<b>921</b>	<b>971</b>	<b>950</b>	<b>891</b>	<b>931</b>	
<b>Mean</b>	<b>908</b>	<b>926</b>	<b>903</b>	<b>892</b>	<b>910</b>	
<b>Large</b>						
Redland City	921	923	846	960	1,033	7.6
Coliban Water	822	866	824	829	887	7.0
Townsville	1,062	1,042	1,046	1,019	1,087	6.6
Central Highlands Water	815	844	869	964	1,027	6.5
Toowoomba	1,244	727	630	764	801	4.9
Western Water	741	973	901	845	866	2.5
Gippsland Water	1,276	1,231	1,184	1,238	1,249	0.9
Cairns	718	684	684	701	703	0.2
Goulburn Valley Water	856	892	920	901	893	-0.9
P&W (Darwin)		1,182	996	935	886	-5.3
<b>Median</b>	<b>856</b>	<b>907</b>	<b>885</b>	<b>918</b>	<b>890</b>	
<b>Mean</b>	<b>939</b>	<b>936</b>	<b>890</b>	<b>916</b>	<b>943</b>	
<b>Medium</b>						
MidCoast Council	1,091	1,024	1,023	996	1,209	21.3
Mackay	1,356	1,164	928	1,018	1,175	15.4
Shoalhaven	828	784	817	794	896	13.0
Albury	716	710	681	703	763	8.6
Tweed	1,007	984	1,009	1,010	1,033	2.4
Fitzroy River Water	751	697	666	659	673	2.1
Tamworth	1,006	965	979	1,028	1,024	-0.4
Bundaberg	817	821	691	835	826	-1.0
Coffs Harbour	1,083	1,023	997	1,020	999	-2.0
Wannon Water	1,044	1,007	956	983	961	-2.2
North East Water	858	878	911	888	858	-3.4
East Gippsland Water	875	960	1,076	937	904	-3.6
Lower Murray Water	697	702	826	767	735	-4.1

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Clarence Valley	908	849	820	832	797	-4.3
GWMWater	990	1,043	994	1,009	964	-4.5
Port Macquarie Hastings	938	921	902	977	908	-7.0
WC (Mandurah)	586	690	611	633	580	-8.4
Queanbeyan			1,406	1,384	1,247	-9.9
Fraser Coast	896	926	952	1,019	902	-11.5
Gladstone	2,521	1,496	1,065	1,566	1,273	-18.7
<b>Median</b>	<b>908</b>	<b>926</b>	<b>940</b>	<b>980</b>	<b>906</b>	
<b>Mean</b>	<b>998</b>	<b>929</b>	<b>915</b>	<b>953</b>	<b>936</b>	
<b>Small</b>						
Livingstone		1,242	1,812	843	1,197	41.9
South Gippsland Water	1,129	1,178	950	896	1,103	23.2
Whitsunday	1,285	1,285	1,169	1,365	1,676	22.8
Kempsey	1,111	1,074	1,019	1,018	1,243	22.0
Western Downs	1,187	1,284	881	783	951	21.5
Byron	1,371	1,320	1,393	1,525	1,726	13.2
Southern Downs	1,580	1,448	804	1,074	1,174	9.4
Orange	799	786	834	813	872	7.3
Lismore	1,139	1,177	1,172	1,106	1,179	6.6
Ballina	1,380	1,299	1,308	1,247	1,319	5.8
Armidale				1,129	1,191	5.4
Eurobodalla	966	1,013	1,075	1,076	1,082	0.5
Wingecarribee	865	854	905	907	909	0.2
WC (Geraldton)	732	675	616	628	629	0.1
P&W (Alice Springs)		1,883	1,317	1,198	1,184	-1.2
Goulburn Mulwaree	809	892	763	766	756	-1.4
Westernport Water	474	1,012	997	1,016	997	-1.9
Cassowary Coast	988	1,040	588	1,044	1,018	-2.5
WC (Australind/Eaton)	1,005	886	792	695	670	-3.6
Bathurst	1,047	1,102	1,138	1,237	1,156	-6.6
WC (Albany)	705	801	726	735	669	-9.0
Central Highlands	1,766	1,618	1,176	918	762	-17.0
Gympie	306	723	415	344	269	-21.7
<b>Median</b>	<b>1,026</b>	<b>1,088</b>	<b>973</b>	<b>1,016</b>	<b>1,082</b>	
<b>Mean</b>	<b>1,032</b>	<b>1,118</b>	<b>993</b>	<b>972</b>	<b>1,032</b>	



Table A9 F8—Revenue from community service obligations (%), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
Barwon Water	4.83	4.71	4.89	0	4.48	
WC (Perth)	6.15	6.15	6.51	6.22	6.63	6.6
Hunter Water	4.57	4.45	4.49	4.21	4.4	4.5
Sydney Water	6	5.92	5.5	5.05	4.98	-1.4
City West Water	3.89	3.55	3.33	3.44	3.38	-1.7
Unitywater	0.9	0.86	0.84	0.82	0.8	-2.4
South East Water	4.94	4.44	4.6	4.3	4.1	-4.7
TasWater	2.71	2.72	2.71	2.47	2.31	-6.5
Yarra Valley Water	5.28	5.02	5.25	5	4.64	-7.2
SA Water	9.44	9.14	10.5	10.63	9.29	-12.6
Icon Water	3.7	3.23	3.34	1.99	1.57	-21.1
Gold Coast	0	0	0	0	0	
Logan	0	0	0	0	0	
Qld Urban Utilities	1.8	1.65	0	0	0	
<b>Median</b>	<b>4.23</b>	<b>3.99</b>	<b>3.92</b>	<b>2.95</b>	<b>3.74</b>	
<b>Mean</b>	<b>3.87</b>	<b>3.7</b>	<b>3.71</b>	<b>3.15</b>	<b>3.33</b>	
<b>Large</b>						
Townsville	1.6	1.19	1.02	1.04	1.45	39.4
Redland City	0.4	0.3	0.3	0.33	0.36	9.1
Coliban Water	4.44	4.07	4.2	4.03	4.07	1.0
Goulburn Valley Water	5.51	5.65	5.67	5.47	5.33	-2.6
Gippsland Water	4.23	3.89	4.33	4.45	4.15	-6.7
Central Highlands Water	0	5.27	4.34	5.53	5	-9.6
Cairns	2.74	2.88	2.83	2.86	2.58	-9.8
P&W (Darwin)		3.61	2.77	2.65	2.3	-13.2
Western Water	4.62	4.01	4.25	3.53	2.95	-16.4
Toowoomba		0.73	0	0	0	
<b>Median</b>	<b>3.48</b>	<b>3.75</b>	<b>3.52</b>	<b>3.19</b>	<b>2.77</b>	
<b>Mean</b>	<b>2.94</b>	<b>3.16</b>	<b>2.97</b>	<b>2.99</b>	<b>2.82</b>	
<b>Medium</b>						
Port Macquarie Hastings	1.4	1.05	1.11	0.8	0.97	21.2
Wannon Water	4.29	4.5	4.75	4.77	5.16	8.2
Tweed	1.2	1.22	1.06	1.03	1.1	6.8
Queanbeyan		0	0.5	0.39	0.41	5.1
Fraser Coast	0.4	0.42	0.42	0.9	0.94	4.4
East Gippsland Water	6.05	6.19	6.2	6.25	6.47	3.5
Shoalhaven	1.49	1.49	1.31	1.22	1.26	3.3
Clarence Valley	1.4	1.28	1.29	1.16	1.17	0.9
Mackay	0.2	0.2	0.22	0.21	0.21	0.0
GWMWater	6.51	6.59	6.9	6.52	6.5	-0.3
North East Water	6.57	6.06	6.49	6.24	6.1	-2.2
Lower Murray Water	5.66	5.67	5.98	5.54	5.34	-3.6
Albury	0.9	0.79	0.77	0.74	0.71	-4.1

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Tamworth	0.99	0.86	0.82	0.86	0.82	-4.7
MidCoast Council	1.36	1.27	1.18	1.05	1	-4.8
Coffs Harbour	1	0.96	0.89	0.86	0.81	-5.8
Fitzroy River Water	1.3	0.94	1.08	1.12	1.01	-9.8
Bundaberg	1.8	1.7	3.26	3.59	2.56	-28.7
WC (Mandurah)	18.27	6.28	10.39	-40.77	-12.63	-69.0
Gladstone	0	0	0	0	0	
<b>Median</b>	<b>1.4</b>	<b>1.27</b>	<b>1.15</b>	<b>1.04</b>	<b>1</b>	
<b>Mean</b>	<b>3.2</b>	<b>2.5</b>	<b>2.73</b>	<b>0.12</b>	<b>1.5</b>	
<b>Small</b>						
Whitsunday	1.7	2.54	3.21	4.5	10.96	143.6
Wingecarribee	1.2	0.96	0.76	0.65	0.75	15.4
Westernport Water	3.74	3.86	3.88	3.27	3.66	11.9
Lismore	1	0.97	1.46	0.94	1.02	8.5
Bathurst	0.8	0.8	0.59	0.59	0.64	8.5
Ballina	1.9	1.04	1.06	0.75	0.81	8.0
Orange	0.8	0.87	0.84	0.81	0.86	6.2
WC (Geraldton)	13.59	6.22	-65.26	-131.71	-136.87	3.9
Byron	0.62	0.58	0.5	0.54	0.55	1.9
Gympie	4.4	2.53	4.24	2.2	2.2	0.0
P&W (Alice Springs)		9.3	14.27	14.03	13.88	-1.1
Eurobodalla	1.12	0.98	1.02	0.91	0.89	-2.2
Armidale		0	0	0.84	0.8	-4.8
South Gippsland Water	5.48	5.48	6.03	6.02	5.67	-5.8
Kempsey	1.26	1.29	1.38	1.14	1.04	-8.8
WC (Australind/Eaton)	22.91	13.84	-1.1	14.33	1.99	-86.1
Goulburn Mulwaree	0.22	0.82	0.72	60	0.66	-98.9
Western Downs	40.6	0	4.82	59.18	0	-100.0
WC (Albany)	34.61	22.52	-8.25	3.85	-17.91	-565.2
Cassowary Coast	0	0	0	0	0	
Central Highlands	0	0	0	0	0	
Livingstone	0	0	0	0	0	
Southern Downs	1	0	0	0	0	
<b>Median</b>	<b>1.2</b>	<b>1.01</b>	<b>0.8</b>	<b>0.91</b>	<b>0.8</b>	
<b>Mean</b>	<b>6.52</b>	<b>3.73</b>	<b>-1.36</b>	<b>1.86</b>	<b>-4.71</b>	

Table A10 C15—Average duration of an unplanned interruption: water (minutes), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
Barwon Water	88	99.5	102	89	126.7	42.4
Central Coast		198	202	198	265	33.8
Gold Coast	132.4	119.7	137.5	116	126	8.6
Hunter Water	364	136	231	149	161	8.1
Qld Urban Utilities	139	134	132	125	135	8.0
Icon Water	119.5	135	134.7	125.1	135	7.9
SA Water	163	185.7	195	226.3	240.4	6.2
South East Water	89	81.3	83	87.4	83.8	-4.1
City West Water	112	122.2	125.3	119.6	113	-5.5
Unitywater	157	139	160	129.5	119.7	-7.6
Yarra Valley Water	103.2	122.5	118.2	102.9	95	-7.7
Sydney Water	147	136	133	155	143	-7.7
WC (Perth)	96	107.9	103	112	102.9	-8.1
Logan	156.6	143	177.6	117.2	90.7	-22.6
<b>Median</b>	<b>132.4</b>	<b>134.5</b>	<b>133.8</b>	<b>122.3</b>	<b>126.3</b>	
<b>Mean</b>	<b>143.5</b>	<b>132.8</b>	<b>145.3</b>	<b>132.3</b>	<b>138.4</b>	
<b>Large</b>						
Toowoomba			648	1,198	1,789.8	50.2
Coliban Water	115	118.4	132	102.5	142.1	38.6
Townsville	67.3	63.9	77	70	84.2	20.3
Central Highlands Water	69	109.2	107.3	137.7	155.1	12.6
Gippsland Water	89	76.2	87.4	85.2	93.4	9.6
Goulburn Valley Water	113	107.5	98.2	102.7	98.6	-4.0
Cairns	44.1	92	65.1	49.3	44.5	-9.7
Western Water	95.3	92.8	214.8	90	72	-20.0
Redland City	20.5	23.9	114	148	113.8	-23.1
<b>Median</b>	<b>79</b>	<b>92.4</b>	<b>107.3</b>	<b>102.5</b>	<b>98.6</b>	
<b>Mean</b>	<b>76.7</b>	<b>85.5</b>	<b>171.5</b>	<b>220.4</b>	<b>289.2</b>	
<b>Medium</b>						
Tamworth				0	420	
Gladstone	15.9	46	47.6	23.2	69.8	200.9
Port Macquarie Hastings	210	121	30	30	90	200.0
Coffs Harbour			120	120	207	72.5
Wannon Water	91.2	104.9	93.5	79.3	90.3	13.9
Tweed	134	112	136	141	159	12.8
GWMWater	85.2	105.7	94.4	103.4	115.1	11.3
Dubbo			162	129	142	10.1
WC (Mandurah)	61	49.9	71	65	71	9.2
Lower Murray Water	57	54.1	57	59	62	5.1
North East Water	104.7	107.7	111.5	99.4	96	-3.4
Riverina Water (W)	185	206	183	242	233	-3.7
Albury	137	137	119	266	254	-4.5
Fitzroy River Water	98.2	33	39.8	34.4	32.6	-5.2

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
East Gippsland Water	64	71.5	92	76	72	-5.3
Bundaberg			138	77	58	-24.7
Shoalhaven	135	202	104	147	94	-36.1
Fraser Coast	129.5	127.8	105.6	230.3	104.8	-54.5
Mackay	92	115	66.5	63.6	19.1	-70.0
<b>Median</b>	<b>98.2</b>	<b>107.7</b>	<b>99.2</b>	<b>79.3</b>	<b>94</b>	
<b>Mean</b>	<b>106.6</b>	<b>106.2</b>	<b>98.4</b>	<b>104.5</b>	<b>125.8</b>	
<b>Small</b>						
Western Downs	62		61	53	90	69.8
WC (Kal–Boulder) (W)	45	62.4	44	46	74.2	61.3
Cassowary Coast	418	375	218	185	254	37.3
Aqwest–Bunbury (W)	43.6	61	49	34	45	32.4
Wingecarribee	122		120	270	341	26.3
WC (Geraldton)	102	120	137	135	162.8	20.6
South Gippsland Water	160	95.6	91	101	121	19.8
Orange	255	135	135	135	141	4.4
Whitsunday	120	120	120	120	120	0.0
Central Highlands	45	30	30	30	30	0.0
Byron			120	120	120	0.0
Armidale				135	127	-5.9
Goldenfields Water (W)				258	235	-8.9
Livingstone	22.9	26	25.7	19	16.3	-14.2
WC (Albany)	124	132	121	147	123.6	-15.9
Westernport Water	103	80.2	109	108.6	85.9	-20.9
Eurobodalla	220	214	213	237	178	-24.9
Busselton (W)	197.5	85.7	63.5	93.7	66.3	-29.2
Bega Valley			141	234	165	-29.5
WC (Australind/Eaton)	75	56	85	87	58.2	-33.1
Gympie	97.2	85	81.6	197.3	129	-34.6
Lismore	140	214	129	180	90	-50.0
Kempsey	215	155	26	198	96	-51.5
<b>Median</b>	<b>120</b>	<b>95.6</b>	<b>109</b>	<b>135</b>	<b>120</b>	
<b>Mean</b>	<b>135.1</b>	<b>120.4</b>	<b>100.9</b>	<b>135.8</b>	<b>124.8</b>	

Table A11 C13—Total complaints: water and sewerage (per 1,000 properties), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
Barwon Water	4.3	4.4	4.3	3.3	4.5	36.4
South East Water	3.4	3.4	3	2.7	3.2	18.5
Logan				12.3	14.3	16.3
Yarra Valley Water	5	5.8	11	11.1	12.4	11.7
Sydney Water	2.7	2.6	2.1	2.2	2.4	9.1
Hunter Water	6.3	4.8	3.1	3.5	3.8	8.6
City West Water	3.4	5.2	3.6	3.3	3.4	3.0
Qld Urban Utilities	5	6	5.9	6.6	6.7	1.5
Gold Coast	5	6.3	8.4	3.6	3.5	-2.8
Unitywater	2	1.2	1.4	1.5	1.4	-6.7
Central Coast			7.9	10	9.3	-7.0
SA Water	2.4	2.3	2.5	2.2	2	-9.1
TasWater			12.2	15.6	12.6	-19.2
Icon Water	4.3	3.8	4.3	3.7	2.8	-24.3
WC (Perth)	0.8	0.8	0.8	1.2	0.8	-33.3
<b>Median</b>	<b>3.9</b>	<b>4.1</b>	<b>4</b>	<b>3.5</b>	<b>3.5</b>	
<b>Mean</b>	<b>3.7</b>	<b>3.9</b>	<b>5</b>	<b>5.5</b>	<b>5.5</b>	
<b>Large</b>						
Gippsland Water	9.5	9.4	10.9	8.7	14.2	63.2
Coliban Water	6.3	6.5	8.6	5.3	6.4	20.8
Goulburn Valley Water	4.3	6.6	5.4	3.9	4.5	15.4
Central Highlands Water	3.2	5	6.9	8.4	8.6	2.4
Toowoomba	2	2.6	4.1	3.2	3.2	0.0
Townsville	10	0.7	0.8	0.5	0.5	0.0
Redland City	4	3.6	2.6	3.2	3	-6.2
P&W (Darwin)	39.5	86.2	85.1	68.4	60.4	-11.7
Cairns	3	2.9	3.6	2.4	2.1	-12.5
Western Water	4	5.5	3.3	3.3	2.6	-21.2
<b>Median</b>	<b>4.1</b>	<b>5.2</b>	<b>4.8</b>	<b>3.6</b>	<b>3.9</b>	
<b>Mean</b>	<b>8.6</b>	<b>12.9</b>	<b>13.1</b>	<b>10.7</b>	<b>10.6</b>	
<b>Medium</b>						
Coffs Harbour	1	0.4	1.6	0	0.2	
Port Macquarie Hastings	32	31.2	15.5	6	28.5	375.0
Clarence Valley	109		0	19	42.7	124.7
Lower Murray Water	1.8	2.9	4.8	1.7	3.2	88.2
Queanbeyan			52	55	88.4	60.7
Tamworth	59	54.5	39.5	48	68.8	43.3
Fitzroy River Water	51	48	47.2	39.9	46	15.3
MidCoast Council	11	8.2	4.4	3	3.4	13.3
North East Water	2.6	1.7	2.9	3.4	3.8	11.8
Tweed	29		0	1	1	0.0

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
East Gippsland Water	1	1.8	4	3.7	3.6	-2.7
Dubbo		23.1	18.3	17	15.2	-10.6
Bundaberg	2	2.8	12.8	59.7	52.6	-11.9
WC (Mandurah)	0.4	0.4	0.3	0.6	0.5	-16.7
Fraser Coast	4	7.7	20.5	15.1	10.1	-33.1
Wannon Water	3.6	6.1	5.3	6	4	-33.3
Mackay	30	33.4	57	93.4	60.9	-34.8
Albury	6	7	11.2	2	1.2	-40.0
Shoalhaven	2	1.5	1.8	2	0.9	-55.0
GWMWater	7.3	7.4	7.6	8.3	0.4	-95.2
Gladstone	0	0	0.3	0.3	0	-100.0
<b>Median</b>	<b>4</b>	<b>6.5</b>	<b>5.3</b>	<b>6</b>	<b>3.8</b>	
<b>Mean</b>	<b>18.6</b>	<b>13.2</b>	<b>14.6</b>	<b>18.3</b>	<b>20.7</b>	
<b>Small</b>						
Kempsey	2	2.4	1.1	1	6.3	530.0
Essential Energy	1	2.5	1	2	12.5	525.0
Eurobodalla	1	1.9	2	4	11.9	197.5
Ballina	3	0.9	0.6	2	5.7	185.0
Lismore	4	0.3	0.5	2	5.4	170.0
Armidale				10	22.1	121.0
Byron	5	4.5	6.1	8	14.8	85.0
Westernport Water	4.9	6.8	4.8	2.5	3.7	48.0
Wingecarribee	74	87.9	90	81	119	46.9
Cassowary Coast	128	115.4	16.6	10.3	14.4	39.8
Southern Downs	49	48.5	95.6	5.4	6.9	27.8
Goulburn Mulwaree		98.5	0	69	80.2	16.2
Orange	104	123.1	111.6	102	112.4	10.2
P&W (Alice Springs)	3	45.2	101.3	110.7	121.9	10.1
Central Highlands	182	184.2	146	24.1	25.5	5.8
Bathurst	91	89.3	69.4	51	52.9	3.7
Livingstone	140	7.1	61.6	3.3	3.3	0.0
WC (Geraldton)	1.3	1.2	1.5	2.3	2	-13.0
Whitsunday	150	106.2	84.7	9.3	7.8	-16.1
WC (Australind/Eaton)	0.7	0.8	1.5	1.2	0.9	-25.0
South Gippsland Water	6.1	5.2	6.2	8.9	5.7	-36.0
Bega Valley	16	7.2	7.5	11	6.9	-37.3
WC (Albany)	0.6	1	0.9	1.1	0.5	-54.5
Gympie	0	2.3	5.5	5.2	0.5	-90.4
Western Downs	5		9.2	2.8	0.2	-92.9
<b>Median</b>	<b>5</b>	<b>6.8</b>	<b>6.2</b>	<b>5.4</b>	<b>6.9</b>	
<b>Mean</b>	<b>42.2</b>	<b>41</b>	<b>34.4</b>	<b>21.2</b>	<b>25.7</b>	

Table A12 C14—Percentage of calls answered by an operator within 30 seconds, by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
Yarra Valley Water	63.5	46.9	64.3	54.4	90.2	65.7
Gold Coast	43			45	54.1	20.2
Unitywater	80	81		72	83	15.3
South East Water	84.4	77.2	67	52.6	58.2	10.7
TasWater	88.6	88.5	89.1	86.5	87.1	0.7
Icon Water	71.3	66.7	61.1	73.1	73.5	0.6
SA Water	85.3	85.3	85.4	85.4	85.9	0.6
Sydney Water	79	73	60	76	69	-9.2
WC (Perth)	72.8	71.1	70.6	62.6	56.1	-10.4
Barwon Water	89.5	88	85	79	67	-15.2
Hunter Water	70	71	67	69	58	-15.9
City West Water	82.6	82.5	81	81	50.5	-37.5
<b>Median</b>	<b>79.5</b>	<b>77.2</b>	<b>68.8</b>	<b>72.5</b>	<b>68</b>	
<b>Mean</b>	<b>75.8</b>	<b>75.6</b>	<b>73</b>	<b>69.7</b>	<b>69.4</b>	
<b>Large</b>						
Toowoomba				80	81	1.2
Western Water	94.4	88.3	86	75	75.8	1.2
Goulburn Valley Water	99	97.2	97.3	98.6	96.7	-1.9
Coliban Water	91.3	90.9	91.8	86.5	83	-4.0
Central Highlands Water	92	88.2	89.4	79.7	70.7	-11.3
Gippsland Water	82.7	88.8	83.8	83.5	67.8	-18.8
<b>Median</b>	<b>92</b>	<b>88.8</b>	<b>89.4</b>	<b>81.8</b>	<b>78.4</b>	
<b>Mean</b>	<b>91.9</b>	<b>90.7</b>	<b>89.7</b>	<b>83.9</b>	<b>79.2</b>	
<b>Medium</b>						
Tweed	48	49	50	50	69	38.0
North East Water	89.9	90.8	90	96	98.4	2.5
Bundaberg				95	96	1.1
East Gippsland Water	99.8	99.5	99	99	99	0.0
Mackay				97	97	0.0
Shoalhaven	96	98	98	98	98	0.0
Wannon Water	99	99.3	98.8	98.8	98.6	-0.2
GWMWater	94	93.1	92.3	91.4	90.9	-0.5
Lower Murray Water	87.6	86.4	94	95	94	-1.1
Wagga Wagga (S)	100	100	94	94	92	-2.1
Fitzroy River Water	80			80	75.9	-5.1
Gladstone				100	79.7	-20.3
Port Macquarie Hastings	84	98	96	96	75	-21.9
Coffs Harbour	99		99	99	76	-23.2
<b>Median</b>	<b>94</b>	<b>98</b>	<b>95</b>	<b>96</b>	<b>93</b>	
<b>Mean</b>	<b>88.8</b>	<b>90.5</b>	<b>91.1</b>	<b>92.1</b>	<b>88.5</b>	
<b>Small</b>						
Bega Valley	87		50	50	70	40.0
Gympie	80			72	78	8.3



Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Western Downs				91	94	3.3
Whitsunday				84.4	86.6	2.6
Wingecarribee	53	66	96	97	99	2.1
Eurobodalla	100	72	68	65	66	1.5
Westernport Water	97.7	97.6	99.7	98.2	98.7	0.5
Bathurst			100	100	100	0.0
Goldenfields Water (W)				100	100	0.0
South Gippsland Water	99.7	99.5	94	98.8	98.6	-0.2
Orange		65	77	76	72	-5.3
Ballina			100	100	90	-10.0
Lismore	80	77	80	80	70	-12.5
Essential Energy	78	78	78	78	60	-23.1
<b>Median</b>	<b>83.5</b>	<b>77</b>	<b>87</b>	<b>87.7</b>	<b>88.3</b>	
<b>Mean</b>	<b>84.4</b>	<b>79.3</b>	<b>84.3</b>	<b>85</b>	<b>84.5</b>	

Table A13 A8—Water main breaks (no. per 100 km of water main), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
Gold Coast	7.1	7.4	5.1	6.4	9.1	42.2
Qld Urban Utilities	28	25.7	23.1	22.5	30	33.3
City West Water	37.1	40.1	42.1	42.8	51.8	21.0
Logan	6.5	4.7	4	5.1	5.8	13.7
SA Water	13.9	14.9	13.5	13.6	15	10.3
Barwon Water	29	33.5	31	29.4	32.3	9.9
WC (Perth)	15	12	13.1	11.1	11.6	4.5
Unitywater	3.3	3.7	4.8	4.1	4.2	2.4
South East Water	32.2	33.5	32.7	37.1	36.9	-0.5
Yarra Valley Water	39.3	48.5	47.4	46.3	43.9	-5.2
Icon Water	14.2	13.8	14.3	16.3	14.7	-9.8
Hunter Water	28.9	26.8	24.8	30	27	-10.0
Central Coast		17	16	14.4	12.1	-16.0
Sydney Water	26	26	23.9	32.8	24.7	-24.7
<b>Median</b>	<b>26</b>	<b>21.4</b>	<b>19.6</b>	<b>19.4</b>	<b>19.9</b>	
<b>Mean</b>	<b>21.6</b>	<b>22</b>	<b>21.1</b>	<b>22.3</b>	<b>22.8</b>	
<b>Large</b>						
Redland City	3.4	3.2	3.1	3.1	4	29.0
Townsville	28.6	31.6	33.5	18.3	21.7	18.6
Gippsland Water	25.1	24.5	23	25.1	26.9	7.2
Goulburn Valley Water	22.6	19.9	12.9	16.2	17	4.9
Western Water	12.2	13.3	12.3	12.2	12.1	-0.8
P&W (Darwin)	21.1	17.2	11.2	10.7	9.8	-8.4
Coliban Water	26.1	29.1	28.7	28.5	25.8	-9.5
Cairns	13.3	12.4	10.5	23	20	-13.0
Central Highlands Water	20.7	18.8	18.2	25.4	20.9	-17.7
Toowoomba	20.7	13.3	16.3	29	12.8	-57.2
<b>Median</b>	<b>20.9</b>	<b>18</b>	<b>14.6</b>	<b>20.6</b>	<b>20.4</b>	
<b>Mean</b>	<b>19.4</b>	<b>18.3</b>	<b>17</b>	<b>19.2</b>	<b>34.4</b>	
<b>Medium</b>						
Gladstone	141	33.9	6.7	10.8	98.5	812.0
Queanbeyan		7.5	8.3	6.5	15.8	143.1
Fraser Coast	3.6	3	4.2	3.6	7	94.4
WC (Mandurah)	4.2	3.6	4	2.8	4.8	71.4
Clarence Valley	10.7	12.3	15.4	5.9	9.4	59.3
Tamworth	13.9	8.9	5.5	6.8	10.1	48.5
Port Macquarie Hastings	3.1	2.6	1.8	4.2	5.7	35.7
Lower Murray Water	35.4	32	28.6	26.2	33.4	27.5
Tweed	4.1	7.5	9.1	7.5	9.5	26.7
Bundaberg	3.9	4.2	8	3.9	4.6	17.9
North East Water	12.5	8.7	13.7	10.3	11.9	15.5
Mackay	10.3	11.8	9.4	6.6	7.3	10.6
GWMWater	55.4	55.5	56.6	58.5	57.1	-2.4

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Shoalhaven	7.9	8	5.7	6.5	6.1	-6.2
MidCoast Council	9.2	1.7	6.9	8.9	8.3	-6.7
East Gippsland Water	17.3	12.9	12.8	17.1	15.9	-7.0
Fitzroy River Water	12.9	16.7	16.2	12.3	11.2	-8.9
Coffs Harbour	2.7	7.1	10	9.7	8.2	-15.5
Dubbo		6.5	7.8	9.7	7.8	-19.6
Riverina Water (W)	6.9	18.6	11.6	8.1	6	-25.9
Wannon Water	9.7	11.1	9.6	8.3	5.2	-37.3
<b>Median</b>	<b>9.7</b>	<b>8.7</b>	<b>9.1</b>	<b>8.1</b>	<b>8.3</b>	
<b>Mean</b>	<b>19.2</b>	<b>13.1</b>	<b>12</b>	<b>11.2</b>	<b>16.4</b>	
<b>Small</b>						
Southern Downs	16.6	3.7	4.5	1.1	7.2	554.5
Livingstone	3.9	3.2	2.9	1	3.5	250.0
Eurobodalla	13	12.7	10	9.1	28.1	208.8
Kempsey	7.3	5.5	12.6	5.1	10.6	107.8
Wingecarribee	5.3	12	15	8.1	14.6	80.2
Byron	8.8	7.1	13.7	17.1	27.4	60.2
Cassowary Coast	18	7.6	8.8	12.7	18.2	43.3
Armidale				13.2	17.3	31.1
Goldenfields Water (W)			16.3	15	16.7	11.3
Lismore	20.1	35.8	29.5	39.9	43.2	8.3
Westernport Water	13.6	22	18.2	20	21.2	6.0
Whitsunday	19.4	15	10.4	19.4	20.4	5.2
Gympie	4.8	3.8	11.1	9.8	9.8	0.0
WC (Kal–Boulder) (W)	20.8	20.3	15.5	19.7	19.3	-2.0
South Gippsland Water	39.5	40.9	29.5	34.3	32.7	-4.7
WC (Australind/Eaton)	4.7	7.4	9.2	6.9	6.5	-5.8
Busselton (W)	8.3	7.2	7.1	9.7	9	-7.2
Central Highlands	42.5	40.4	48.6	42.1	37.7	-10.5
WC (Geraldton)	26.9	25.2	27.4	32.5	28.6	-12.0
Western Downs	24.6	20.5	28	18.2	15.1	-17.0
P&W (Alice Springs)	2.2	8.3	30.7	44.3	36.2	-18.3
Orange	7.1	8.8	7.3	8.7	6.3	-27.6
Essential Energy	14.1	20.9	16.2	24.6	15.2	-38.2
WC (Albany)	11.3	11.4	10.9	15.1	9	-40.4
Aqwest–Bunbury (W)	12.4	13.5	17.5	9.9	5.9	-40.4
Bathurst	6.8	14.8	10.8	15	7.2	-52.0
Bega Valley	6.3	4.5	9.5	13.1	5.7	-56.5
Goulburn Mulwaree	9.6		19	19.7	8.2	-58.4
<b>Median</b>	<b>11.9</b>	<b>12</b>	<b>13.7</b>	<b>15</b>	<b>15.1</b>	
<b>Mean</b>	<b>14.1</b>	<b>14.9</b>	<b>16.3</b>	<b>17.3</b>	<b>17.2</b>	

Table A14 A14—Sewerage mains breaks and chokes (no. per 100 km sewer main), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
Barwon Water	35.4	38.8	33	36.1	51.2	41.8
Icon Water	51.6	54.1	48.9	55.6	72.1	29.7
Yarra Valley Water	31.6	35.3	38.1	30.7	38.4	25.1
South East Water	14.3	17.6	18	16.2	19	17.3
City West Water	17	21.4	20.3	21.3	24.1	13.1
SA Water	48	51	43	43	46	7.0
Sydney Water	68.7	58.4	62.8	70	74	5.7
Central Coast		38	34.3	37	38	2.7
WC (Perth)	17.6	18.6	17	17	17	0.0
Gold Coast	3.9	7.2	4.3	5.1	4.9	-3.9
Hunter Water	53.6	42.7	49.6	50.6	44.9	-11.3
Qld Urban Utilities	30.1	25.2	24.9	20.9	18.4	-12.0
Logan	12.6	11.5	11.2	10.7	9	-15.9
Unitywater	25	24.5	24.8	16.4	13.7	-16.5
TasWater				45	36.6	-18.7
<b>Median</b>	<b>30.1</b>	<b>30.2</b>	<b>28.9</b>	<b>30.7</b>	<b>36.6</b>	
<b>Mean</b>	<b>31.5</b>	<b>31.7</b>	<b>30.7</b>	<b>31.7</b>	<b>33.8</b>	
<b>Large</b>						
Townsville	2.8	3.9	2.7	2.8	7.3	160.7
Goulburn Valley Water	10.1	9.5	9.1	6.1	10.3	68.9
Western Water	15.5	14.1	11.5	12.7	18.1	42.5
Central Highlands Water	19.7	22.6	19.3	19.1	20.5	7.3
Cairns	7.6	7.2	11.8	14.5	15.1	4.1
Gippsland Water	8	8	8.4	9.1	7.8	-14.3
P&W (Darwin)	8.9	22.2	19	14.3	9.9	-30.8
Coliban Water	48.1	53.7	40.5	29.8	20.5	-31.2
Toowoomba	29	64.8	56.9	64.6	44.2	-31.6
Redland City	7.2	7.2	4	3.6	2.3	-36.1
<b>Median</b>	<b>9.5</b>	<b>11.8</b>	<b>11.7</b>	<b>13.5</b>	<b>12.7</b>	
<b>Mean</b>	<b>15.7</b>	<b>21.3</b>	<b>18.3</b>	<b>17.7</b>	<b>15.6</b>	
<b>Medium</b>						
Albury	65	76	78	9	44	388.9
Clarence Valley	52		31	36	64	77.8
Queanbeyan		33	86	59	101	71.2
Mackay	4.1	5.1	3.8	2.2	3.5	59.1
WC (Mandurah)	7.5	9	10	7	11	57.1
Gladstone	6.9	10.9	12.4	5.6	7.9	41.1
Fitzroy River Water	24.4	25.9	28.1	17	21.7	27.6
Lower Murray Water	17.1	15.6	18	16	19	18.8
Bundaberg	9.1	11.4	10.1	11.5	13.1	13.9
Fraser Coast	5.4	6.2	8.1	7.1	7.9	11.3
MidCoast Council	6	8	20	22	24	9.1
Dubbo		46	35.7	38	40	5.3
GWMWater	45	50.5	46.3	42.1	43	2.1

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
North East Water	8.8	9.6	11.8	10.3	10.3	0.0
Coffs Harbour	89	97	95	84	82	-2.4
Wannon Water	13.4	18.2	18	12.5	12.1	-3.2
East Gippsland Water	6.1	5.2	5.9	7.6	6.9	-9.2
Tamworth	50	20	41	8	7	-12.5
Port Macquarie Hastings		27	15	14	9	-35.7
Shoalhaven	11	13	8	11	3	-72.7
Tweed	0	1	1	0	0	
<b>Median</b>	<b>10.1</b>	<b>14.3</b>	<b>18</b>	<b>11.5</b>	<b>12.1</b>	
<b>Mean</b>	<b>23.4</b>	<b>24.4</b>	<b>27.8</b>	<b>20</b>	<b>25.3</b>	
<b>Small</b>						
Southern Downs	13.2	35.7	12	0.3	34.2	11,300.0
South Gippsland Water	23.6	29.9	110	13.4	36.6	173.1
Wingecarribee	22	10	31	26	45	73.1
Western Downs	9.6	4.8	4.8	2.8	4.4	57.1
WC (Busselton) (S)	3.5	3.7	3.8	2	3	50.0
WC (Albany)	25	30.6	20.9	17	21	23.5
Livingstone	3.6	6	3.3	4.2	5.1	21.4
Byron	11	21	7	7	8	14.3
Whitsunday	0.3	8.9	8.9	15.5	17.6	13.5
Eurobodalla	32	23	25	33	37	12.1
Orange	33	42	78	83	90	8.4
Armidale				49	51	4.1
Westernport Water	2	4.2	4.1	6	6	0.0
Essential Energy	129		120.7	122	115	-5.7
Bathurst	99	162	91	55	49	-10.9
Cassowary Coast	3.5	1.3	4.8	4.4	3.9	-11.4
Central Highlands	24.9	39.4	32.9	7.6	6.5	-14.5
Kal-Boulder (S)	17.7	27	30	39	33	-15.4
WC (Bunbury) (S)	12.4	12.8	9.2	14	11	-21.4
WC (Australind/Eaton)	10.4	7.9	7.4	9	7	-22.2
WC (Geraldton)	10.8	8.7	7.1	12	9	-25.0
Gympie	40.9	3.8	3	8.7	5.9	-32.2
Bega Valley	9	20	14	27	18	-33.3
Lismore	50	28	16	26	17	-34.6
Goulburn Mulwaree			106.7	69	44	-36.2
P&W (Alice Springs)	0.9	1.8	3.6	6.3	3.2	-49.2
Kempsey	33	25	10	22	5	-77.3
<b>Median</b>	<b>13.2</b>	<b>16.4</b>	<b>11</b>	<b>14</b>	<b>17</b>	
<b>Mean</b>	<b>24.8</b>	<b>23.2</b>	<b>29.4</b>	<b>25.2</b>	<b>25.4</b>	

Table A15 A15—Property connection sewer breaks and chokes (no. per 1,000 properties), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
Barwon Water	1.8	2.8	6	6	9.4	56.7
Icon Water	9.4	10.1	9.5	10.4	13.8	32.7
Yarra Valley Water	6.7	7.4	7.6	6.7	8.1	20.8
Central Coast		2.9	6.9	3.2	3.6	12.5
Unitywater	1.5	1.3	1.3	1.1	1.2	9.1
South East Water	4.7	5	4	4.8	5.2	8.3
City West Water	5	5.2	4.5	3.2	3.4	6.2
TasWater				10.1	10.7	5.9
Hunter Water	10.2	8.5	9.3	10	10.3	3.0
SA Water	29	32	26	28	28	0.0
Sydney Water	0.2	0.2	0.3	0.3	0.3	0.0
Qld Urban Utilities	3.8	3.3	3.9	3.1	2.9	-6.5
Gold Coast	1.2	0.9	2.2	2.3	1.8	-21.7
Logan	1.8	1.8	1.9	1.3	1	-23.1
<b>Median</b>	<b>4.2</b>	<b>3.3</b>	<b>4.5</b>	<b>4</b>	<b>4.4</b>	
<b>Mean</b>	<b>6.3</b>	<b>6.3</b>	<b>6.4</b>	<b>6.5</b>	<b>7.1</b>	
<b>Large</b>						
Townsville	3	4.3	4.2	3.2	5.5	71.9
Central Highlands Water	1	1.7	2.2	3.8	4.9	28.9
Western Water	5	5.6	4.8	4.2	4.9	16.7
Cairns	3.2	1.4	2.2	2.7	2.7	0.0
Goulburn Valley Water	0	4.3	2.3	5	4.6	-8.0
Redland City	0.3	0.6	1.3	1.1	1	-9.1
Coliban Water	4.5	5.2	8.9	4.3	3.6	-16.3
P&W (Darwin)	3.1	3.1	0.8	2	1.4	-30.0
Gippsland Water	1.8	1.8	2.4	2.2	1.3	-40.9
Toowoomba		0.6	4.3	2.5	1	-60.0
<b>Median</b>	<b>3</b>	<b>2.5</b>	<b>2.3</b>	<b>3</b>	<b>3.2</b>	
<b>Mean</b>	<b>2.4</b>	<b>2.9</b>	<b>3.3</b>	<b>3.1</b>	<b>3.1</b>	
<b>Medium</b>						
Shoalhaven	0.2	0.1	0.1	0	3.5	
Coffs Harbour	3.5	1.5	2.8	0.5	2	300.0
Gladstone	0.8	0.7	1.2	0.6	1	66.7
Wagga Wagga (S)	14.7	13.4	6.7	5	7.8	56.0
Bundaberg	0.2	0.2	0.6	8.7	13.2	51.7
Fitzroy River Water	9.7	9.8	10.6	9.7	11.6	19.6
Lower Murray Water	0	6.2	6	7	8	14.3
Dubbo			6.1	6.9	7	1.4
North East Water	1.8	2	2.9	3	3	0.0
Wannon Water	4.6	3.5	3	3	3	0.0
GWMWater	25.1	31.4	29.2	35.1	34.9	-0.6
Albury	13.4	12.5	10.7	4.5	4.1	-8.9
East Gippsland Water	0.6	0.8	1.2	1.8	1.6	-11.1

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Fraser Coast	1.3	1.3	2.7	2.8	2.3	-17.9
Tamworth	2.4	10.8	8.6	10.2	5.4	-47.1
Tweed	0.3	1.2	1.2	0.8	0.3	-62.5
Clarence Valley	3.6		5.9	20.4	5.7	-72.1
Mackay	1.7	0.6	1.7	2.2	0.6	-72.7
Port Macquarie Hastings			1.1	1	0.2	-80.0
Queanbeyan			10.6	0	0	
<b>Median</b>	<b>1.8</b>	<b>1.8</b>	<b>3</b>	<b>3</b>	<b>3.2</b>	
<b>Mean</b>	<b>4.9</b>	<b>6</b>	<b>5.6</b>	<b>6.2</b>	<b>5.8</b>	
<b>Small</b>						
Orange	9.9	1.4	0.3	3.2	10.9	240.6
Kempsey	9.6	14.1	24.9	6.2	21	238.7
South Gippsland Water	4.5	1.8	64	3.7	10.1	173.0
Livingstone	2.3		3.4	1.4	2.2	57.1
Byron	7.9	10.3	11.3	9.6	14.9	55.2
Southern Downs	8.4	6.3	2.1	7.6	11.3	48.7
Westernport Water	0.6	2.3	2.3	3.3	4.4	33.3
Cassowary Coast	0.9	3.2	3.1	0.8	1	25.0
Armidale				27.3	32.9	20.5
Central Highlands		2.3	1.1	10.2	10.3	1.0
Essential Energy	41.3	44	43.3	51.3	51.7	0.8
Bathurst	1.7	3.1	3.2	4.9	4.9	0.0
Goulburn Mulwaree	6.6	17	17.4	18	14.7	-18.3
Eurobodalla	5.7	4.4	4.6	5.8	4.3	-25.9
P&W (Alice Springs)	0.2	0.2	2	1.3	0.9	-30.8
Bega Valley	0.9	2	1.5	4.4	2.2	-50.0
Wingecarribee	8.5	3.7	4.6	16.9	8.4	-50.3
Lismore	10.1	8.2	5.9	21.3	9.5	-55.4
Western Downs	1.6	2.8	2.9	2	0.8	-60.0
Gympie	0.8	0.5		4	0.6	-85.0
Whitsunday	1.7	0.3	0.9	1.4	0.1	-92.9
Kal-Boulder (S)	2.5	0	1	1.8	0	-100.0
<b>Median</b>	<b>3.5</b>	<b>3</b>	<b>3.2</b>	<b>4.7</b>	<b>6.7</b>	
<b>Mean</b>	<b>6.3</b>	<b>6.4</b>	<b>10</b>	<b>9.4</b>	<b>9.9</b>	



Table A16 A10—Real losses (L/service connection/d), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
South East Water	67	64	59	47	66	40.4
TasWater				277	313	13.0
Logan	78.8	67	66.1	76.5	83.1	8.6
Central Coast		31	34	35	37	5.7
SA Water	90	82	86	76	78	2.6
WC (Perth)	79.7	78	87	83.6	85	1.7
Sydney Water	74	76	83	93	94	1.1
Qld Urban Utilities	69	71	76	75	74	-1.3
Hunter Water	91	104	96	86	79	-8.1
Gold Coast	77	81	76.3	76.4	69.3	-9.3
Unitywater	69	66	51	55.2	49.8	-9.8
Yarra Valley Water	60	71	50	60	49	-18.3
Barwon Water	25	47	45	48	34	-29.2
City West Water	70	71	70	89	57.8	-35.1
Icon Water	58	69	79	83	45	-45.8
<b>Median</b>	<b>70</b>	<b>71</b>	<b>73</b>	<b>76.4</b>	<b>69.3</b>	
<b>Mean</b>	<b>69.9</b>	<b>69.9</b>	<b>68.5</b>	<b>84</b>	<b>80.9</b>	
<b>Large</b>						
Cairns	24	27	7.9	21.4	46.3	116.4
Central Highlands Water	30	30	40	40	50	25.0
Coliban Water	65	74	63	60	72	20.0
Gippsland Water	78	72	90	80	90	12.5
Townsville		276	143	306.4	342.9	11.9
Western Water	47	37	32	51	50	-2.0
Goulburn Valley Water	111	93	104	118	100	-15.3
Toowoomba	84.5	85	59.3	81	66.9	-17.4
Redland City	44.1	17	16.1	16.5	11.6	-29.7
P&W (Darwin)	229	96	143	222	142	-36.0
<b>Median</b>	<b>65</b>	<b>73</b>	<b>61.1</b>	<b>70</b>	<b>81</b>	
<b>Mean</b>	<b>79.2</b>	<b>80.7</b>	<b>69.8</b>	<b>99.6</b>	<b>97.2</b>	
<b>Medium</b>						
Dubbo			51.3	4	86	2,050.0
Clarence Valley	111		46.9	43	126	193.0
GWMWater	110	109	112	72	119	65.3
Riverina Water (W)	86	115	55.6	57	85	49.1
Tweed	56		90.9	104	137	31.7
North East Water	120	60	48	59	70	18.6
Shoalhaven	92	72	107	64	71	10.9
Gladstone	860.2	336	239.3	47.8	50.8	6.3
Wannon Water	71	72	84	70	70	0.0
Tamworth	69	87	79	55	55	0.0
Mackay	106.5	131	130.3	189.9	186	-2.1
Fitzroy River Water	180	152	114.2	186	176	-5.4
Lower Murray Water	45.7	76	80	51	48	-5.9

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Queanbeyan			0	101	92	-8.9
Albury	55		46.2	63	44	-30.2
Coffs Harbour	50	48	56	62	42	-32.3
Fraser Coast	84	78	89.1	80.7	54	-33.1
MidCoast Council	61	71	84	57	37	-35.1
Bundaberg	50.3	354	50.6	215.5	133.7	-38.0
East Gippsland Water	51.4	66	48	55.8	27.8	-50.2
WC (Mandurah)	54.5	67	77	93.8	41.9	-55.3
<b>Median</b>	<b>71</b>	<b>77</b>	<b>79</b>	<b>63</b>	<b>70</b>	
<b>Mean</b>	<b>121.8</b>	<b>118.4</b>	<b>80.4</b>	<b>82.5</b>	<b>83.4</b>	
<b>Small</b>						
Livingstone		0	0	0	116.8	
Ballina	156	156	89	57	100	75.4
Whitsunday	537.2	346	101.8	144.7	251.4	73.7
WC (Albany)	174.5	189	115	111	163.9	47.6
Gympie	190	98	147.8	133.2	185.4	39.2
Goulburn Mulwaree	70		67.3	95	119	25.3
South Gippsland Water	103.5	100	87	105	122.8	17.0
WC (Australind/Eaton)	139.8	107	109	124.4	142.3	14.4
Essential Energy	82	84	90.7	101	111	9.9
Southern Downs	182	96	66.5	27.8	29	4.3
Busselton (W)	79.8	69	78	115	119	3.5
Orange	61	63	106	112	113	0.9
Cassowary Coast	356	390	463.9	458.8	461.8	0.7
Armidale				129	127	-1.6
Eurobodalla	48	50	54	52	51	-1.9
Bega Valley	50	50	51	51	50	-2.0
Lismore	40	39	38	103	96	-6.8
Aqwest–Bunbury (W)	106	95	104	108	98	-9.3
Wingecarribee	61	116	107	117	95	-18.8
Kempsey	97	93	63	114	90	-21.1
Central Highlands			271.4	253.7	200	-21.2
P&W (Alice Springs)	200	126	153	118	92	-22.0
WC (Geraldton)	262.4	217	106	209.7	161.6	-22.9
WC (Kal–Boulder) (W)	30.1	42	88	102.4	78	-23.8
Bathurst			67.9	84	58	-31.0
Byron	53	90	50	84	49	-41.7
Goldenfields Water (W)			200.6	151	54	-64.2
Western Downs			65.4	170.5	52.1	-69.4
Westernport Water	13	47	50	42	11	-73.8
<b>Median</b>	<b>97</b>	<b>95</b>	<b>88.5</b>	<b>111</b>	<b>100</b>	
<b>Mean</b>	<b>134.4</b>	<b>115.8</b>	<b>106.8</b>	<b>119.8</b>	<b>117.2</b>	

Table A17 E12—Total net greenhouse gas emissions (net tonnes CO<sub>2</sub> equivalents per 1,000 connected water properties), by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
Hunter Water	220	181	167	163	357	119.5
SA Water	320	402	272	302	426	41.1
Icon Water	257	255	242	268	363	35.7
TasWater				179	196	9.4
Unitywater		199		199	212	6.6
Sydney Water	84	144	176	173	180	4.3
Barwon Water	262	268	263	257	267	4.0
Central Coast		397		436	449	3.0
Qld Urban Utilities	199	192	168	183	182	-0.5
City West Water	27	32	32	30	28	-5.9
Yarra Valley Water	44	44	44	43	40	-6.6
Logan				187	163	-12.5
South East Water	60	60	56	63	49	-22.3
WC (Perth)	738	817	828	754	510	-32.4
<b>Median</b>	<b>210</b>	<b>195</b>	<b>172</b>	<b>185</b>	<b>204</b>	
<b>Mean</b>	<b>221</b>	<b>249</b>	<b>225</b>	<b>231</b>	<b>245</b>	
<b>Large</b>						
Redland City				34	190	462.7
Toowoomba				501	633	26.5
Townsville				294	368	25.2
Coliban Water	610	770	454	384	443	15.3
Gippsland Water	639	898	546	543	617	13.6
Central Highlands Water	246	444	230	208	236	13.5
Western Water	520	530	440	512	558	9.0
Goulburn Valley Water	872	780	686	1,004	1,080	7.5
Cairns				256	254	-0.4
P&W (Darwin)	165	154	179	229	215	-6.2
<b>Median</b>	<b>565</b>	<b>650</b>	<b>447</b>	<b>339</b>	<b>405</b>	
<b>Mean</b>	<b>509</b>	<b>596</b>	<b>422</b>	<b>396</b>	<b>459</b>	
<b>Medium</b>						
Port Macquarie Hastings	416	385	395	304	482	58.6
Shoalhaven	437	454	470	479	754	57.3
GWMWater	607	583	426	477	566	18.8
Dubbo		492	470	505	563	11.5
MidCoast Council	490	371	337	426	453	6.4
East Gippsland Water	344	346	365	351	368	4.7
Wannon Water	751	776	675	696	704	1.2
Lower Murray Water	544	602	542	643	624	-3.0
North East Water	838	885	750	697	653	-6.3
Fitzroy River Water				475	445	-6.3
Albury	393	477	437	418	383	-8.4
Queanbeyan		233	299	200	169	-15.6

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Coffs Harbour	487	456	489	459	386	-15.9
Tamworth	393	423	422	469	376	-19.8
WC (Mandurah)	193	189	348	350	257	-26.6
Tweed	413	453	457	730	420	-42.5
<b>Median</b>	<b>437</b>	<b>454</b>	<b>437</b>	<b>472</b>	<b>449</b>	
<b>Mean</b>	<b>485</b>	<b>475</b>	<b>459</b>	<b>480</b>	<b>475</b>	
<b>Small</b>						
Lismore	233	229	171	64	223	247.9
Bathurst	337		418	278	434	56.1
Kempsey	324	292	303	321	460	43.2
Western Downs				334	472	41.2
Ballina	390	386	295	378	456	20.6
Whitsunday				355	408	15.1
Goulburn Mulwaree	449	662	761	670	744	11.0
P&W (Alice Springs)	609	636	577	822	859	4.5
WC (Geraldton)	341	373	351	331	332	0.2
Byron	166		138	385	383	-0.5
Bega Valley	342	422	399	417	413	-1.0
Westernport Water	412	379	383	399	394	-1.2
South Gippsland Water	377	372	416	454	446	-1.8
WC (Australind/Eaton)	457	448	347	323	316	-2.0
Armidale				436	423	-3.0
WC (Albany)	434	419	380	368	356	-3.5
Eurobodalla	359	335	381	530	500	-5.7
Wingecarribee	469	492	474	442	416	-5.9
Orange	405	515	450	596	482	-19.1
Essential Energy	779			1,220	835	-31.6
<b>Median</b>	<b>390</b>	<b>402</b>	<b>382</b>	<b>392</b>	<b>428</b>	
<b>Mean</b>	<b>405</b>	<b>426</b>	<b>390</b>	<b>456</b>	<b>468</b>	

Table A18 H3—Percentage of population where microbiological compliance was achieved, by utility size group, 2014–15 to 2018–19.

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
<b>Major</b>						
TasWater	98.6	99.2	99.4	99.8	100	0.2
Barwon Water	100	100	100	100	100	0
Central Coast		100	100	100	100	0
City West Water	100	100	100	100	100	0
Gold Coast				100	100	0
Hunter Water	100	100	100	100	100	0
Icon Water	100	100	100	100	100	0
Logan				100	100	0
Qld Urban Utilities	100	100	100	100	100	0
SA Water	100	100	100	100	100	0
South East Water	100	100	100	100	100	0
Sydney Water	100	100	100	100	100	0
Unitywater		100		100	100	0
WC (Perth)	100	100	100	100	100	0
Yarra Valley Water	100	100	100	100	100	0
<b>Median</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	
<b>Mean</b>	<b>99.9</b>	<b>99.9</b>	<b>100</b>	<b>100</b>	<b>100</b>	
<b>Large</b>						
Coliban Water	100	100	100	99.5	100	0.5
Central Highlands Water	100	100	100	99.7	100	0.3
Cairns	100			100	100	0
Gippsland Water	100	88.6	100	100	100	0
Goulburn Valley Water	100	100	100	100	100	0
P&W (Darwin)	100	100	100	100	100	0
Redland City				100	100	0
Toowoomba				100	100	0
Townsville				100	100	0
Western Water	100	100	99	100	100	0
<b>Median</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	
<b>Mean</b>	<b>100</b>	<b>98.1</b>	<b>99.8</b>	<b>99.9</b>	<b>100</b>	
<b>Medium</b>						
GWMWater	100	100	100	99.4	100	0.6
Albury	100	100	100	100	100	0
North East Water	100	100	100	100	100	0
Wannon Water	100	100	99.9	100	100	0
Tweed	100	100	100	100	100	0
Tamworth	100	100	100	100	100	0
Shoalhaven	100	100	100	100	100	0
Fitzroy River Water				100	100	0
Riverina Water (W)	100	100	100	100	100	0
Queanbeyan		100	100	100	100	0
Port Macquarie Hastings	100	100	100	100	100	0
MidCoast Council	100	100	100	100	100	0

Utility	2014–15	2015–16	2016–17	2017–18	2018–19	% Change from 2017–18
Bundaberg				100	100	0
Mackay				100	100	0
Lower Murray Water	100	100	100	100	100	0
Gladstone				100	100	0
Fraser Coast				100	100	0
East Gippsland Water	100	100	100	100	100	0
Dubbo		100	100	100	100	0
Coffs Harbour	100	100	100	100	100	0
Clarence Valley	100	100	100	100	100	0
WC (Mandurah)	100	100	100	100	100	0
<b>Median</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	
<b>Mean</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	
<b>Small</b>						
Western Downs				72.5	100	37.9
Aqwest–Bunbury (W)	100	100	100	100	100	0
Armidale				100	100	0
Whitsunday				100	100	0
Westernport Water	100	100	100	100	100	0
WC (Kal–Boulder) (W)	100	100	100	100	100	0
WC (Geraldton)	100	100	100	100	100	0
WC (Australind/Eaton)	100	100	100	100	100	0
WC (Albany)	100	100	100	100	100	0
Southern Downs				100	100	0
P&W (Alice Springs)	100	100	100	100	100	0
Orange	100	100	100	100	100	0
Livingstone				100	100	0
Lismore	100	100	100	100	100	0
Kempsey	100	100	100	100	100	0
Gympie				100	100	0
Goulburn Mulwaree	100	100	100	100	100	0
Goldenfields Water (W)			100	100	100	0
Eurobodalla	100	100	100	100	100	0
Essential Energy	100	100	100	100	100	0
Central Highlands				100	100	0
Byron	100	100	100	100	100	0
Busselton (W)	100	100	100	100	100	0
Bega Valley	100	100	100	100	100	0
Bathurst	100	100	100	100	100	0
Ballina	100	100	100	100	100	0
Wingecarribee	100	100	100	100	100	0
Cassowary Coast				99.3	98.9	-0.4
South Gippsland Water	100	100	100	100	99	-1
<b>Median</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	
<b>Mean</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>99</b>	<b>99.9</b>	

## Appendix B Audit framework

Auditing is intended to provide enhanced confidence in the accuracy, completeness, and reliability of reported information. Auditing promotes transparency and consistency in the process of collecting and reporting data across all urban water utilities, in order to report performance results that are relevant and useful, and enable meaningful comparisons between utilities over time.

The National Water Commission, the Water Services Association of Australia, and representative National Water Initiative (NWI) parties established the National Framework for Reporting on Performance of Urban Water Utilities Deed, which sets out how the parties will report on the performance of urban water utilities in accordance with the NWI. The deed requires parties to use all reasonable endeavours to ensure that a comprehensive audit of the data collected by each urban water utility under the National Performance Framework is undertaken at least once every three years.

The National Performance Framework 2013–14 auditing requirements and audit report template provide further detail about the requirements that a water utility must meet in order to report its results in the 2019 Urban NPR.

- Audits are to be conducted at a minimum of three-year intervals.
- Indicators that have failed an audit will not be published (they need to be re-audited before they are published).
- Audits must be carried out by suitably qualified and independent auditors.
- The level of assurance to be provided is generally ‘reasonable’ assurance (although there are some instances in which ‘limited’ assurance is appropriate).
- Audits must be conducted under Australian Standard ASAE 3000: Assurance Engagements Other than Audits or Reviews of Historical Financial Information.
- Auditable indicators are those with the indicator codes W7, W8, W11, W11.3, W12, W14, W18, W18.5, W19, W26, W27, A2, A3, A5, A6, A8–A11, A14, A15, E1–E3, E8, E12, E12.1, C2, C4, C8, C13, C14–C15, C17–C19, H3, H4, F1–F8, F11–F16, F20–F30, P7, and P8.



## Appendix C Utilities reporting

Utility name	Display name in tables and graphs	Jurisdiction	Utility size group
Albury City Council	Albury	New South Wales	Medium
Aqwest–Bunbury Water Corporation (W)	Aqwest–Bunbury (W)	Western Australia	Small
Armidale Regional Council	Armidale	New South Wales	Small
Ballina Shire Council	Ballina	New South Wales	Small
Barwon Water	Barwon Water	Victoria	Major
Bathurst Regional Council	Bathurst	New South Wales	Small
Bega Valley Shire Council	Bega Valley	New South Wales	Small
Bundaberg Regional Council	Bundaberg	Queensland	Medium
Busselton Water (W)	Busselton (W)	Western Australia	Small
Byron Shire Council	Byron	New South Wales	Small
Cairns Regional Council	Cairns	Queensland	Large
Cassowary Coast Regional Council	Cassowary Coast	Queensland	Small
Central Coast Council	Central Coast	New South Wales	Major
Central Gippsland Water	Gippsland Water	Victoria	Large
Central Highlands Regional Council	Central Highlands	Queensland	Small
Central Highlands Water	Central Highlands Water	Victoria	Large
City West Water	City West Water	Victoria	Major
City of Gold Coast	Gold Coast	Queensland	Major
City of Kalgoorlie–Boulder (S)	Kal–Boulder (S)	Western Australia	Small
Clarence Valley Council	Clarence Valley	New South Wales	Medium
Coffs Harbour City Council	Coffs Harbour	New South Wales	Medium
Coliban Water	Coliban Water	Victoria	Large
Dubbo Regional Council	Dubbo	New South Wales	Medium
East Gippsland Water	East Gippsland Water	Victoria	Medium
Essential Energy	Essential Energy	New South Wales	Small
Eurobodalla Shire Council	Eurobodalla	New South Wales	Small
Fraser Coast Regional Council	Fraser Coast	Queensland	Medium
Gladstone Area Water Board	GAWB	Queensland	Bulk water
Gladstone Regional Council	Gladstone	Queensland	Medium
Goldenfields	Goldenfields Water (W)	New South Wales	Small
Goulburn Mulwaree Council	Goulburn Mulwaree	New South Wales	Small
Goulburn Valley Water	Goulburn Valley Water	Victoria	Large
GWMWater	GWMWater	Victoria	Medium
Gympie Regional Council	Gympie	Queensland	Small
Hunter Water Corporation	Hunter Water	New South Wales	Major
Icon Water Limited	Icon Water	Australian Capital Territory	Major
Kempsey Shire Council	Kempsey	New South Wales	Small
Lismore City Council	Lismore	New South Wales	Small
Livingstone Shire Council	Livingstone	Queensland	Small
Logan City Council	Logan	Queensland	Major
Lower Murray Water	Lower Murray Water	Victoria	Medium
Mackay Regional Council	Mackay	Queensland	Medium
Melbourne Water	Melbourne Water	Victoria	Bulk water
MidCoast Water	MidCoast Council	New South Wales	Medium

Utility name	Display name in tables and graphs	Jurisdiction	Utility size group
North East Water	North East Water	Victoria	Medium
Orange City Council	Orange	New South Wales	Small
Port Macquarie Hastings Council	Port Macquarie Hastings	New South Wales	Medium
Power and Water – Darwin	P&W (Darwin)	Northern Territory	Large
Power and Water – Alice Springs	P&W (Alice Springs)	Northern Territory	Small
Queanbeyan–Palarang Regional Council	Queanbeyan	New South Wales	Medium
Queensland Bulk Water Supply Authority	Seqwater	Queensland	Bulk water
Queensland Urban Utilities	Qld Urban Utilities	Queensland	Major
Redland City Council	Redland City	Queensland	Large
Riverina Water	Riverina Water (W)	New South Wales	Medium
Rockhampton Regional Council	Fitzroy River Water	Queensland	Medium
Rous Water	Rous Water	New South Wales	Bulk water
Shoalhaven City Council	Shoalhaven	New South Wales	Medium
SA Water Corporation	SA Water	South Australia	Major
South East Water Ltd	South East Water	Victoria	Major
South Gippsland Water	South Gippsland Water	Victoria	Small
Southern Downs Regional Council	Southern Downs	Queensland	Small
Sydney Water Corporation	Sydney Water	New South Wales	Major
Tamworth Regional Council	Tamworth	New South Wales	Medium
Tasmanian Water and Sewerage Corporation	TasWater	Tasmania	Major
Toowoomba Regional Council	Toowoomba	Queensland	Large
Townsville City Council	Townsville	Queensland	Large
Tweed Shire Council	Tweed	New South Wales	Medium
Unitywater	Unitywater	Queensland	Major
Wagga Wagga Council	Wagga Wagga (S)	New South Wales	Medium
Wannon Water	Wannon Water	Victoria	Medium
Water Corporation – Perth	WC (Perth)	Western Australia	Major
Water Corporation – Albany	WC (Albany)	Western Australia	Small
Water Corporation – Australind/Eaton	WC (Australind/Eaton)	Western Australia	Small
Water Corporation – Bunbury (S)	WC (Bunbury) (S)	Western Australia	Small
Water Corporation – Busselton (S)	WC (Busselton) (S)	Western Australia	Small
Water Corporation – Geraldton	WC (Geraldton)	Western Australia	Small
Water Corporation – Kalgoorlie–Boulder (W)	WC (Kal–Boulder) (W)	Western Australia	Small
Water Corporation – Mandurah	WC (Mandurah)	Western Australia	Medium
WaterNSW	WaterNSW	New South Wales	Bulk water
Western Downs Regional Council	Western Downs	Queensland	Small
Western Water	Western Water	Victoria	Large
Westernport Water	Westernport Water	Victoria	Small
Whitsunday Regional Council	Whitsunday	Queensland	Small
Wingecarribee Shire Council	Wingecarribee	New South Wales	Small
Yarra Valley Water Corporation	Yarra Valley Water	Victoria	Major

## Appendix D Urban performance indicators

Indicator category	Indicator subcategory	Indicator code	Indicator name
Assets	Water Treatment Plants	A1	Number of water treatment plants providing full treatment (no.)
Assets	Other Water Assets	A2	Length of water mains (km)
Assets	Other Water Assets	A3	Number of properties served per km of water main (no./km)
Assets	Wastewater assets	A4	Number of wastewater treatment plants (no.)
Assets	Wastewater assets	A5	Length of sewer mains and channels (km)
Assets	Wastewater assets	A6	Number of properties served per km of sewer main (no./km)
Assets	Water Main Breaks	A8	Number of water main breaks, bursts, and leaks, per 100 km of water mains (no. per 100 km of water mains)
Assets	Water Losses	A9	Infrastructure leakage index (ILI)
Assets	Water Losses	A10	Real losses: service connections (L/service connection/day)
Assets	Water Losses	A11	Real losses: water mains (kL/km water main/day)
Assets	Wastewater breaks and chokes	A14	Number of sewer mains breaks and chokes per 100 km (no. per 100 km of sewer main)
Assets	Wastewater breaks and chokes	A15	Number of property connection sewer breaks and chokes per 1,000 properties (no. per 1,000 properties)
Assets	Water Main Breaks	IA8	Number of water main breaks, bursts, and leaks (no.)
Customers	Connected Properties and Population	C1	Population receiving services: water supply (000s)
Customers	Connected Properties and Population	C2	Number of connected residential properties: water supply (000s)
Customers	Connected Properties and Population	C3	Number of connected non-residential properties: water supply (000s)
Customers	Connected Properties and Population	C4	Total number of connected properties: water supply (000s)
Customers	Connected Properties and Population	C6	Number of connected residential properties: wastewater (000s)
Customers	Connected Properties and Population	C7	Number of connected non-residential properties: wastewater (000s)
Customers	Connected Properties and Population	C8	Total number of connected properties: wastewater (000s)
Customers	Water quality complaints	C9	Number of water quality complaints per 1,000 properties: water supply (no. per 1,000 properties)
Customers	Water service complaints	C10	Number of water service complaints per 1,000 properties (no. per 1,000 properties)
Customers	Wastewater service complaints	C11	Number of sewerage service complaints per 1,000 properties (no. per 1,000 properties)
Customers	Billing and account complaints	C12	Number of billing and account complaints per 1,000 properties: water supply and sewerage (no. per 1,000 properties)
Customers	Total water and wastewater complaints	C13	Number of water and sewerage complaints per 1,000 properties (no. per 1,000 properties)

Indicator category	Indicator subcategory	Indicator code	Indicator name
Customers	Connect time to a telephone operator	C14	Percentage of calls answered by an operator within 30 seconds (%)
Customers	Average duration of unplanned water supply interruptions	C15	Average duration of an unplanned interruption: water supply (minutes)
Customers	Water interruption frequency	C17	Number of unplanned interruptions per 1,000 properties: water supply (no. per 1,000 properties)
Customers	Restrictions or legal action for non-payment of water bill	C18	Number of restrictions for non-payment of water bills per 1,000 properties (no. per 1,000 properties)
Customers	Restrictions or legal action for non-payment of water bill	C19	Number of legal actions taken for non-payment of water bills per 1,000 properties (no. per 1,000 properties)
Customers	Water quality complaints	IC9	Number of water quality complaints: water supply (no.)
Customers	Water service complaints	IC10	Number of water service complaints (no.)
Customers	Wastewater service complaints	IC11	Number of sewerage service complaints (no.)
Customers	Billing and account complaints	IC12	Number of billing and account complaints: water supply and sewerage (no.)
Customers	Total water and wastewater complaints	IC13	Number of water and sewerage complaints (no.)
Customers	Water interruption frequency	IC17	Number of unplanned interruptions: water supply (no.)
Customers	Restrictions or legal action for non-payment of water bill	IC18	Number of restrictions for non-payment of water bills (no.)
Customers	Restrictions or legal action for non-payment of water bill	IC19	Number of legal actions taken for non-payment of water bills (no.)
Environment	Comparative wastewater treatment levels	E1	Percentage of wastewater only treated to a primary level (%)
Environment	Comparative wastewater treatment levels	E2	Percentage of wastewater only treated to a secondary level (%)
Environment	Comparative wastewater treatment levels	E3	Percentage of wastewater treated to a tertiary level (%)
Environment	Net greenhouse gas emissions	E8	Percentage of biosolids reused (%)
Environment	Net greenhouse gas emissions	E9	Net greenhouse gas emissions per 1,000 properties: water supply (tonnes CO <sub>2</sub> equivalents per 1,000 properties)
Environment	Net greenhouse gas emissions	E9.1	Net greenhouse gas emissions per ML: water supply—bulk utility (tonnes CO <sub>2</sub> equivalents per ML)
Environment	Net greenhouse gas emissions	E10	Net greenhouse gas emissions per 1,000 properties: wastewater (tonnes CO <sub>2</sub> equivalents per 1,000 properties)
Environment	Comparative wastewater treatment levels	E10.1	Net greenhouse gas emissions per ML: wastewater—bulk utility (tonnes CO <sub>2</sub> equivalents per ML)
Environment	Net greenhouse gas emissions	E11	Net greenhouse gas emissions per 1,000 properties: other (tonnes CO <sub>2</sub> equivalents per 1,000 properties)
Environment	Net greenhouse gas emissions	E11.1	Net greenhouse gas emissions per ML: other—bulk utility (tonnes CO <sub>2</sub> equivalents per ML)
Environment	Net greenhouse gas emissions	E12	Total net greenhouse gas emissions per 1,000 properties (tonnes CO <sub>2</sub> equivalents per 1,000 properties)

Indicator category	Indicator subcategory	Indicator code	Indicator name
Environment	Net greenhouse gas emissions	E12.1	Total net greenhouse gas emissions per ML: bulk utility (tonnes CO <sub>2</sub> equivalents per ML)
Environment	Comparative wastewater treatment levels	IE1	Volume of wastewater only treated to a primary level (ML)
Environment	Comparative wastewater treatment levels	IE2	Volume of wastewater only treated to a secondary level (ML)
Environment	Comparative wastewater treatment levels	IE3	Volume of wastewater treated to a tertiary level (ML)
Environment	Net greenhouse gas emissions	IE9	Net greenhouse gas emissions: water supply (tonnes CO <sub>2</sub> equivalents)
Environment	Net greenhouse gas emissions	IE10	Net greenhouse gas emissions: wastewater (tonnes CO <sub>2</sub> equivalents)
Environment	Net greenhouse gas emissions	IE11	Net greenhouse gas emissions: other (tonnes CO <sub>2</sub> equivalents)
Environment	Net greenhouse gas emissions	IE12	Total net greenhouse gas emissions (tonnes CO <sub>2</sub> equivalents)
Finance	Revenue	F1	Total revenue: water supply (\$000s)
Finance	Revenue	F2	Total revenue: wastewater (\$000s)
Finance	Revenue	F3	Total income for the utility (\$000s)
Finance	Revenue	F4	Percentage of residential revenue from usage charges: water supply (%)
Finance	Revenue	F5	Revenue per property: water supply (\$/property)
Finance	Revenue	F5.1	Revenue per ML: water supply—bulk utility (\$/ML)
Finance	Revenue	F6	Revenue per property: wastewater (\$/property)
Finance	Revenue	F6.1	Revenue per ML: wastewater—bulk utility (\$/ML)
Finance	Revenue	F7	Total income per property (\$/property)
Finance	Revenue	F7.1	Total income per ML: bulk utility (\$/ML)
Finance	Revenue from community service obligations (CSOs)	F8	Community service obligations ratio
Finance	Costs	F9	Written-down replacement cost of fixed water supply assets (\$000s)
Finance	Costs	F10	Written-down replacement cost of fixed wastewater assets (\$000s)
Finance	Costs	F11	Operating cost per property: water supply (\$/property)
Finance	Costs	F11.1	Operating cost per ML: water supply—bulk utility (\$/ML)
Finance	Costs	F12	Operating cost per property: wastewater (\$/property)
Finance	Costs	F12.1	Operating cost per ML: wastewater—bulk utility (\$/ML)
Finance	Costs	F13	Combined operating cost per property: water supply and wastewater (\$/property)
Finance	Costs	F13.1	Combined operating cost per ML: water supply and wastewater—bulk utility (\$/ML)
Finance	Capital Expenditure	F14	Capital expenditure: water supply (\$000s)
Finance	Capital Expenditure	F15	Capital expenditure: wastewater (\$000s)
Finance	Capital Expenditure	F16	Total capital expenditure: water supply and wastewater (\$000s)
Finance	Economic real rate of return	F17	Economic real rate of return: water supply
Finance	Economic real rate of return	F18	Economic real rate of return: wastewater

Indicator category	Indicator subcategory	Indicator code	Indicator name
Finance	Economic real rate of return	F19	Economic real rate of return: water supply and wastewater
Finance	Dividends	F20	Dividend (\$000s)
Finance	Dividends	F21	Dividend payout ratio
Finance	Net debt to equity	F22	Net debt to equity ratio
Finance	Interest cover	F23	Interest cover ratio
Finance	Dividends	F24	Net profit after tax (NPAT) (\$000s)
Finance	Community service obligations (CSOs)	F25	Community service obligations (\$000s)
Finance	Capital works grants	F26	Capital works grants: water supply (\$000s)
Finance	Capital works grants	F27	Capital works grants: wastewater (\$000s)
Finance	Capital Expenditure	F28	Capital expenditure per property: water supply (\$/property)
Finance	Capital Expenditure	F28.1	Capital expenditure per ML: water supply—bulk utility (\$/ML)
Finance	Capital Expenditure	F29	Capital expenditure per property: wastewater (\$/property)
Finance	Capital Expenditure	F29.1	Capital expenditure per ML: wastewater—bulk utility (\$/ML)
Finance	Capital works grants	F30	Net profit after tax (NPAT) ratio
Finance	Costs	IF11	Operating cost: water supply (\$000s)
Finance	Costs	IF12	Operating cost: wastewater (\$000s)
Public Health	Water quality compliance	H1	Water quality guidelines (text)
Public Health	Water quality compliance	H3	Percentage of population where microbiological compliance was achieved (%)
Public Health	Water quality compliance	H4	Number of zones where chemical compliance was achieved (no.)
Public Health	Water quality compliance	H4a	Total number of zones (no.)
Public Health	Water quality compliance	H5	Risk-based drinking water management plan externally assessed (yes/no)
Pricing	Residential tariff structure	P1	Tariff structure: water supply (text)
Pricing	Residential tariff structure	P1.2	Fixed charge: water supply (\$)
Pricing	Residential tariff structure	P1.3	Usage charge: step 1 (\$/kL)
Pricing	Residential tariff structure	P1.4	Usage charge: step 2 (\$/kL)
Pricing	Residential tariff structure	P1.5	Usage charge: step 3 (\$/kL)
Pricing	Residential tariff structure	P1.6	Usage charge: step 4 (\$/kL)
Pricing	Residential tariff structure	P1.7	Usage charge: step 5 (\$/kL)
Pricing	Residential tariff structure	P1.12	Special levies: water supply (\$)
Pricing	Residential tariff structure	P1.13	Income from special levies retained by the utility: water supply (yes/no)
Pricing	Residential tariff structure	P1.3a	Upper bound of usage: step 1 (kL)
Pricing	Residential tariff structure	P1.4a	Upper bound of usage: step 2 (kL)
Pricing	Residential tariff structure	P1.5a	Upper bound of usage: step 3 (kL)
Pricing	Residential tariff structure	P1.6a	Upper bound of usage: step 4 (kL)
Pricing	Residential tariff structure	P1.7a	Upper bound of usage: step 5 (kL)
Pricing	Annual bill	P2	Annual residential bill based on 200 kL per annum: water supply (\$)
Pricing	Annual bill	P3	Typical residential bill: water supply (\$)
Pricing	Residential tariff structure	P4	Tariff structure: wastewater (text)

Indicator category	Indicator subcategory	Indicator code	Indicator name
Pricing	Residential tariff structure	P4.1	Fixed charge: wastewater (\$)
Pricing	Residential tariff structure	P4.2	Usage charge: wastewater (\$/kL)
Pricing	Residential tariff structure	P4.3	Special levies: wastewater (\$)
Pricing	Residential tariff structure	P4.4	Income from special levies retained by the utility: wastewater (yes/no)
Pricing	Annual bill	P5	Annual residential bill based on 200 kL per annum: wastewater (\$)
Pricing	Annual bill	P6	Typical residential bill: wastewater (\$)
Pricing	Annual bill	P7	Total annual residential bill based on 200 kL per annum: bill: water supply and wastewater (\$)
Pricing	Annual bill	P8	Total typical residential bill: water supply and wastewater (\$)
Water Resources	Sources	W1	Volume of water sourced from surface water (ML)
Water Resources	Sources	W2	Volume of water sourced from groundwater (ML)
Water Resources	Sources	W3.1	Volume of water sourced from desalination of marine water (ML)
Water Resources	Transfers	W5	Total volume of water received from other service providers or operational areas within the urban water system (ML)
Water Resources	Transfers	W5.3	Volume of water, excluding recycled water, received from other service providers or operational areas within the urban water supply system (ML)
Water Resources	Transfers	W6	Volume of recycled water received from other service providers or operational areas within the urban water supply system (ML)
Water Resources	Sources	W7	Total volume of water sourced (ML)
Water Resources	Use	W8	Total volume of water supplied to residential customers (ML)
Water Resources	Use	W8.3	Volume of water supplied to residential customers (ML)
Water Resources	Use	W9	Total volume of water supplied to non-residential customers (ML)
Water Resources	Use	W9.3	Volume of water supplied to non-residential customers (ML)
Water Resources	Use	W10.1	Volume of non-revenue water (ML)
Water Resources	Production	W11	Total volume of urban water supplied (ML)
Water Resources	Production	W11.3	Volume of potable water produced for supply into the urban water supply system (ML)
Water Resources	Use	W12	Average volume of residential water supplied per property (ML)
Water Resources	Use	W13	Volume of water returned as environmental flows from outside of the urban water supply system (ML)
Water Resources	Transfers	W14	Total volume of water exported to other service providers or operational areas within the urban water supply system (ML)
Water Resources	Transfers	W14.3	Volume of water, excluding recycled water, exported to other service providers or operational areas within the urban water supply system (ML)



Indicator category	Indicator subcategory	Indicator code	Indicator name
Water Resources	Transfers	W15	Volume of recycled water exported to other service providers or operational areas within the urban water supply system (ML)
Water Resources	Wastewater collected	W16	Volume of wastewater, excluding trade waste, collected (ML)
Water Resources	Wastewater collected	W17	Volume of trade waste collected (ML)
Water Resources	Wastewater collected	W18	Total volume of wastewater collected (ML)
Water Resources	Transfers	W18.1	Volume of wastewater exported to other service providers or operational areas within the urban wastewater system (ML)
Water Resources	Transfers	W18.2	Volume of wastewater received from other service providers or operational areas within the urban wastewater system (ML)
Water Resources	Extraction for sewer mining	W18.3	Volume of wastewater taken through sewer mining (ML)
Water Resources	Inflow to plant	W18.4	Volume of wastewater inflow to wastewater treatment plants (ML)
Water Resources	Outflow from plant	W18.5	Volume of treated effluent outflow from wastewater treatment plants (ML)
Water Resources	Wastewater collected	W19	Average volume of wastewater collected per property (ML)
Water Resources	Use	W21	Volume of recycled water supplied to non-residential customers (ML)
Water Resources	Use	W23	Volume of recycled water supplied as environmental flows (ML)
Water Resources	Use	W25.1	Volume of recycled water supplied to managed aquifer recharge (ML)
Water Resources	Use	W26	Total volume of recycled water supplied (ML)
Water Resources	Use	W27	Recycled water as a percentage of total wastewater collected
Water Resources	Use	W28.4	Volume of urban stormwater supplied to residential customers (ML)
Water Resources	Use	W28.5	Volume of urban stormwater supplied to non-residential customers (ML)
Water Resources	Use	W29	Volume of treated wastewater disposals (ML)
Water Resources	Outflow from plant	W30	Volume of wastewater losses and discharges (ML)
Water Resources	Use	W31	Volume of water returned to surface water or groundwater from the urban water supply system (ML)
Water Resources	Use	W20	Volume of recycled water supplied to residential customers (ML)

## Appendix E CPI indexation

Period	CPI-weighted average	Change from previous period	Change applied to values
2018–19	114.1	1.6	0.000
2017–18	112.3	1.9	1.016
2016–17	110.2	1.8	1.035
2015–16	108.3	1.4	1.054
2014–15	106.8	1.7	1.068
2013–14	105.0	2.6	1.087
2012–13	102.3	2.3	1.115
2011–12	100.0	2.4	1.141
2010–11	97.7	3.1	1.168
2009–10	94.8	2.4	1.204
2008–09	92.6	3.1	1.232
2007–08	89.8	3.3	1.271
2006–07	86.9	3.0	1.313
2005–06	84.4	3.2	1.352
2004–05	81.8	2.4	1.395
2003–04	79.9	2.4	1.428

## Appendix F Jurisdictional summaries

Jurisdictional summaries are provided to document the institutional arrangements within each State and Territory for the planning and management of water supply and wastewater services. These summaries are written by the States and Territories and updated annually.

### F1 Australian Capital Territory

#### F1.1 Introduction

The ACT Government's Environment, Planning and Sustainable Development Directorate has several roles in water management within the ACT. It manages strategic water policy, including ACT implementation of national water reform and Murray–Darling Basin matters including *Basin Plan* implementation, and national issues relating to water access, pricing, and trading. The directorate also regulates the ACT's water resources and monitors and reports on water quality in the Territory. ACT water policy is expressed through the *Water Resources Act 2007*.

Reporting and compliance obligations for the ACT water sector are imposed by national legislation including the Australian Government's *Water Act 2007*, *Corporations Act 2001*, and *Privacy Act 1988*, and ACT legislation including the *Independent Competition and Regulatory Commission Act 1997*, *Territory-Owned Corporations Act 1990*, *Work Safety Act 2008*, *Utilities Act 2000*, *Water Resources Act*, *Environment Protection Act 1997*, *Water and Sewerage Act 2000* (for plumbing and sanitation services), and *Public Health Act 1997*.

The Utilities Act provides for the Independent Competition and Regulatory Commission (ICRC) to issue licences and determine industry codes. Among other functions, the Utilities Act provides for the Essential Services Consumer Council.

The ICRC determines price directions for water utilities and regulates access agreements. A new price direction was issued in May 2018 for the next price path period up to 30 June 2023.<sup>9</sup> An annual adjustment is made for water and sewerage services. Prices for water and sewerage services are increased in line with the consumer price index (CPI). The second factor is to incorporate the effect of any approved pass-through events on Icon Water's (formerly ACTEW Water) costs in prices in the following year. An industry panel adjustment mechanism is in place in order to share demand volatility risk between Icon Water and consumers.

#### F1.2 Water utilities in the ACT

ACTEW Corporation Limited (ACTEW), which was established as a corporation in 1995, is owned by the ACT Government and is subject to the Territory-Owned Corporations Act.

In late 2011, the ACTEW Board approved the reintegration of the water and sewerage business into ACTEW. This change came into effect from 1 July 2012, when ACTEW resumed the management, operations, and maintenance of the ACT's water and sewerage assets and business. ActewAGL had previously undertaken this on behalf of ACTEW. The services were provided under the business name ACTEW Water. The change was carried out so as to give ACTEW the opportunity to transform the business in a way that more closely aligns with the objectives of ACTEW Corporation. The ACTEW organisation expanded from 38 personnel to almost 400.

On 31 October 2014, the ACTEW Board announced a change in name for the water utility from ACTEW Water to Icon Water. The new branding of the utility and also the corporate name came into effect in May 2015.

Icon Water has two subsidiary companies, Icon Retail Investments Limited and Icon Distribution Investments Limited. Icon Water owns and manages the water and sewerage business assets and owns 50 per cent of ActewAGL through two subsidiary companies.

Icon Water provides water services to over 172,000 connected properties with over 3,300 km of water mains and sewerage services to 171,500 connections.

<sup>9</sup> ICRC 2018, *Regulated water and sewerage services prices 2018–23*, Final Report, Canberra.

The ACT Auditor-General is Icon Water's auditor. Private firms provided internal audit services. Icon Water reports regularly to the ACT Government. Strategic planning for the sewage treatment plants culminated in the release of the *Lower Molonglo Water Quality Control Centre Strategic Plan*.

### F1.3 Operation of water utilities

ACT Health regulates water quality under the Territory's Public Health Act, in accordance with the *Australian Drinking Water Guidelines 2011*. Testing of the quality of water was undertaken in accordance with these guidelines. Icon Water achieved 100 per cent compliance with the Public Health (Drinking Water) Code of Practice (2007) in 2018–19.<sup>10</sup> Icon Water also published its *Annual drinking water quality report 2018–19* in accordance with the code in 2019.

Icon Water also provides water services to Queanbeyan City Council under the updated Queanbeyan Water Supply Agreement 2008.

The enlargement of the Cotter Dam was completed in August 2013. The Murrumbidgee–Googong pipeline (M2G) was completed in August 2012. Icon Water has incorporated the pipeline's operations and maintenance into its standard operating practices and it will be used when required.

### F1.4 Performance reporting

Icon Water's commercial and business objectives, activities, and priorities, as agreed by voting shareholders, are detailed in its annual statement of corporate intent. Icon Water released its statement for 2017–18 to 2020–21 in May 2017.

The *Icon Corporation annual report 2018–19* was provided to the ACT Government in September 2019.

Quarterly reports of progress on the priorities outlined in the statement of corporate intents and for financial and operational matters as well as reports and briefings on key and emerging issues were provided to the voting shareholders during the year.

## F2 New South Wales

### F2.1 Introduction

In New South Wales, urban water supply and sewerage services are provided by three State-owned water utilities and 92 regional local water utilities (LWUs).

Various regulatory agencies have responsibility for the establishment and operation of the water utilities. The Independent Pricing and Regulatory Tribunal (IPART) is the licence-compliance and price regulator for the three major State-owned water utilities in New South Wales: Hunter Water, Sydney Water, and WaterNSW (bulk water services in metropolitan and regional NSW). IPART is also the price regulator which determines maximum prices that two regional LWUs—Central Coast Council and Essential Energy (Broken Hill)—can charge their customers for the provision of water and sewerage services.

The Department of Planning, Industry and Environment oversees and monitors water utility performance, and is the primary policy maker for all water utilities and regulator for the 92 regional LWUs, which serve a total urban population of 1.85 million (with coverage of 98 per cent for water supply and 96 per cent for sewerage). The infrastructure current replacement cost for regional LWUs is \$28.8 billion, and annual revenue is \$1.51 billion.

A number of other agencies, including NSW Health, the NSW Environment Protection Authority (EPA), the NSW Office of Environment and Heritage, and Dam Safety NSW, are each responsible for aspects of the regulation of New South Wales water utilities.

The State's water utilities have obligations under Australian and New South Wales legislation, including the Australian Government's *Corporations Act 2001*, *Privacy Act 1988*, and *Water Act 2007*, and the following New South Wales legislation: *Water Management Act 2000*, *Water Act 1912*, *Protection of the Environment*

<sup>10</sup> Icon Water 2019, *2018–19 Annual Report to the ACT Government*, Canberra.

*Operations Act 1997, Independent Pricing and Regulatory Tribunal Act 1992, Environmental Planning and Assessment Act 1979, State Owned Corporations Act 1989, Dams Safety Act 2015, Local Government Act 1993, Fisheries Management Act 1994, Public Health Act 2010, Fluoridation of Public Water Supplies Act 1957, Work Health and Safety Act 2011, Public Finance and Audit Act 1983, Water Industry Competition Act 2006, Hunter Water Act 1991, Sydney Water Act 1994, and the Water NSW Act 2014.*

## **F2.2 Establishment of water utilities**

The three New South Wales State-owned utilities (Sydney Water Corporation, WaterNSW, and Hunter Water Corporation) are created by and derive their responsibilities and areas of operations from their respective Acts (the Sydney Water Act, the Water NSW Act, and the Hunter Water Act) and operate as major utilities under the Water Management Act.

The 92 regional LWUs derive their responsibilities from and operate mainly under the Local Government Act. Four LWUs (Central Coast Council, Essential Energy, WaterNSW [but only in relation to the Fish River water supply scheme] and Cobar Water Board) operate as water supply authorities under the Water Management Act.

## **F2.3 Operation of water utilities**

The regulatory oversight of water utilities in New South Wales is shared between different agencies. IPART regulates operating licences that have been issued to Sydney Water Corporation (under Part 5 of the Sydney Water Act), Hunter Water (under Part 5 of the Hunter Water Act), and WaterNSW (under Part 2 of the Water NSW Act). The operating licences include obligations relating to water quality, water conservation, system performance standards, environmental/catchment management, asset management, customer relations, compliance, and performance reporting. IPART also determines the maximum prices these utilities can charge its customers for water services.

IPART conducts major operational audits each year. These identify any areas of non-compliance and make recommendations to improve performance. It also undertakes end-of-term reviews of operating licences and makes recommendations to the relevant minister on the terms for renewal of the licences.

The Department of Planning, Industry and Environment is the primary regulator of all the 92 regional LWUs, under sections 56ff and 409(6) of the Local Government Act and the New South Wales Government's comprehensive Best-Practice Management of Water Supply and Sewerage Framework (<https://www.industry.nsw.gov.au/water/water-utilities>). The Framework is the key policy and regulatory framework for strategic service planning, management, pricing, performance reporting and continuing performance improvement of the LWUs. Eligibility for dividend payments to councils' general revenue is conditional on the substantial compliance with the Framework.

Under the current Framework each LWU needs to prepare and implement a 30-year integrated water cycle management (IWCM) strategy, and strategic business plan (SBP), alternating, every four years in consultation with their community. That is, if an IWCM strategy is prepared this year, in four years' time an SBP needs to be prepared, and four years after that an IWCM needs to be prepared, and so on.

The IWCM strategy is critical for long-term strategic planning for ensuring that all water security, water quality and sewage management needs and risks in the LWU's urban water supply and sewerage systems are addressed within the planning horizon. An IWCM strategy sets levels of service and associated investment priorities, including 30-year total asset management plan and associated financial management plan and a drought contingency and emergency response plan, based on system demand analysis and secure yield analysis, strategic options analysis and solutions identification in accordance with the department's 2019 IWCM Checklist. The Department of Planning, Industry and Environment reviews each LWU's IWCM strategy and provides confirmation to each utility that its final IWCM strategy is sound.

The NSW Government has developed guidelines on assuring future urban water security. These guidelines build on the NSW Security of Supply Basis (the robust NSW methodology used for determining the appropriate size of a regional water supply headworks system) and a pilot study for 11 urban water supplies in regional NSW.

Each LWU needs to assess the impact of climate variability on the secure yield of its water supply system in accordance with the water security guidelines. Secure yield assessments are therefore an integral part of the utility's IWCM strategy.

Proposed construction or modification of a dam, water, or sewage treatment works or for the development of a water-recycling system in NSW requires approval under section 60 of the Local Government Act. This ensures that an independent and objective review of the proposed works is undertaken by the Department of Planning, Industry and Environment, where insights and expertise obtained from the department's involvement in overseeing the design and operation of all of regional NSW dams and water and sewage treatment works can be effectively utilised. The review provides assurance that the proposed infrastructure will be fit for purpose and will provide a robust, safe, cost-effective, and sound solution, without wasteful 'gold-plating'. Similarly, the acceptance of a high- or medium-risk trade waste discharge to the sewerage system requires a departmental concurrence under section 90(1) of the Local Government Act.

Under section 61 of the Local Government Act, the department conducts regular inspections of LWU treatment works and provides feedback and mentoring to the LWU operators. Each operator in charge of a water or sewage treatment works in regional NSW is required to have appropriate qualifications and experience.

The department conducts nationally certificated operator-training courses for LWU water and sewage treatment works operators. The performance of each of the 536 LWU treatment works is publicly disclosed annually in the NSW Water supply and sewerage benchmarking report, together with the water recycling performance of each treatment works.

NSW Health regulates water quality in NSW and administers functions relating to water suppliers (Sydney Water Corporation, Hunter Water Corporation, and the regional LWUs) under the Public Health Act. NSW Health also enters into memorandums of understanding with the metropolitan water utilities (including WaterNSW) to facilitate interaction between the agencies and to establish the scope of drinking water management plans and procedures for communicating the results of water quality programs. NSW Health also conducts the NSW Drinking Water Quality Program, which tests and monitors the water quality of samples collected by the LWUs in accordance with the Australian Drinking Water Guidelines 2011.

Under the Public Health Act, each water supplier needs to prepare and implement a risk-based drinking water management system in accordance with the Australian Drinking Water Guidelines 2011. The water quality management system is regulated by NSW Health and must be independently audited.

## F2.4 Water utilities in New South Wales

Sydney Water Corporation, a statutory corporation wholly owned by the NSW Government, is Australia's largest water utility, with an area of operations covering 12,700 square km. It provides drinking water, recycled water, wastewater services, and some stormwater services to more than five million people in Sydney, the Illawarra, and the Blue Mountains. Drinking water is sourced from a network of dams managed by WaterNSW, from the Hawkesbury River, and from the desalination plant at Kurnell before it is treated and delivered to customers.

WaterNSW is a State-owned corporation established in 2015 by the Water NSW Act through the merging of the Sydney Catchment Authority and State Water Corporation. WaterNSW supplies raw water in bulk. The urban component of WaterNSW reporting is based on the former Sydney Catchment Authority area of operations as defined in its operating licence and includes catchments in the Blue Mountains, Shoalhaven, Warragamba, Upper Nepean, and Woronora areas. WaterNSW also provides bulk water services in regional NSW and operates the Fish River water supply scheme.

Hunter Water Corporation is a wholly State-owned corporation responsible for the provision of water and wastewater services to over half a million people in the Lower Hunter region. The Hunter Water area of operations covers the local government areas of Cessnock, Lake Macquarie, Maitland, Newcastle, Port Stephens, and Dungog and parts of Singleton.

Across regional NSW, there are currently 92 LWUs. Eighty-nine of these LWUs are either general purpose local government councils or county councils, which operate as financially separate to general council operations.



Other LWUs operate as water supply authorities under the Water Management Act, including the Cobar Water Board, Essential Energy and WaterNSW for the Fish River Water Supply.<sup>11</sup> The 92 regional LWUs in NSW range in area from 285 square km (Orange City Council) to over 50,000 square km (Central Darling Shire Council), while the population served ranges from 1,000 (Central Darling Shire Council) to over 300,000 (Central Coast Council). There are 28 LWUs which serve 10,000 or more connected properties.

Performance monitoring and reporting are considered important for public accountability and have been strongly endorsed by the NSW Government, IPART, and the Productivity Commission.<sup>12</sup>

The State-owned water utilities are required to report on the performance indicators in their operating licences and this reporting is audited through the operating licence audit. The audit results are presented to the responsible minister. These utilities also report the National Water Initiative performance indicators required for the Urban NPR.

With the exception of the pricing and financial indicators, IPART audits one-third of the auditable NWI indicators each year. The audit is conducted concurrently with the annual operating licence audits. The Audit Office of NSW, or other qualified auditors, audits the pricing and financial NWI indicators once every three years.

LWUs are required to annually report the fair value and the current replacement cost depreciation of their water supply and sewerage assets in their audited annual financial statements.

Department of Planning, Industry and Environment annually reports the performance of all the NSW utilities by way of its NSW Performance Monitoring and Reporting System.

- The audit of the 30 NWI financial performance indicators is effected by the annual independent audit of the financial statements of each of the 92 regional LWUs.
- All of the auditable non-financial performance indicators are independently audited every three years for each of the 28 regional NSW utilities that are required to report nationally.

The remainder of the information reported in NSW Performance Monitoring and Reporting System is not independently audited; however, in order to assure data accuracy and reliability, the data are subject to a comprehensive quality assurance process.

The NSW Performance Monitoring and Reporting System functions as a 'one stop shop' in order to minimise red tape and to avoid duplication in reporting. The NSW Performance Monitoring and Reporting System provides LWU performance data to the Bureau of Meteorology annually (for the Urban NPR) and the Australian Bureau of Statistics, as well as for the NSW State of the Environment Report.

### **Private water utilities**

In NSW, private utilities can also provide water and sewerage services if licensed under the Water Industry Competition Act (WIC Act). The WIC Act is designed to encourage competition in the supply of water and wastewater services, and to facilitate private sector delivery of recycled water infrastructure.

The Act sets out a licensing and compliance framework and establishes strict rules to ensure drinking water meets Australian standards, recycled water is 'fit for purpose', and all services are delivered safely, reliably and with minimal environmental impacts.

The Minister for Water, Property and Housing administers the WIC Act and is advised by the Department of Planning, Industry and Environment. IPART administers the licensing system, which includes assessing licence applications and making recommendations to the Minister on whether to grant a licence, as well as auditing and enforcing licences. All licensees are required to report annually against a limited suite of NPR indicators. At this stage, no current licences have the 10,000 connections that would trigger reporting requirements for this report.

<sup>11</sup> Councils exercising water supply and/or sewerage functions do so under the Local Government Act, including under a division generally administered by the Minister responsible for water. Central Coast Council exercises its functions under both the Local Government Act and as a water supply authority under the Water Management Act. The Cobar Water Board, Essential Energy and WaterNSW (for the Fish River Water Supply) carry out their functions under the Water Management Act.

<sup>12</sup> Productivity Commission 2011, *Australia's Urban Water Sector*, Report No. 55, Final Inquiry Report, Canberra.



The WIC Act commenced operation on 8 August 2008. There are now 20 private water schemes in the Greater Sydney and Hunter regions. As at June 2019, these schemes were providing services to 6,092 water customers and 7,974 sewerage customers. The NSW Government is currently finalising significant reforms of the licensing framework, including:

- separating licences from the approval of individual water and sewerage schemes;
- introducing a pre-construction approval of schemes which includes an assessment of a scheme's financial viability; and
- stronger last resort arrangements, including designation of last resort providers at scheme inception.

## F3 Northern Territory

### F3.1 Establishment of service providers

The NT *Water Supply and Sewerage Services Act 2000* provides the regulatory framework for the Territory's water and sewerage industry. The NT Department of Treasury and Finance is responsible for administering this Act insofar as it relates to economic regulation; the Northern Territory Minister for Essential Services in terms of its relationship to licensed supply and service; and the Department of Health (NT) in terms of its relationship to water quality standards.

The objects of the Water Supply and Sewerage Services Act are:

- to promote the safe and efficient provision of water supply and sewerage services;
- to establish and enforce standards of service in water supply and sewerage services;
- to facilitate the provision of financially viable water supply and sewerage services; and
- to protect the interests of customers.

Among other things, this Act provides for the following:

- that the supply of water and sewerage services be licensed, and that licences issued by the Utilities Commission are for defined, gazetted, geographical areas; and
- that the Minister be responsible for the declaration of water supply and sewerage service licence areas (by notice in a government gazette).

Power and Water Corporation (the licensed utility) is subject to water quality monitoring programmes and emergency directions issued by the Chief Health Officer (Department of Health).

The Northern Territory Utilities Commission is the independent industry regulator. It has responsibility for the licensing functions conferred by the Water Supply and Sewerage Services Act.

Statutory conditions of water and sewerage licences issued under this Act include:

- that the licensee monitors and reports to the Utilities Commission on compliance with the licence; and
- that the licensee procures an audit, if required by the Utilities Commission, of its compliance with the terms of the licence.

The NT *Water Act 1992* is another major piece of legislation pertaining to the regulation of the supply of water and sewerage services in the Territory. This Act provides for the investigation, allocation, use, control, protection, management, and administration of water resources, and for related purposes.

The Water Act also allows for the issue of waste discharge licences and water extraction licences by the Controller of Water Resources (Department of Environment and Natural Resources (NT)).

### F3.2 Operation of water utilities

Power and Water Corporation is responsible for monitoring the quality of drinking water in line with its Drinking Water Operational and Verification Monitoring Program and reports the results to the Chief Health Officer. The program is based on the *Australian Drinking Water Guidelines 2011*.

While Power and Water Corporation has primary responsibility for providing safe drinking water through the Water Supply and Sewerage Services Act, a number of government agencies are also involved. The Department of Health applies the guidelines and monitors compliance with them in the interest of public health, and the Department of Environment and Natural Resources and the Environmental Protection Authority of the Northern Territory (EPA) also have roles in protecting water quality, including the regulation and management of water resources and the regulation of pollution control.

The NT Department of Infrastructure, Planning and Logistics has a major role in protecting water quality through land-use planning in the Territory. In addition, NT legislation such as the Water Act and the *Land Acquisition Act 1978* contain provisions for infrastructure and land use relating to water supply.

A condition of the waste discharge licences issued to Power and Water Corporation is the submission to the EPA of annual audit and compliance reports related to environmental impacts that discharged water may cause, and the assessment of water-recycling schemes. The corporation also investigates and reports to the EPA on pollution incidents under the NT *Waste Management and Pollution Control Act 1998*.

Water and sewerage tariffs and charges are regulated by the NT Government via a Water and Sewerage Pricing Order issued by the Treasurer as regulatory minister. The Utilities Commission monitors compliance with the pricing order and enforces it under section 23 of the NT *Utilities Commission Act 2000*. The Commission is also required to investigate any complaints made by customers about non-compliance with the prices outlined in the order.

### **F3.3 Water utilities in the Northern Territory**

In the NT, Power and Water Corporation's water and sewerage business is licensed and is responsible for the supply of water and sewerage services to the Territory's five major centres (Darwin, Katherine, Tennant Creek, Alice Springs, and Yulara) and 13 minor centres.

No significant distinction between urban and rural areas is made under the legislation or the licensing framework under which Power and Water Corporation operates. Geographical coordinates (latitude and longitude) define the declared water supply and sewerage service licence.

### **F3.4 Performance reporting**

Urban NPR data are gathered within Power and Water Corporation by a central coordinator, who collates the report, while other areas in the organisation supply information. Some key NPR indicators are provided to Power and Water Corporation's executive management, board, and shareholders on a regular basis. Performance data that are publicly available are reviewed and/or signed off at the senior management level. NPR data are signed off at the senior management level. Some NPR indicators are audited at an aggregate level.

## **F4 South Australia**

### **F4.1 Establishment of utilities**

The SA Department for Environment and Water and SA Water Corporation are the main agencies responsible for managing South Australia's urban and rural water delivery.

Regional natural resources management boards are responsible for the development of water allocation plans for prescribed water resource areas as required by the SA *Natural Resources Management Act 2004*.

The SA *Water Industry Act 2012* establishes the regulatory framework for the water and sewerage industry covering economic regulation, technical regulation, water planning, and customer complaint handling. The Water Industry Act commenced on 1 July 2012 and governs all water industry entities providing 'retail services' to SA customers.

On 1 January 2013, the Essential Services Commission (the Commission) became the independent economic regulator of water and sewerage retail services in the State, with the primary objective of protecting the long-term interests of SA consumers with respect to the price, quality, and reliability of those services.

The Commission is responsible for the economic regulation of water and sewerage services in the State. This role includes industry licensing, consumer protection, retail pricing, and performance monitoring.

## F4.2 Water utilities in South Australia

Any person or entity providing 'water retail services' to SA customers is required to be licensed by the Commission. The Commission has determined separate regulatory obligations for major retailers (those providing retail services to 50,000 or more connections) and other retailers (with less than 50,000 connections). SA Water Corporation is the only major retailer in SA and there are currently 66 other retailers (mainly council-run operations).

SA Water Corporation is a government entity and, as the State's main supplier of urban water, is required under the *SA Water Corporation Act 1994* to deliver, monitor, and report on its primary functions concerning:

- supply of water by reticulated systems;
- storage, treatment and supply of bulk water; and
- removal and treatment of wastewater.

SA Water Corporation provides drinking water to approximately 780,000 customers, servicing around 99 per cent of the State's drinking water customers. SA Water Corporation also provides sewerage services to approximately 612,000 customers, servicing around 87 per cent of the State's sewerage customers.

## F4.3 Operation of water utilities

Section 35 of the Water Industry Act empowers the Commission to make a determination under the *SA Essential Services Commission Act 2002* regulating prices, conditions relating to prices, and price-fixing factors for water retail services.

The Commission made its second independent revenue determination for the SA Water Corporation Act in July 2016, setting maximum allowed revenues for drinking water and sewerage retail services for the four-year period from 1 July 2016 to 30 June 2020. SA Water Corporation and the South Australian Government are responsible for setting specific prices (such as supply and usage charges for residential and non-residential customers); however, those prices must comply with the Commission's allowed revenues.

A different, proportional approach to price regulation has been applied to other water retailers through a combination of pricing principles and a price-monitoring framework.

Pursuant to Part 4 of the *Essential Services Commission Act 2002*, the Commission is empowered to make industry codes and rules regulating the conduct or operations of a regulated industry or regulated entities. The Commission has devised a Water Retail Code for major retailers that sets out the minimum requirements to be complied with by SA Water Corporation when dealing with its customers, and it includes obligations relating to customer connections and the quality, safety, and reliability of water and sewerage supply. SA Water Corporation is required to meet a number of operational service standards relating to customer service, service interruptions, and new connections.

A similar code has been devised for other retailers, but there are currently no service standards.

## F4.4 Performance reporting

The Commission produces annual regulatory performance reports on the water and sewerage industry. The report covers customer service, financial assistance offered by retailers to customers, infrastructure reliability, and financial performance.

SA Water Corporation reports against customer service and water quality indicators in its annual report. The indicators include:

- compliance with the *Australian Drinking Water Guidelines 2011*;
- the Water Quality Management Index;
- compliance with water and sewerage services targets; and
- the Incident Response Index.

## F5 Tasmania

### F5.1 Introduction

The key piece of legislation governing the water and sewerage industry is the Tasmanian *Water and Sewerage Industry Act 2008* (the Industry Act). The Industry Act requires any persons or entities owning and/or operating water and/or sewerage infrastructure, or supplying water and/or sewerage services to others, to be licensed, unless exempted.

The Tasmanian Water and Sewerage Corporation Pty Ltd (TasWater) is the only licensed water utility in the State.

Industry regulators for the sector are the: Tasmanian Economic Regulator (TER), responsible for licensing, price regulation, and service standards; Director, Environment Protection Authority (EPA), responsible for regulating wastewater treatment plants; Director of Public Health, responsible for regulating water quality and fluoridation; and the Secretary of the Tasmanian Department of Primary Industries, Parks, Water and Environment, responsible for water licence allocations and regulating dam safety.

In addition to the Industry Act, regulatory requirements are imposed by Tasmanian legislation including the *Environmental Management and Pollution Control Act 1994*, the *Public Health Act 1997* and the *Water Management (Safety of Dams) Regulations 2015*.

### F5.2 Establishment of water utilities

Since 1 July 2013, TasWater has owned, controlled and operated water supply and sewerage systems in Tasmania. As the only licensed water utility in the State, TasWater manages all aspects of the water-supply chain, from dams and reservoirs to customer property connections, and from customer sewer connections to wastewater treatment and disposal.

The licensing requirements place a number of regulatory obligations on TasWater through reference to various regulatory instruments such as codes and guidelines, as well as requiring the preparation of management plans in relation to matters such as asset and emergency management and compliance.

TasWater's objectives, as prescribed by the *Water and Sewerage Corporation Act 2012*, are to:

- efficiently provide water and sewerage functions in Tasmania;
- encourage water conservation, the demand management of water and the reuse of water on an economic and commercial basis;
- be a successful business and, to this end:
  - operate its activities in accordance with good commercial practice;
  - deliver sustainable returns to its members; and
  - deliver water and sewerage services to customers in the most cost-efficient manner.

TasWater is owned by Tasmania's 29 councils, with the Tasmanian Government also becoming a shareholder in early 2019.

### F5.3 Operation of water utilities

TasWater is subject to various economic, environmental, public health and customer service regulatory requirements.

The economic regulatory framework, established under the Industry Act, is focused on ensuring competitive market outcomes from the sector in relation to both price and service, ensuring the financial sustainability of the water and sewerage industry, and providing sufficient funding for capital expenditure to improve compliance with regulatory obligations and ensure operational efficiencies.

The EPA Tasmania administers and enforces the provisions of the Environmental Management and Pollution Control Act, which is principally concerned with the prevention, reduction and remediation of environmental harm.

The Director of Public Health is responsible for drinking water quality and safety through the application of drinking water quality guidelines and for the fluoridation of drinking water through the application of a code of practice. The Dam Safety Regulator monitors TasWater's performance against its dam safety regulatory obligations and guideline requirements, to ensure that the dams TasWater is responsible for do not pose an unacceptable level of risk to the public.

Independent regulation of water and sewerage prices in Tasmania commenced on 1 July 2012.

Price reform of the industry is designed to transition customers to a single set of tariffs across the whole State by the statutory due date of 1 July 2020 (that is, customers are required to be paying the same price for the same service by this date). Price reform has also introduced two-part pricing for water (a fixed charge based on the size of the connection and a variable charge reflecting metered water consumption) and for sewerage charges to be determined based on the assessed equivalent tenements (that is, the estimated demand placed on the system) of each property.

#### F5.4 Performance reporting

One of the TER's regulatory functions is to monitor and report on the State of the Tasmanian water and sewerage industry.<sup>13</sup> The performance indicators reported upon are based on the National Performance Reporting (NPR) Framework with some additional Tasmanian-based measures, as set out in the TER's *Tasmanian Water and Sewerage Industry Performance and Information Reporting Guideline*.

TasWater is required to carry out regular independent audits (performance appraisals) to assess:

- its compliance with, and the adequacy of, its management and compliance plans; and
- the quality, reliability, and conformity of its regulatory information, including performance information.

Independent reviews of TasWater's performance indicators are conducted triennially as required by the NPR Audit Handbook, with approximately one-third of indicators assessed each year. The first round of appraisals was conducted between 2013–14 and 2015–16. A second round of appraisals commenced in 2016–17, with the final appraisal of that round due to be completed soon.

The TER's approach to regulatory reporting is set out in its *Regulatory Reporting Guideline Version 3*. Its approach to managing non-compliance is outlined in its *Compliance Enforcement Policy Version 2*.

## F6 Queensland

### F6.1 Introduction

In Queensland, the regulation of the urban water and sewerage services sector is undertaken by a number of Queensland Government departments, with the aim of providing the State's urban communities with access to safe and reliable water and sewerage services and ensuring efficient business operations, efficient water use, water security, protection of the environment, competition, and the prevention of monopoly pricing.

### F6.2 Establishment of water utilities

The Queensland Department of Natural Resources, Mines and Energy (DNRME) is the water supply regulator under the *Queensland Water Supply (Safety and Reliability) Act 2008*. Chapter 2 of that Act provides a framework for the delivery of water and sewerage services throughout Queensland. It sets out certain requirements relating to water and sewerage service providers and the provision of services (water, sewerage, and irrigation). Chapter 3 provides a framework for the use and provision of recycled water.

The Queensland *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009* provides specific arrangements to constitute and govern the operations of council-owned distributor retailers and the council water businesses in South East Queensland (SEQ). The Queensland *South East Queensland Water (Restructuring) Act 2007* governs the provision of bulk water services in South East Queensland by the Queensland Bulk Water Supply Authority (Seqwater).

<sup>13</sup> The TER's annual water and sewerage state of the industry reports are available on its website, [www.economicregulator.tas.gov.au](http://www.economicregulator.tas.gov.au).

Chapter 4 of the Queensland *Water Act 2000* provides the administrative and reporting framework for Category 1 water authorities—the Gladstone and Mount Isa water boards.

### F6.3 Operation of water utilities

Water service providers in Queensland operate within the following framework of State regulation:

#### Water quality—health

- *Water Supply (Safety and Reliability) Act 2008* (managed by DNRME)
- *Public Health Act 2005* and Regulations, *Water Fluoridation Act 2008* and the Water Fluoridation Regulation 2008 (managed by Queensland Health).

#### Water quality—discharges to the environment

- *Environmental Protection Act 1994* and Regulations (managed by the Queensland Department of Environment and Science).

#### Infrastructure

- *Water Supply (Safety and Reliability) Act*, *South-East Queensland Water (Distribution and Retail Restructuring) Act*, *South East Queensland Water (Restructuring) Act*, and *Water Act* (administered by DNRME)
- *Environmental Protection Act 1994* and Regulations (administered by the Queensland Department of Environment and Science)
- *Local Government Act 2009* and Regulations (managed by the Queensland Department of Local Government, Racing and Multicultural Affairs)
- *Plumbing and Drainage Act 2018* and Queensland Development Code (managed by the Queensland Department of Housing and Public Works)
- *Planning Act 2016* (managed by Department of State Development, Manufacturing, Infrastructure and Planning).

#### Pricing

- *South-East Queensland Water (Distribution and Retail Restructuring) Act* and *Water Act* (managed by DNRME)
- *Local Government Act* and Regulations (managed by Department of Local Government, Racing and Multicultural Affairs)
- *Queensland Competition Authority Act 1997* (managed by Queensland Treasury).

The Department of Environment and Science licenses wastewater treatment plant discharges and requires monitoring and environment reporting.

The Queensland Competition Authority is responsible for investigating and recommending pricing for bulk supply from Seqwater and SunWater.

### F6.4 Water utilities in Queensland

There are 182 registered water service providers in Queensland<sup>14</sup> of which 75 are urban water and sewerage service providers that serve towns and communities across the State.

Most water service providers are local governments or are local government owned (such as Queensland Urban Utilities and Unitywater). Three urban water service providers are State bulk water providers (namely, the Queensland Bulk Water Supply Authority, Gladstone Area Water Board and Mount Isa Water Board).

<sup>14</sup> Data from service provider register, current as at 2 January 2019, <https://www.data.qld.gov.au/dataset/service-providers-register>.



While there are many service providers in Queensland, 70 per cent of connected properties receive water and sewerage services from the five service providers in South East Queensland. Another 25 per cent of connected properties receive water and sewerage from 14 service providers with more than 10,000 connections (that is, the providers that report under the National Performance Reporting framework). This means that the remaining five per cent of connected properties receive water and sewerage services from 53 service providers across a vast area of the State.

### F6.5 Performance reporting

The regulatory framework for water service providers in Queensland, under the Water Supply (Safety and Reliability) Act, was amended in May 2014 to focus on outcomes rather than process.

The regulatory approach aligns with the National Performance Reporting framework and uses mandatory reporting on key performance indicators and public and comparative performance reporting. Service providers are required to consult on and publish customer service standards as well as publish annual reports.

DNRME is responsible for issuing notices to relevant service providers that require them to report on particular key performance indicators. It receives annual performance reports, undertakes data validation, administers compliance and incident or quarterly reporting, including managing the systems that stores information, under the Water Supply (Safety and Reliability) Act.

#### Key performance indicators

Since 1 July 2014, all service providers have been required to report to DNRME on their performance against a set of key performance indicators for each year, for analysis and compliance purposes. This annual reporting requirement only applies to drinking water and sewerage service providers. Larger providers (those with over 10,000 connections) are required to report for the National Performance Reporting framework against a wider set of indicators.

#### Monitoring and compliance

The Water Supply (Safety and Reliability) Act outlines a process for DNRME to monitor performance, trigger investigations, and require improvement plans or, in crisis situations, to direct providers to undertake actions to address an imminent threat to water security or continuity of supply (including for a sewerage service).

#### Comparative report

DNRME can publish a comparative report on water industry performance statewide in consultation with industry. Performance information including water security, customer service, and financial sustainability are discussed. The first comparative report was published in 2016. All service provider performance data are also made publicly available as part of the open data requirements.

DNRME administers the National Performance Reporting framework process for Queensland.

## F7 Victoria

### F7.1 Introduction

The Victorian Department of Environment, Land, Water and Planning (DELWP) has overall governance oversight, on behalf of the Victorian Minister for Water, for the establishment of water utilities and their performance in this State. This responsibility pertains to certain aspects of water utility performance and is also shared with the Victorian departments of Treasury and Finance (DTF, regarding business financial risks), Health and Human Services (DHHS, regarding water quality), the Victorian Environment Protection Authority (EPA, regarding environmental performance), and the Essential Services Commission (ESC, regarding price regulation and service standards).

Reporting and compliance obligations are imposed by Victorian legislation including the *Water Act 1989*, the *Water Industry Act 1994*, the *Financial Management Act 1994*, the *Safe Drinking Water Act 2003*, and the *Environment Protection Act 1970*. In addition, regulatory instruments such as the Statement of Obligations (2015),



the Water Industry Regulatory Order 2014, and the State Environment Protection Policy (SEPP) (Waters of Victoria) also impose some compliance and reporting obligations.

## **F7.2 Establishment of water utilities**

The Victorian water sector is made up of 19 water utilities constituted under the Victorian Water Act. The key aspects of the frameworks governing drinking water quality, environmental protection, price regulation, and consumer protection are the same across all 19 water utilities.

Under section 4I of the Water Industry Act, water utilities are subject to statements of obligations, issued by the Minister for Water following consultation with the Treasurer and the ESC, that impose obligations in relation to the performance of their functions and the exercise of their powers.

## **F7.3 Operation of water utilities**

Apart from DELWP, four other agencies jointly oversee the regulation of water utility operation in Victoria.

The DTF oversees governance of the water utilities' proposed strategic directions and business management activities in terms of their potential for financial risk to the utility and its implications for the Victorian Government, focusing on the State's budget, net debt position, and credit rating.

The DHHS oversees governance of water quality under the Safe Drinking Water Act and the Safe Drinking Water Regulations 2005. This provides a framework for drinking water quality that includes risk management obligations, a set of standards for key water quality parameters, and information disclosure requirements for water utilities. The Regulations establish an auditing framework.<sup>15</sup> Under the legislation, the DHHS is required to publish an annual water quality report that is tabled in parliament by the Victorian Minister for Health.

The EPA regulates the environmental performance of the water utilities, particularly as it relates to treated wastewater quality, through a corporate licence (previously, each wastewater treatment plant was licensed). The level of wastewater treatment required usually depends on the type of waterway into which the treated wastewater is discharged. Under the licence provisions, water utilities must regularly sample and monitor wastewater quality and advise the EPA if there are specific incidents of noncompliance. A corporate licence also includes a requirement to submit an annual performance statement to the EPA.

Most wastewater treatment plants operated by the water utilities are subject to the SEPP (Waters of Victoria) schedules, which are developed and administered by the EPA. The schedules require wastewater treatment plant operators to ensure that the sustainable reuse of treated effluent and biosolids is maximised wherever possible.

Water utilities are also subject to EPA works approval permits before construction of new treatment plants or major alterations can begin.

The ESC is responsible for price regulation and setting service standards for water services in Victoria under Part 1A of the Water Industry Act, the *Essential Services Commission Act 2001* and the Water Industry Regulatory Order. The legislative framework provides the ESC with powers and functions to:

- make price determinations;
- regulate standards and conditions of service and supply; and
- require regulated businesses to provide information.

## **F7.4 Water utilities in Victoria**

The Victorian Government owns all 19 water utilities in the State. There are four water utilities in metropolitan Melbourne: Melbourne Water, City West Water, South East Water Ltd, and Yarra Valley Water Corporation. The three retailers (City West Water, South East Water Ltd, and Yarra Valley Water Corporation) deliver retail water supply and sewerage services to customers in the Melbourne metropolitan area. The three retailers also provide some localised sewerage services to their customers not connected to the Melbourne sewerage network.

<sup>15</sup> Details of the drinking water regulatory framework, the audit arrangements and the annual drinking water quality report are available at [www.health.vic.gov.au/water/drinkingwater/annualreport.htm](http://www.health.vic.gov.au/water/drinkingwater/annualreport.htm).

Melbourne Water provides bulk water and bulk sewerage services in the Melbourne metropolitan area and manages rivers, creeks, and major drainage systems in the Port Phillip and Westernport regions. Melbourne Water also controls the catchment for most of its supply.

Outside Melbourne, 13 regional urban water utilities provide water and sewerage services (Barwon Water, Central Highlands Water, Coliban Water, East Gippsland Water, Gippsland Water, Goulburn Valley Water, Grampians Wimmera Mallee Water (GWMWater), Lower Murray Water, North East Water, South Gippsland Water, Wannon Water, Western Water<sup>16</sup>, and Westernport Water).

Lower Murray Water also provides rural water services such as irrigation and stock and domestic supplies. GWMWater and Coliban Water also provide a piped rural water service for stock and domestic use.

Additionally, two rural water utilities (Goulburn–Murray Water and Southern Rural Water) provide irrigation and rural water services.

Most water utilities in regional Victoria have their own bulk water supplies. Goulburn–Murray Water, Southern Rural Water, and GWMWater also provide both bulk and retail services.

Although owned by the Victorian Government, all 19 water utilities act as stand-alone entities and are responsible for their own management and performance. Each water utility has a chairperson and a board of directors appointed by the Minister for Water. The board has a range of responsibilities, including:

- setting the entity's strategic direction and steering the entity;
- setting objectives and performance targets; and
- ensuring compliance with legislation and government policy.

Public sector directors must comply with the statutory directors' duties in the *Victorian Public Administration Act 2004*, the Directors' Code of Conduct, and common law directors' duties. In addition, directors of water utilities must also comply with requirements as set out in the Water Act.

Each water utility's board appoints a managing director who is responsible for the day-to-day management of the water utility under delegation from the board.

Each managing director sits on the board and is the primary link between the board and the water utility's management and staff. The managing directors are responsible for communicating board priorities and policies to management and staff and for presenting reports, submissions and budgets to the board. The board of each water utility reports to the Minister for Water via DELWP. In turn, the Minister for Water is responsible for reporting to parliament on the performance of each water utility. To assist with the management of the water industry, the Minister for Water is supported by the Water and Catchments Group within DELWP.

The *Financial Management Act 1994* is the principal legislation governing financial reporting by water utilities. The Victorian Minister for Finance (through DTF) issues financial reporting directions under the Financial Management Act for the preparation of annual reports. The Minister for Water issues ministerial reporting directions to water utilities for performance reporting and other specific reporting requirements as part of their annual reports. DELWP is responsible for reviewing the annual reports of the water utilities and advising the Minister for Water on tabling the reports in parliament.

The Victorian Auditor-General's Office is responsible for the auditing of the annual financial statements and the performance report of water utilities. Some data reported in the NPR for Victorian water utilities are either taken directly from the published annual reports or derived from the annual reports.

In accordance with the Water Act, each water utility must submit an annual corporate plan that provides a statement of corporate intent, lists expected activities, and provides a financial forecast for the following five years. The Minister for Water (through DELWP) issues guidelines to the water utilities for the preparation of the corporate plans. DELWP and DTF are responsible for reviewing the corporate plans (and also business cases for major capital projects above a threshold value) and for advising the Minister for Water and the Treasurer, respectively.

<sup>16</sup> While Western Water provides its own bulk and retail services, it also draws on Melbourne Water's bulk water services.

Price submissions (previously called water plans) are generally required every five years.<sup>17</sup> They include details about proposed revenue requirements and tariffs and pricing structures and are assessed by the ESC. The process requires extensive customer engagement by the water utilities and the ESC.

## F7.5 Performance reporting

One of the ESC's regulatory functions is to monitor and report publicly on the performance of the Victorian water utilities. The ESC's annual water performance reports are available on its website ([www.esc.vic.gov.au/Water/Performance-reports/](http://www.esc.vic.gov.au/Water/Performance-reports/)).

Under the Water Industry Regulatory Order, the ESC has the function of auditing:

- the compliance of a regulated water utility with the standards and conditions of service and supply specified by the ESC in any code or set out in the utility's price determination, and the systems and processes established by the water utility to ensure such compliance;
- the reliability and quality of information reported by a water utility to the ESC, and the conformity of that information with any specification issued by the ESC; and
- the compliance of a water utility with asset management obligations imposed in any statement of obligations issued to it.

The annual audits are an important element of the regulatory framework. They verify that the information collected and reported by water utilities is accurate and reliable and provide evidence to customers and other stakeholders that regulatory obligations are being complied with. Most Victorian data reported in the NPRs are audited under those arrangements.

The audit approach is set out in the ESC's guideline for approving, conducting, and reporting audits, which is available from the ESC's website ([www.esc.vic.gov.au/Water/Codes-and-Guidelines](http://www.esc.vic.gov.au/Water/Codes-and-Guidelines)).

## F8 Western Australia

### F8.1 Introduction

The WA Department of Water and Environmental Regulation has prime responsibility for water resource policy, planning, management, and regulation, as well as the administration of water entitlements and water rights within the State. The reporting of water utility performance is the responsibility of the Economic Regulation Authority (ERA); however, the WA Department of Health and the Western Australian Environmental Protection Authority also have some reporting responsibilities.

Reporting and compliance obligations are imposed by Australian Government legislation including the *Corporations Act 2001* and the *Privacy Act 1988*, and by WA legislation including the *Water Services Act 2012*, the *Metropolitan Water Supply, Sewerage and Drainage Act 1909*, the *Health (Miscellaneous Provisions) Act 1911* (which is being replaced by the new *Public Health Act 2016* over the next three to five years), the *Environmental Protection Act 1986*, and the *Planning and Development Act 2005*.

### F8.2 Establishment of utilities

Water utilities are referred to as 'water service providers' in Western Australia's legislative framework.

Under the Water Services Act, the ERA is the independent regulator responsible for administering the licensing scheme for water services and for reporting on industry performance. To obtain a licence, a water service provider has to demonstrate that it has the financial and technical capacity to provide the service or services that are to be covered by a licence and that the grant of the licence is not contrary to the public interest.

The Water Services Code of Conduct (Customer Service Standards) 2018 prescribes the customer service standards applicable to water and sewerage licensees.

<sup>17</sup> Melbourne Water and Goulburn–Murray Water's price determinations for the three-year period 2013–10 to 2015–16 concluded on 30 June 2016. The new pricing decision for these two water utilities commenced on 1 July 2016 and covers a five-year period for Melbourne Water and a four-year period for Goulburn Murray Water.

The licence terms and conditions for licensees who supply drinking water require the licensee to enter into a memorandum of understanding, which specifies drinking water quality standards, with the Department of Health, which also audits compliance. The memorandum of understanding is reviewed every three years, unless agreed otherwise. The Department of Health has also developed a new memorandum of understanding for licensees who supply sewerage services. There will be a phased introduction of the memorandum of understanding from 2020.

### F8.3 Operation of water utilities

The ERA and other agencies jointly oversee the operation of water providers in WA.

The Department of Health sets standards for drinking water quality and regulates the public health aspects of water supply (both potable and non-potable), pursuant to the Health (Miscellaneous Provisions) Act. The department also supports the Advisory Committee for the Purity of Water, which advises the WA ministers for Health and Water on issues associated with protecting public drinking water. The department has recently introduced new standards that regulate the public health aspects of sewerage services pursuant to the Health (Miscellaneous Provisions) Act.

The Department of Water and Environmental Regulation's responsibilities include the collection and analysis of water resources information, the protection of water quality and water resources, and water industry planning and policy, management, and regulation. The department also regulates the environmental impacts of water service providers through the Environmental Protection Act. The Act prescribes an environmental registration and licensing scheme, which sets limits on the type and volume of waste that can be discharged from a site. In some circumstances, the water service providers may be required to arrange for audits of their compliance with the conditions attached to their registration and provide a copy of the audit report to the department. The water providers must notify the department if there is an unauthorised discharge of waste from registered premises.

The Environmental Protection Authority is an independent adviser to the WA Government on a broad range of environmental matters. The functions of the authority include conducting environmental impact assessments, preparing statutory policies for environmental protection, publishing guidelines for managing environmental impacts, and providing strategic advice to the WA Minister for Environment.

The Western Australian Planning Commission, a statutory authority that operates with the support of the Department of Planning, Lands and Heritage, oversees the land-use planning implications of the operations of the water service providers, according to requirements of the *Planning and Development Act 2005*.

Prices for drinking water and sewerage services provided by the Water Corporation, Aqwest–Bunbury Water Corporation, and Busselton Water are set by the Minister for Water. The WA Government may request the ERA to undertake an independent review of pricing for the water corporations to provide advice to the government (the ERA has carried out 14 inquiries related to water pricing to date). Charges for sewerage services provided by local government authorities are set for each local government area and applied using a formula that depends on the type of property. Prices charged by private water and sewerage service providers are unregulated.

The Water Services Act requires licensees to arrange for an operational audit and a review of asset management system effectiveness at least once every two years (or longer, at the ERA's discretion). Independent auditors appointed by the ERA conduct the audit and review. The ERA approves the final audit and review reports, arranges for their publication on its website, and provides a copy of each report to the WA Minister for Water.

### F8.4 Water utilities in Western Australia

A number of water service providers are involved in delivering urban water and sewerage services in Western Australia. This report covers the larger service providers (the Water Corporation, Aqwest–Bunbury Water Corporation, Busselton Water and the City of Kalgoorlie–Boulder). There are other urban water supply and sewerage services that are delivered by privately owned operators and local government authorities.

The Water Corporation is a government trading enterprise operating under the *WA Water Corporations Act 1995* that provides potable and non-potable water, bulk water, sewerage services, and drainage services to most areas of Western Australia. It also undertakes catchment management activities under delegation from the Department of Water and Environmental Regulation according to an operational agreement for catchment

management between the two organisations. The Water Corporation is the principal supplier of water, sewerage and drainage services to hundreds of thousands of homes, businesses, and farms, and provides bulk water to farms and growers' cooperatives for irrigation. Its services, projects, and activities span more than 2.5 million square km. It has regional offices in Perth, Bunbury, Albany, Karratha, Geraldton, Northam, and Kalgoorlie.

Aqwest–Bunbury Water Corporation is a government trading enterprise operating under the WA Water Corporations Act, trading as Aqwest. The Aqwest licence permits the supply of potable water to the regional centre of Bunbury, approximately 190 km south of Perth.

Busselton Water is a government trading enterprise operating under the Water Corporations Act, trading as Busselton Water. The Busselton Water licence permits the supply of potable and non-potable water to the regional centre of Busselton, approximately 250 km south of Perth, and the Busselton–Capel and Blackwater groundwater areas. Busselton Water also supplies bulk water to the Water Corporation in Dunsborough.

The State-owned corporations (Aqwest–Bunbury Water Corporation, Busselton Water and the Water Corporation) are subject to performance reporting requirements under the WA *Financial Management Act 2006*. The annual reports prepared by Aqwest–Bunbury Water Corporation, Busselton Water and the Water Corporation include non-financial performance indicators that are independently audited by the WA Office of the Auditor General.

The City of Kalgoorlie–Boulder provides sewerage and non-potable water services to Kalgoorlie–Boulder, located 600 km east of Perth in the Goldfields district. The non-potable water supplied to customers is sourced from recycled effluent.

There are also a number of small licensed and unlicensed water service providers in the State. The licensed service providers include Aquasol, Athena Water Solutions, Hamersley Iron, Lancelin South, Moore River Water Services, the Rottnest Island Authority, Robe River Mining Company, Peel Water, TMC Witchcliffe, WA Sewage, Water West North Dandalup, and three small regional local governments.<sup>18</sup>

## F8.5 Performance reporting

Licensees are required to provide the ERA with data for performance monitoring purposes, as set out in the licence and the ERA's *Water, sewerage and irrigation licence performance reporting handbook*. Licensees are required to submit completed performance reports to the ERA for each year ending 30 June. Where possible, the performance indicators for licensees who are not required to report under the National Water Initiative Agreement have been aligned with the NPR indicator set for consistency.

The ERA's *Water compliance reporting manual* requires licensees to report to the ERA on their compliance with the terms and conditions of their licence for each year ending 30 June. The ERA uses the compliance reports to monitor the overall level of compliance by licensees. The content of each report is confidential to the licensee and the ERA.

The ERA publishes performance data provided by licensed urban service providers that do not report under the Urban NPR and three of WA's largest rural water service providers.<sup>19</sup> Most of the urban performance indicators are consistent with those of the NPR. With the exception of the licensees that report under the Urban NPR, licensees are not subject to the data audit requirements of the NPRs. Those licensees not reporting under the NPR are required to undertake operational audits to confirm the accuracy of the performance data they report to the ERA.

<sup>18</sup> Since 2017, the WA Minister for Water has exempted 18 small regional local government sewerage and non-potable water suppliers from being licensed. The exemption is for a period of five years.

<sup>19</sup> The data are available on the ERA website at <https://www.erawa.com.au/water/water-licensing/water-sewerage-and-irrigation-performance-data-2019-onwards>.



