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National performance report 2016–17: **urban water utilities**

PART A

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GPO Box 1289
Melbourne VIC 3001
(03) 9669 4000

urbanwater@bom.gov.au
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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 2017 Urban NPR was updated on 20 March 2018 to correct an error in Figure 1.4a and 1.4b. The error impacted the representation of desalinated water in Western Australia for the historical years 2011–2012, 2012–2013, 2014–2015 and 2015–2016.



Australian Government
Bureau of Meteorology

National performance report 2016–17: urban water utilities

PART A



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A guide to this report

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

Key terms and abbreviations

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 forms of their full names to aid presentation in charts and tables.

- Aqwest–Bunbury Water Corporation = Aqwest–Bunbury
- Busselton Water Corporation = Busselton
- Dubbo Regional Council = Dubbo
- Kalgoorlie–Boulder = Kal–Boulder
- Power and Water = P&W
- Queanbeyan–Palerang Regional Council = Queanbeyan
- Water Corporation = WC

The majority of utilities in this report provide both water and sewerage services. Where a utility provides only a single service (e.g. only water supply) it is denoted by the use of a code after the utilities name. The codes are

- (W) = Water supply only
- (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 region².

Utility groups

For the purpose of this report, the contributing utilities are grouped based on their 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
- Small—10,000–20,000 connected properties.

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

2 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 '2016–17' refer to the reporting year between 1 July 2016 and 30 June 2017 inclusive.

Missing or unavailable data

Missing or unavailable data is 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.

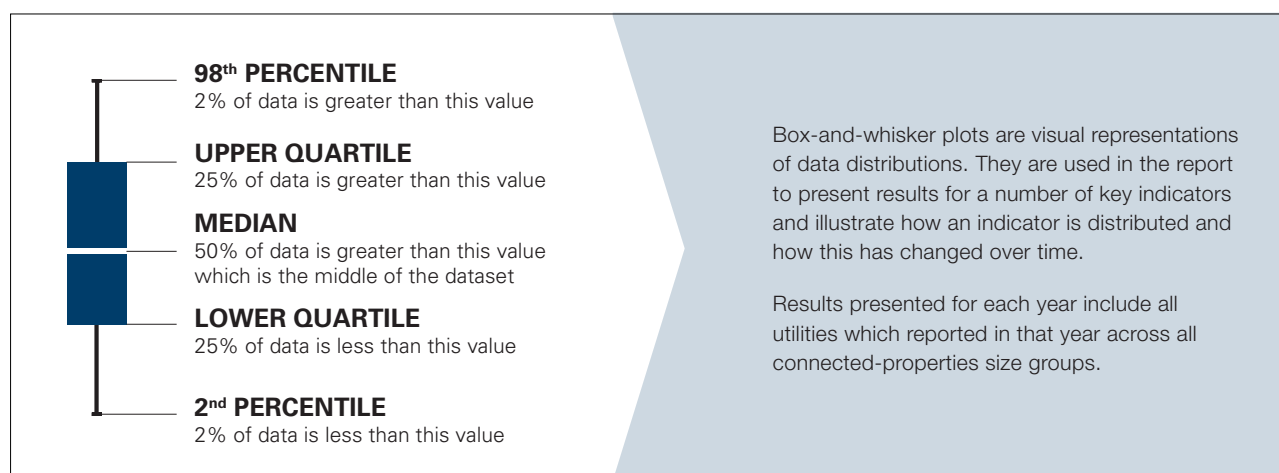
Size group	Range		Number of utilities with increase/decrease from previous year		Median or Total		Change from previous year %
	High	Low	Increase	Decrease	Previous year	Current year	
Major	249	140	10	1	158	162	3
	WC (Perth)	Logan					
Large	454	130	9	1	164	181	10
	P&W (Darwin)	Toowoomba					
Medium	479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

- 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 a 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 (e.g. 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 (e.g. W12, F3, P7) and can be cross-referenced with the *National Performance Framework: 2013–14 urban water performance report indicators and definitions handbook*.
- The median is the preferred metric for the reporting dataset, as outlier results can affect the average, which can skew results towards the outliers.
- With the median, 50 per cent of utilities fall above and 50 per cent fall below the median value. 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 of the water main.
- Single-service utilities are only included in the analysis of an indicator when a comparison on a like-for-like basis with utilities that provide both water and sewerage services can be made. 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 2016–17 dollars; the impact of inflation is removed to ensure that years can be compared on a like-for-like basis. CPI figures can be found in Appendix E (CPI Indexation).
- The percentage (%) change is calculated from 2015–16 reporting year to 2016–17 with figures rounded to the nearest integer, except in cases where additional precision is required.

Executive summary

The *National Performance Report 2016–17: urban water utilities* (2017 Urban NPR) compares the performance of 79 utilities and councils (utilities) and 5 bulk water authorities providing urban water services to over 20 million people² across Australia. The 2017 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 twelfth in the series, and the fourth 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 182 indicators reported on by utilities and bulk water authorities for all reporting years.

Heavy rain benefits Adelaide's water savings

In 2016–17 the SA Water Corporation reported a record year of water savings, due to above-average rainfalls across the state. Across Adelaide decreased demand and the availability of surface water resulted in a reduction of the operating period for the Adelaide Desalination Plant. The SA Water Corporation reported a 17 per cent decrease in its average volume of water supplied to residential customers in Adelaide and more broadly across its entire operations.

For more about water resources see Chapter 3—Water Resources, and Tables A1 and A2 in Appendix A.

Perth increases reliance on desalination with deposits in the bank

Perth continues to increase its usage of desalinated water as a reliable source, showing an increase from 138,645 ML in 2015–16 to 149,823 ML in 2016–17. Desalinated water represents 50 per cent of the total water sourced for the Perth region, which also has a strong reliance on groundwater. Even though 2016–17 was very dry for Perth, Water Corporation returned or 'banked' 8,531 ML of water to surface water storages in the region.

For more about water sources for urban centres see Chapter 2—Major Urban Centres.

Increased rainfall keeps pressure off residential water supply

Above average rainfall across many parts of Australia saw over two thirds of utilities reporting decreased residential water use despite ongoing warmer than average temperatures (Figure A).

Notable increases included those for Central Coast Council, Hunter Water Corporation, and Sydney Water Corporation. The four per cent increase for these utilities is attributed to higher temperatures and lower rainfall, and, in the Hunter Valley, population growth.

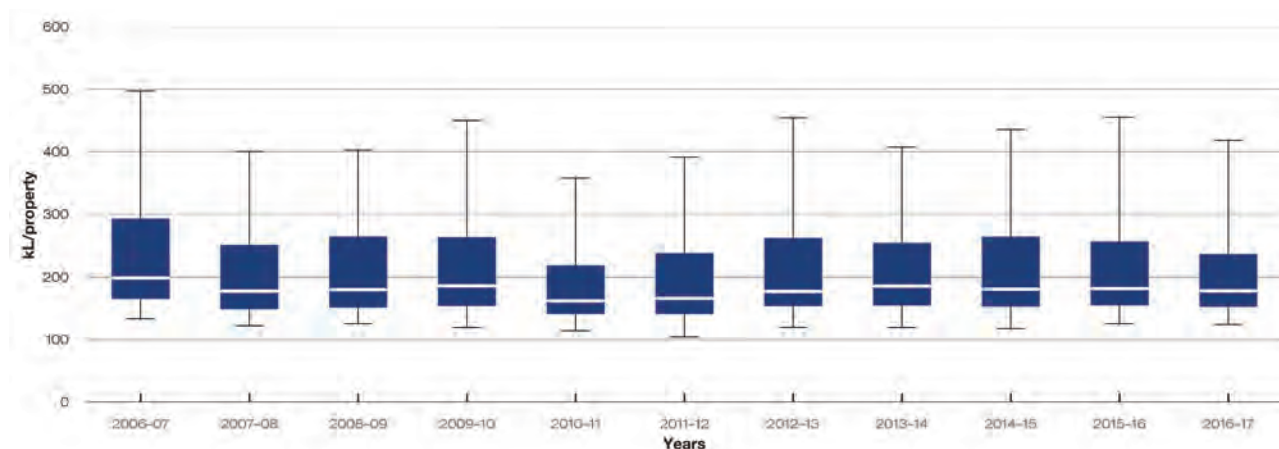


Figure A Average annual residential water supplied (kL/property), 2006–07 to 2016–17

For more about supply see Chapter 3—Water resources, and Table A1 in Appendix A.

² Australian Bureau of Statistics, *Australian Demographic Statistics*, March quarter 2017

Recycled water supply keeps on churning

Utilities in the Large utility group reported their third consecutive year of growth in recycled water supplied—40 per cent over the three-year period. Despite this increase, above-average spring and summer rainfalls across many parts of Australia led to decreased demand for recycled water. Nationally the total volume of recycled water supplied decreased by 6 per cent.

For more about recycled water see Chapter 2—Major Urban Centres and Chapter 3—Water Resources.

Typical residential bills plateau for water and sewerage

Sixty per cent of utilities reported a decrease in their typical residential bill in 2016–17, curbing the upward trend of the last 8 years. Nationally, the median typical residential bill decreased in 2016–17 by \$32 per annum (2 per cent) from 2015–16 (Figure B). This decrease was driven by a combination of decreased water usage and downward pressure on pricing through government initiatives.

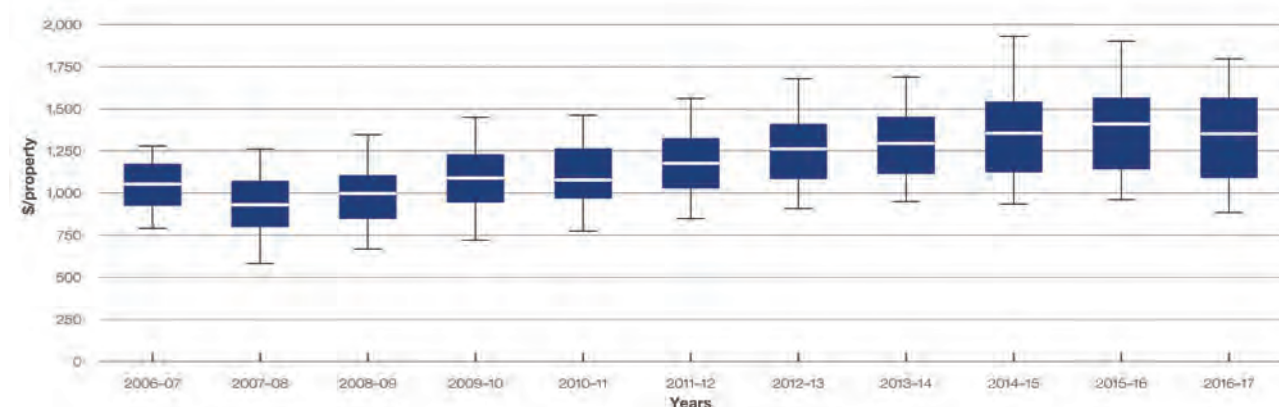


Figure B Typical residential bill: water and sewerage (\$), 2006–07 to 2016–17

For more about bills see Chapter 4—Pricing, and Tables A3 and A4 in Appendix A.

Operational expenses down

National median operating cost decreased 5 per cent, from \$940 in 2015–16 to \$892 in 2016–17. Figure C highlights this decrease in the median and also shows a reduction in the variance of the operating costs across utilities. While the result in isolation does not represent a new trend in operating costs, it does curb the existing trend of historical increases.

For more about operational expenditure see Chapter 5—Finance, and Table A8 in Appendix A.

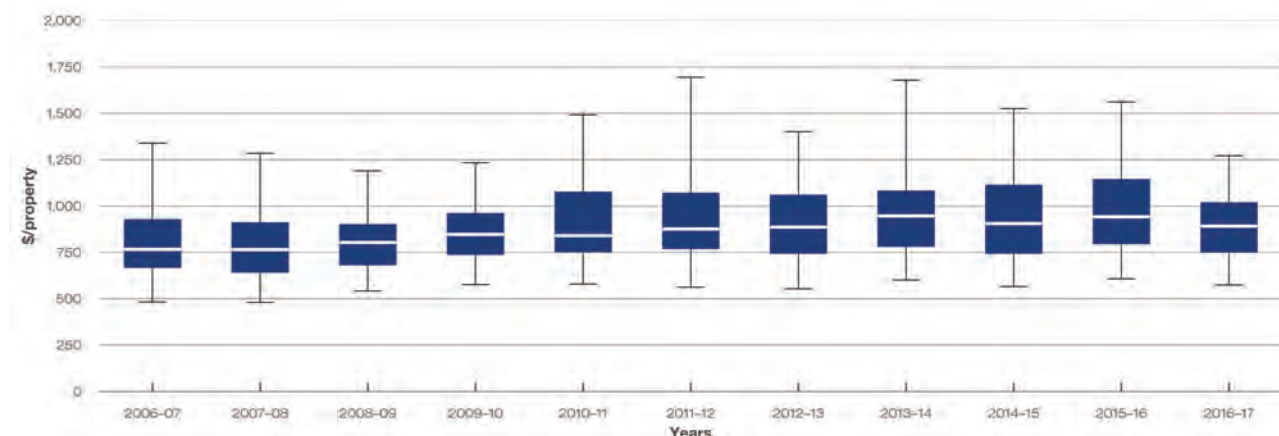


Figure C Combined operating cost: water and sewerage (\$/property), 2006–07 to 2016–17

1 Introduction

1.1 Context and overview

The *National Performance Report 2016–17: urban water utilities* (2017 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.³

The 2017 Urban NPR compares the performance of 79 utilities and councils (utilities) and 5 bulk water authorities providing urban water services to over 20 million people⁴ 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.

This Part A of the report provides commentary and analysis for key indicators that apply to retail/distribution utilities (the major urban centre analysis in Chapter 2 includes performance data for bulk water suppliers). Part B of the report contains data for the full set of 182 indicators that are reported on by urban water utilities and bulk water suppliers for all reporting years.

The analysis and commentary provides a context for each indicator, discusses changes in reporting methodologies, and highlights trends within and/or between different utility groups. The utilities are grouped according to their number of connections as explained in 'A guide to this report'.

The commentary and analysis in the 2017 Urban NPR is not intended to be a comprehensive explanation of every reported indicator. It provides some of the more apparent trends or differences between years and utilities. Most of the information is sourced from publicly available documents—annual reports, regulatory decisions, and utility websites.

1.2 Reporting

The 79 utilities and 5 bulk water authorities contributing data to the 2017 Urban NPR are listed in Appendix C. A summary of utility type by jurisdiction is shown in Table 1.1.

In the 2017 Urban NPR, Goldenfields Water reported as single water business. Historically, it reported as two businesses: a bulk water authority and a water reticulation business.

Financial and pricing data for a number of New South Wales utilities was not available at the time of publication and is not included in this report. These utilities were Central Coast Council, Dubbo Regional Council, Goldenfields Water County Council, Goulburn Mulwaree Council, MidCoast Council and Queanbeyan–Palerang Regional Council.

Seventy of the 79 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:

- 70 utilities providing water supply and sewerage services
- 5 utilities providing only water supply
- 4 utilities providing only sewerage
- 5 bulk water authorities.

³ National Water Initiative Clauses 75–76

⁴ Australian Bureau of Statistics, *Australian Demographic Statistics*, March quarter 2017

Table 1.1 Reporting in the 2017 Urban NPR by utility size group, and jurisdiction

Jurisdiction	Bulk	Major	Large	Medium	Small	Total
Australian Capital Territory		1				1
New South Wales	2	3		13	12	30
Northern Territory			1		1	2
Queensland	2	4	4	5	6	21
South Australia		1				1
Tasmania		1				1
Victoria	1	4	6	5	1	17
Western Australia		1		1	9	11
Total	5	15	11	24	29	84

1.3 Locations of utilities

The administrative boundaries of all utilities reporting data for the 2017 Urban NPR are shown in Figure 1.1. Further details about the utilities are available from their respective websites.

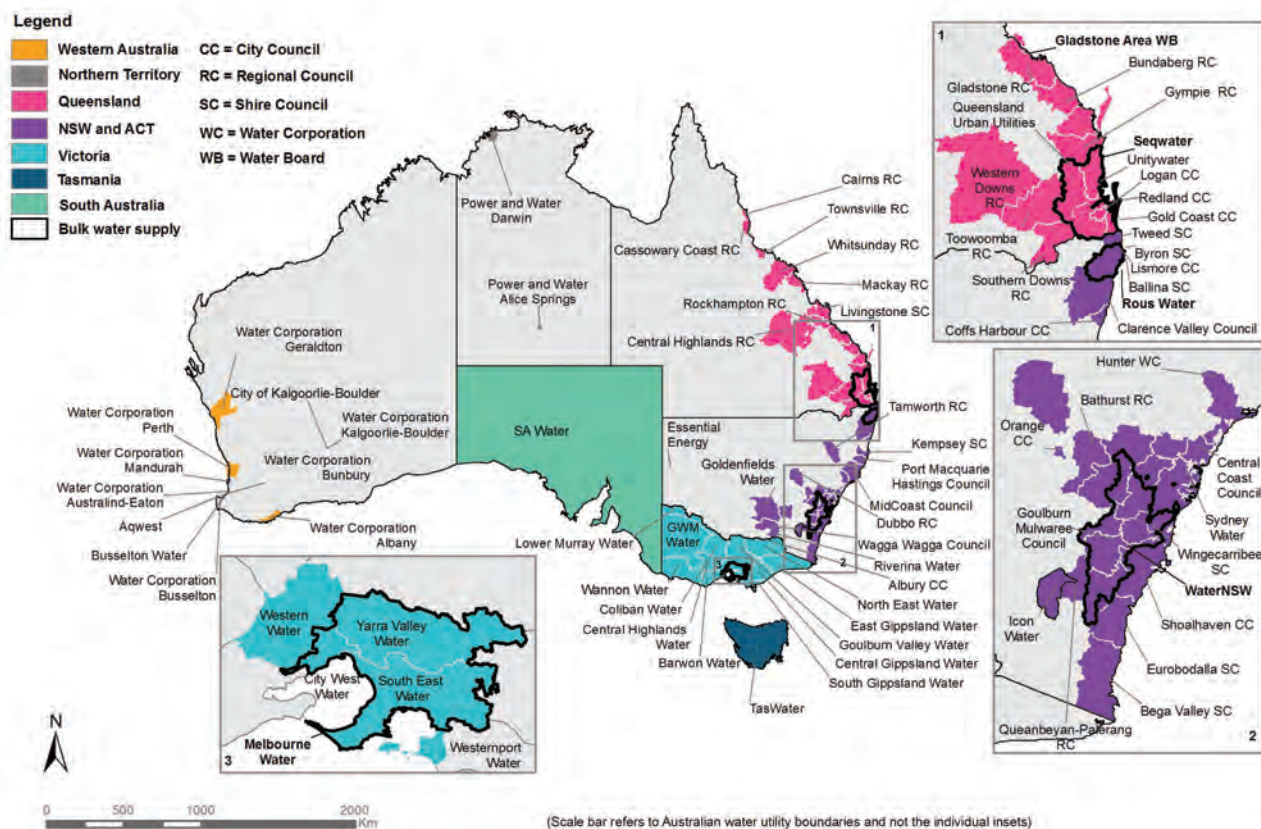


Figure 1.1 The administrative boundaries of all utilities reporting data for 2016–17

1.4 Key drivers

This section discusses some of the key drivers of water utility performance presented in the 2017 Urban NPR including rainfall, temperature, utility size, and sources of water.

Other factors affecting performance, including network density, soil types, the age and condition of infrastructure, and government policy and regulation are not discussed.

1.4.1 Rainfall

Rainfall can affect the performance results of utilities in many ways. These include:

- 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 (e.g. desalinated or recycled water) may cause the utility to 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 urban water and recycled water supplied to residents, councils, and parklands used for outdoor leisure activities (e.g. golf courses)⁵. 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 also affect decisions about which water sources to use (W1–W7). For example, persistent dry conditions can trigger thresholds for production from desalination plants or for the use of particular groundwater or recycled water sources, affecting the operating costs of utilities (F11, F12, 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 (F12, F13) and also greenhouse gas emissions from sewage (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 (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.

5 See indicators W12 for residential water supplied and W26 for recycled water

Figure 1.2 shows how rainfall has varied from the long-term average across Australia over the past eight years (i.e. white=average; blue=above average; and red=below average).

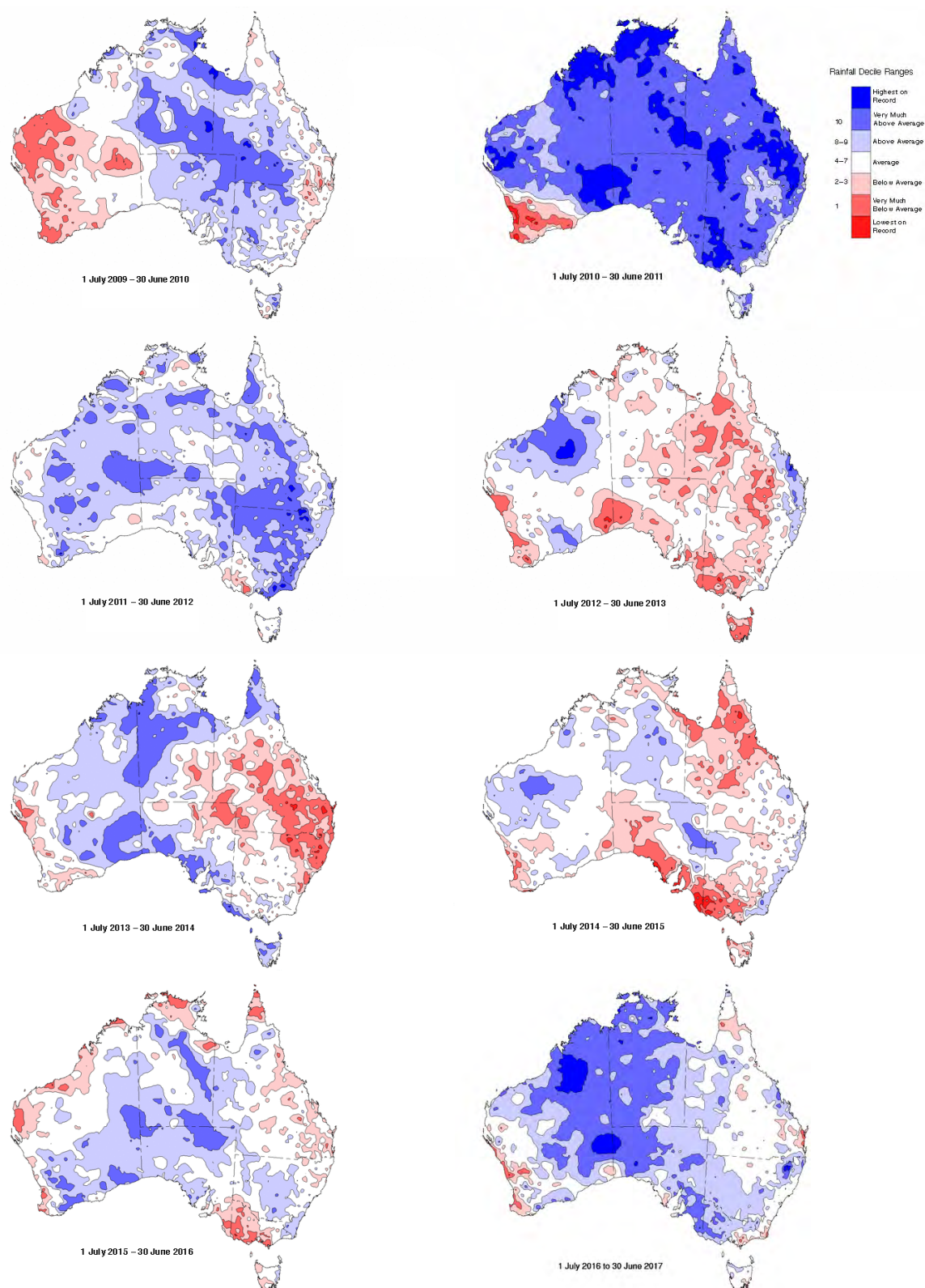


Figure 1.2 Australian 12-month rainfall deciles⁶ from 2009–10 to 2016–17

⁶ Decile 1 means 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

Winter 2016

Australia's second wettest winter on record saw a national area-average rainfall of 116.3 mm. All States recorded above-average (long-term 1961–1990) rainfall, with the highest area-averaged rainfall recorded in Tasmania (638.5 mm). The highest departure from the average was observed in Queensland, which was the second highest on record (172 per cent), followed by the Northern Territory (138 per cent).

July rainfall was above to very much above average over most of northern Australia, a large area of Western Australia, western and southeastern South Australia, most of Victoria, Tasmania and much of southern New South Wales.

August rainfall totals for all States and Territories, except Victoria and Tasmania, were above the long-term average.

Spring 2016

The national area-averaged rainfall for Spring was 26 per cent above average. However, rainfall varied considerably over the country and it was generally drier than average in the country's southwest and northeast. Spring was wetter than average across much of the southeast and interior, and the Northern Territory.

Much of the rain over the interior and southeast fell during September. For Australia as a whole, September rainfall was 195 per cent above average, and the second-wettest on record. These very much above average rainfalls resulted in a number of significant floods in Victoria, Queensland, New South Wales, Tasmania and South Australia. Despite record falls extending from the Top End to western Queensland, and across the southeastern mainland, Western Australia received below-average September rainfall.

Summer 2016–17

Rainfall for summer 2016–17 was the fourth highest on record for Australia as a whole, and was 49 per cent above average for the season. Western Australia, the Northern Territory and South Australia observed above to very much above average rainfall. New South Wales experienced a dry summer with a below-average rainfall (34 per cent).

December was the wettest on record for South Australia and third wettest for Western Australia and the Northern Territory. Below-average state-based totals were recorded in Queensland, New South Wales and Victoria.

January rainfall was above-average across the western two-thirds of the country and western half of Queensland, and below-average for the east of Victoria and southern coast of New South Wales. February rainfall was close to average across Australia, with above-average rainfall recorded in Western Australia and the Northern Territory, and below-average for Queensland, New South Wales, Tasmania and South Australia.

Autumn 2017

Autumn 2017 was wetter than average for the east coast, western Victoria and parts of Western Australia. Western Tasmania, western Queensland and eastern Northern Territory, and western parts of Western Australia were drier than average for this period.

March rainfall was slightly above-average across the country and in the highest ten per cent of historical observations along the east coast due to Tropical Cyclone *Debbie*. Above-average rainfall was recorded for New South Wales, Queensland and Western Australia. Below-average rainfall was recorded in South Australia, Tasmania, the Northern Territory and Victoria.

Nationally, rainfall for Australia during April was slightly below-average, however there were marked differences in the rainfall received over different parts of the country. April was wetter-than-average in the far north of the Northern Territory, and in a large band that extended from northwestern Western Australia, down through South Australia and into western parts of New South Wales and Victoria. South Australia had its tenth-wettest April on record, with a large area receiving more than 400 per cent of its April average rainfall.

Winter 2017

June was the second-driest on record for Australia as a whole, with rainfall 62 per cent below the long-term mean, and the driest on record for large areas of southern Australia. Significantly above-average rainfall fell on the east coast between Sydney and Brisbane.

1.4.2 Temperature

There are many relationships between temperature and the performance of utilities including:

- Demand and temperature, particularly residential and non-residential outdoor demand. Increased temperature, in prolonged periods above long-term averages, can result in increased potable and recycled water (W12, W26, W27) supply to residents, councils, and parklands used for outdoor leisure activities (e.g. golf courses). Changes in water consumption affect the revenue collected by water utilities, their profitability (F3, F24), and the strength of their water-usage pricing signal (F4).
- Hot weather can increase the risk of bushfires, resulting in the deployment of resources to protect water supply catchments and mitigate the impacts of a bushfire. Emergency deployments can affect the operating expenditure of a utility (F11, F12, F13). When responding to a bushfire event, temporary water restrictions may be put in place to ensure the availability of supply, and meet firefighting requirements during extreme fire weather. These restrictions can impact on the volume of water supplied by a utility and affect its operating cost and revenue. A burnt catchment can impact water supply due to water quality issues, which may require water storage to be suspended for some time.
- Extended periods of heat or cold can impact on the quality of water sources and supplies and affect decisions about which water sources are used (W1–W7) and the level of the treatment required. For example, a heatwave contributes 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 a utility (F11, F12, 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 (H indicators) the need for treatment, and the operational costs of a utility (F11, F12, F13).
- Extended hot conditions give rise to dry soil conditions. Consequently, many trees will seek out moisture and their roots can enter the sewer system, causing blockages and breaks (A14, A15) and increase water main breaks (A8).

Winter 2016

Winter 2016 was Australia's fourth-warmest on record for minimum temperatures and equal sixth-warmest for mean temperatures. For Queensland, area-averaged minimum temperatures were the second highest on record, 2.36 °C above average. Australia's fifth warmest July was recorded in 2016 with the area-averaged minimum temperature 1.59 °C above the average. August mean temperature was 0.44 °C above average nationally, with maximum and minimum temperatures warmer than average.

Spring 2016

Spring mean temperatures for Australia were equal to the long-term average, and the mean maximum temperatures slightly below average. The area-averaged maximum temperatures were lower than the long-term mean for all States and the Northern Territory, except Western Australia. The minimum temperatures for most States and Territories were either warmer than average, or close to average, with only South Australia recording well below the long-term average.

Australia's mean temperature for September was near average with the maximum temperature cooler than average, and the minimum temperature warmer than average. For October, national mean, maximum and minimum temperatures were below average. The national mean temperature for November was warmer than average.

Summer 2016–17

The Australian summer was warmer than average across eastern Australia, and cooler than average across the northwest. For New South Wales both the mean maximum, and overall mean temperatures were the warmest on record, and the mean minimum was the second highest on record for summer.

The national mean temperature for January was above-average. The national mean minimum temperature was also above-average and was the third warmest on record. All states and the Northern Territory recorded warmer January nights. February's mean temperature were above average, with exceptional warmth in Queensland and New South Wales.

Autumn 2017

The mean temperature for Autumn was above average for Australia. All states except Western Australia and the Northern Territory ranked amongst the warmest ten autumns on record for mean temperatures. Queensland, Victoria and Tasmania recorded top ten autumns on record for minimum temperatures.

March was exceptionally warm, with the third warmest national mean temperature on record, and warmer than average temperatures for all States and Territories. Temperatures for April were relatively less extreme, with mean temperatures above average across Australia. May followed with an above-average mean national temperature.

Winter 2017

Daytime temperatures were above to very much above average over the majority of the country, with the seventh warmest June on record.

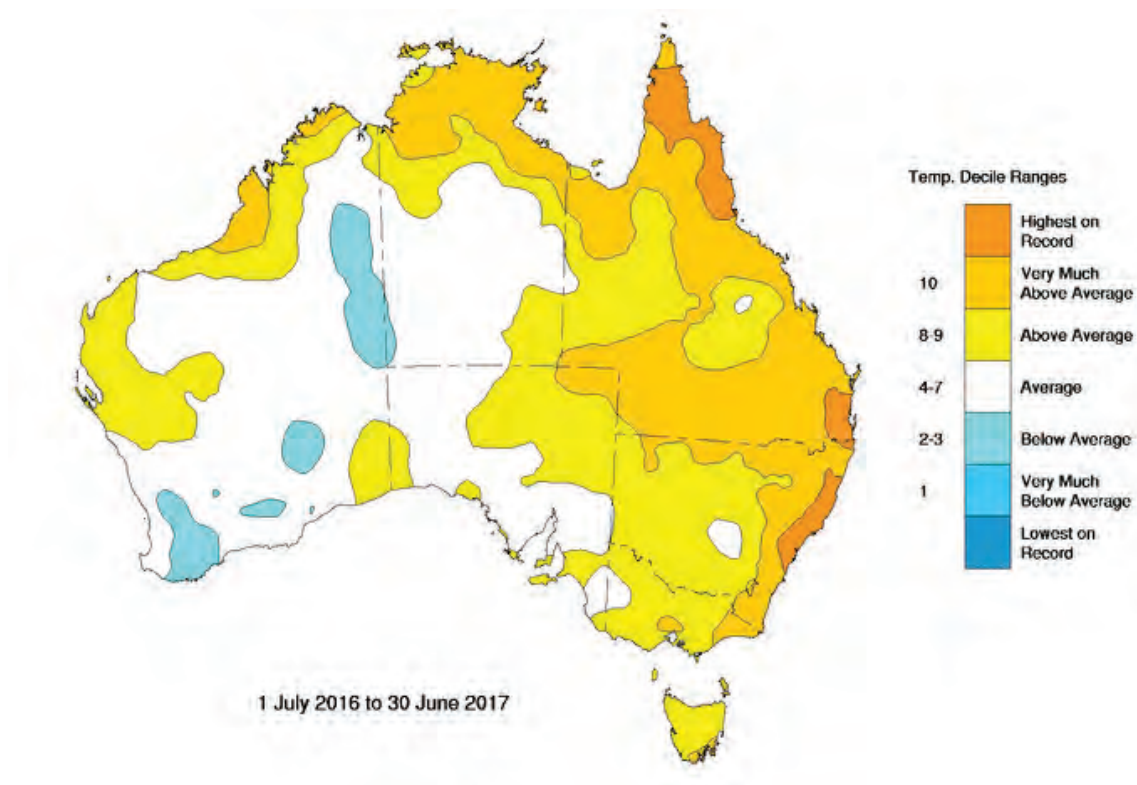


Figure 1.3 Australian 12-month maximum temperature deciles⁷ for 2016–17

1.4.3 Utility size

While many factors influence performance, there is a relationship between the size of the utility's customer base (in terms of the number of connections) and its performance on a number of indicators. This relationship may be causal, coincidental, or due to a related matter (e.g. larger utilities are subject to price regulation while many smaller utilities are not).

⁷ Decile 1 means 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

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 (F3, F24), and the strength of their water-usage pricing signal (F4).

Traditionally, Australians have relied on surface and, to a lesser extent, groundwater sources to meet their urban consumptive needs. Increased demand driven by factors such as population growth and changes to the reliability of existing sources⁸ have resulted in a need to further develop water supply sources to ensure supply is maintained. Financial, environmental, and social considerations mean a reduced number of opportunities exist to develop more of these traditional supply sources. As a result, utilities and bulk water authorities across the country are developing non-traditional (alternative) supply sources such as desalination and recycling, while continuing to explore options for stormwater and rainwater harvesting.

This diversification has important consequences for the performance of urban water utilities. It impacts upon how much it costs to treat water to an acceptable standard and supply multiple water types to end-users while meeting regulatory requirements.

For example, water from a storage in a protected (or 'closed') catchment is typically of a higher quality than that of an 'open' catchment and therefore requires less treatment, hence reducing the cost of supply. Groundwater sources can also vary significantly. The type and depth of an aquifer as well as the quality of the water it contains both have a significant impact on the extraction and treatment of the water. Urban water users supplied from recycled sources typically require a dual-pipe supply system to separate the recycled water from potable water and thereby incur a greater infrastructure cost.

Figure 1.4 a and 1.4 b shows the breakdown of sourced water for each State and Territory for utilities reporting in a given year. These charts show all results for all reporting utilities for each year. Therefore, care should be taken when comparing the total source water volumes between years. Additionally, differing interpretations of the definition of water sourced from recycling (W4) have most likely led to the under-reporting of these volumes.

By definition, W4 only includes the volume of recycled water supplied that is directly substituted for potable supply. This means if recycled water was not available, potable water was used to meet demand. Due to this issue, the total volume of recycled water supplied (W26) is preferred, and will replace W4 in future Urban NPR reporting.

Figures 1.4 a and 1.4 b show:

- Water sourced from surface water (W1)⁹ is the dominant water source in all States and Territories except Western Australia, where most of the water is sourced from the desalination of marine water (W3.1) and groundwater (W2).
- The importance of desalination (W3.1) as a reliable source of water continues to increase for Western Australia, showing an increase from 138,645 ML in 2015–16 to 149,823 ML in 2016–17 due to constraints on traditional water sources. Desalinated water represents 47 per cent of the State's total water sourced and 50 per cent of Perth's.
- South Australia commenced using desalinated water in 2011–12, and has utilised this source in years of below average rainfall and/or decreased flows in the Murray Darling. With above average rainfall in 2016–17 water sourced from desalination was only 2 per cent of the total water sourced for the State.
- Victoria sourced water from its desalination plant for the first time in 2016–17—a total of 46,209 ML was produced from the State's Victorian Desalination Plant.
- Desalination in New South Wales and Queensland remains minimal, with plants operating in maintenance or 'standby' modes.

⁸ Predominantly driven by water quality and climatic variability

⁹ From rivers, streams and dams

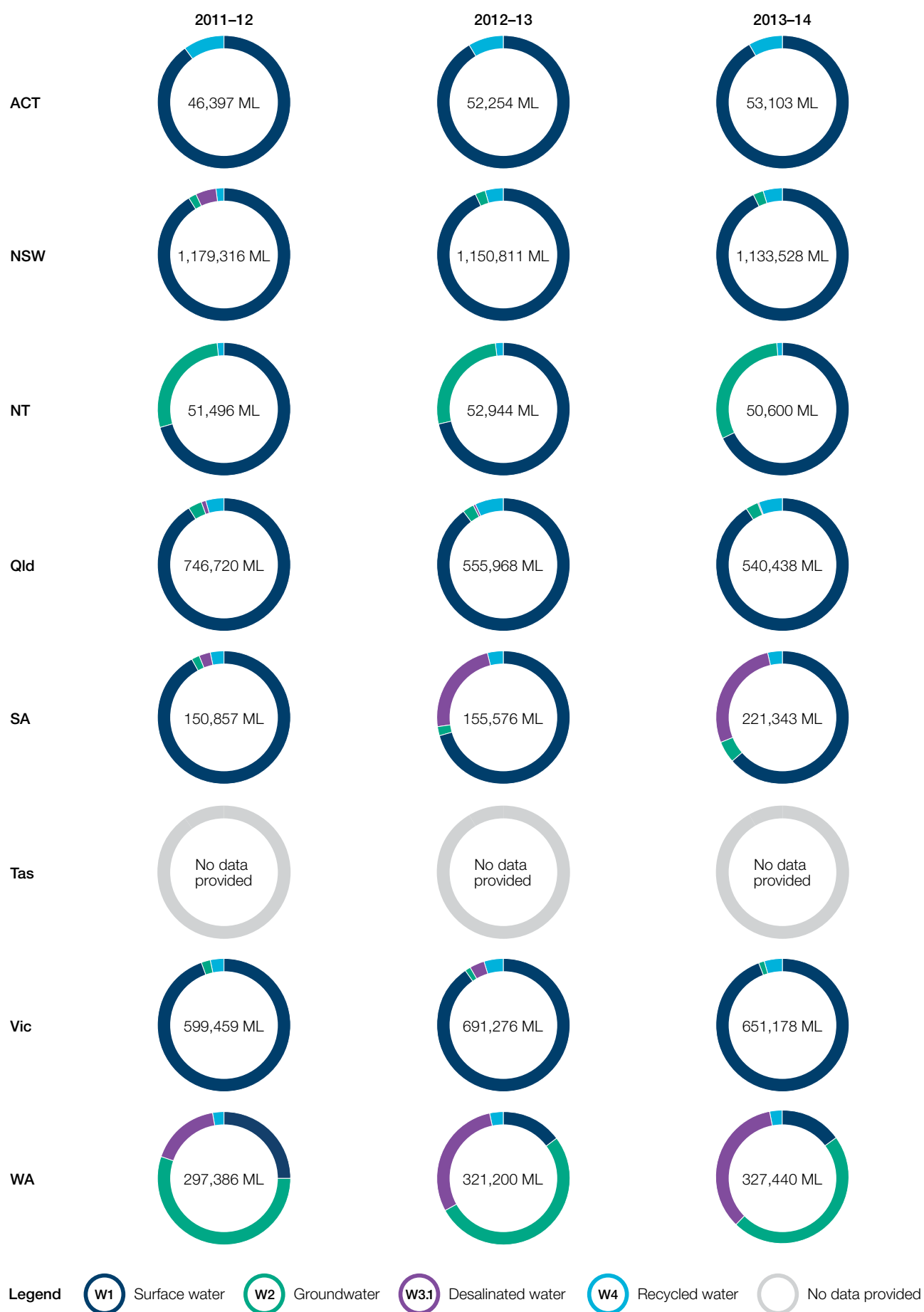


Figure 1.4a Water source breakdown (W1, W2, W3.1, W4) in each State and Territory, 2011-12 to 2013-14

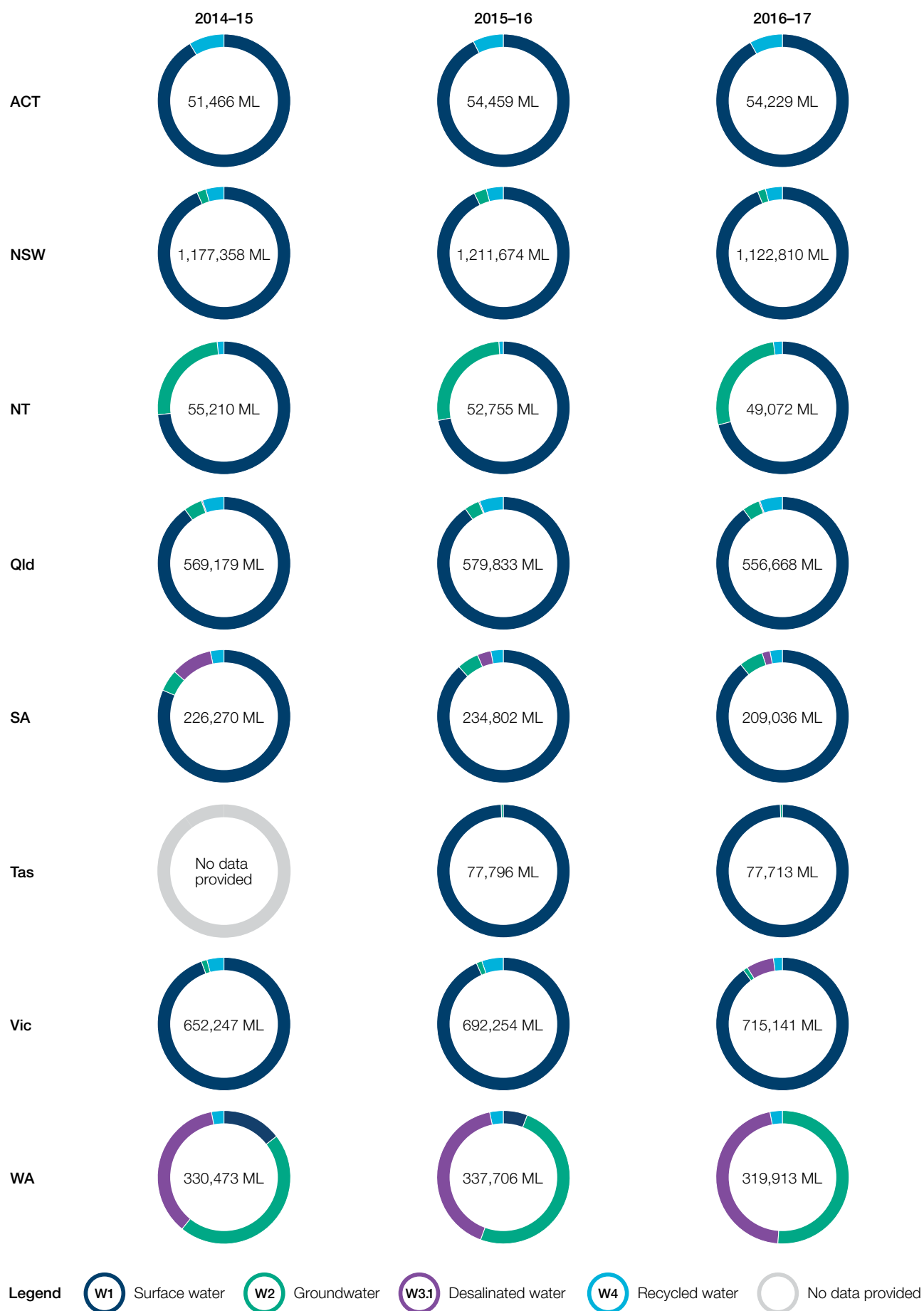


Figure 1.4b Water source breakdown (W1, W2, W3.1, W4) in each State and Territory, 2014–15 to 2016–17

2 Major urban centres

This chapter provides comparative tables and figures about a selection of key indicators for major urban centres, aligned with a capital city and the surrounding area.¹⁰

The figures and tables are compiled using data supplied by the utilities detailed in Table 2.1, exceptions are indicated in the table notes.

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 source for capital city analysis

Major urban centre	Utility data
Perth	Water Corporation—Perth
Adelaide	SA Water Corporation
Canberra	Icon Water
South East Queensland	Seqwater (B), Queensland Urban Utilities, Unitywater, Gold Coast, Redland, and Logan City Councils
Sydney	WaterNSW (B), Sydney Water Corporation
Melbourne	Melbourne Water (B), City West Water, South East Water, Yarra Valley Water
Hobart	No data—TasWater services this area; performance data is 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 sourced—W1, W2, W3.1, W4

The volume of water sourced from surface water (W1), groundwater (W2), desalination (W3.1), and recycled water (W4) for each city is shown in Table 2.2.

Nationally, there was an average 3 per cent increase in the total volume of water sourced between 2015–16 and 2016–17. Melbourne reported the largest increase by volume, sourcing an additional 30,214 ML (7 per cent) in 2016–17, using water from the Victorian Desalination Plant for the first time. The plant delivered 46,209 ML of water to the Melbourne system, decreasing demand on falling surface water storages and offsetting a decrease in the volume of water sourced from recycling.

Adelaide reported an 11 per cent (16,512 ML) decrease in its total volume of water sourced, attributable to a wetter than average Spring and Summer, including the wettest December on record.

Through its increasing use of desalination and reliance on ground water, the Water Corporation—Perth returned or 'banked' a net 8,531 ML of water to surface water storages in the Perth region.

Melbourne reported a 69 per cent decrease in its volume of water sourced from recycling. Usage was impacted by wet conditions during the irrigation season (reducing demand for recycled water) and the reduced capacity of one of South East Water's recycling plants. However, the majority of the decrease is explained by a clarification of the definition of recycled water used for on-site purposes. Historically Melbourne Water included all recycled water sourced from its own wastewater treatment plants. In 2016–17 Melbourne Water's volume of recycled water, reported under W4, only includes internally sourced recycled water used for dust suppression.

¹⁰ The South East Queensland urban centre is an exception as it includes Brisbane, Logan, Redlands, and the Gold Coast.

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 (W4)		Total	
	2015–16	2016–17	2015–16	2016–17	2015–16	2016–17	2015–16	2016–17	2015–16	2016–17
Adelaide	144,346	131,741	0	0	7,686	4,112	4,373	4,040	156,405	139,893
Canberra	50,403	49,916	0	0	0	0	4,056	4,313	54,459	54,229
Darwin	38,034	34,818	5,758	5,396	0	0	80	541	43,872	40,755
Melbourne	432,886	428,407	0	0	0	46,209	16,717	5,201	449,603	479,817
Perth	20,100	0 ^a	136,879	139,598	138,645	149,823	8,633	8,109	304,257	288,999
South East Queensland	289,524	299,372	8,730	7,686	1,524	1,562	16,739	16,177	316,517	324,797
Sydney	535,587	558,226	0	0	0	0	38,465	33,481	574,052	591,707

Table notes

^a Perth's zero volume of surface water reflects the Water Corporation transferring more water into surface water storages than it extracted. In net terms Water Corporation returned 8,531ML of water to surface water storages in the Perth region in 2016–17.

Sydney surface water includes the total volume of Sydney Water's surface water and the water it received from bulk suppliers (W5).

Melbourne's surface water is that sourced by Melbourne Water and South East Water while its recycled water is the total sourced by Melbourne Water and the three retailers (Yarra Valley Water, South East Water, and City West Water).

The volume of South East Queensland surface water, groundwater, and desalinated water is derived from Seqwater.

The volume of South East Queensland recycled water is the total derived from Seqwater and the retailers (Qld Urban Utilities, Unitywater, Gold Coast and Redland City councils).

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 decreased in all urban centres with the exception of Sydney, which reported a small increase (2 per cent).

Adelaide reported the largest decrease (17 per cent). This is attributed to the higher than average rainfalls experienced in the Adelaide region in 2016–17.

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

Major urban centre	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Adelaide	193	183	186	206	171	–17
Canberra	199	203	188	195	190	–3
Darwin	454	407	409	405	361	–11
Melbourne	152	150	149	154	149	–3
Perth	249	254	244	240	223	–7
South East Queensland ^a	156	164	160	159	158	–1
Sydney	198	206	201	201	206	2

Table notes

^a Redland did not report against this indicator in 2012–13 and 2013–14.

The figures exclude bulk utilities because they do not supply to customers.

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. Unlike W4 it includes all recycled water supplied.

Adelaide's total volume of recycled water supplied decreased by 25 per cent in 2016–17. Above average Spring and Summer rainfall in 2016–17 resulted in less water being reused for agricultural irrigation purposes.

Sydney also reported a decrease in recycled water supply. The 12 per cent decrease was a result of a reduction in recycled water supplied to commercial, industrial and municipal customers (W21) and to the environment (W23).

Operational issues at Darwin's wastewater treatment plant in 2015–16 resulted in a reduced supply of recycled water. With these issues resolved Darwin's recycled water supply increased by 461 ML in 2016–17, returning to and exceeding historical supply volumes.

See Section 3—Water resources for recycled water supplied by all utilities.

Table 2.4 Total recycled water supplied (ML)

Major urban centre	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Adelaide	28,393	25,515	29,177	28,481	21,316	–25
Canberra	4,416	4,372	4,352	4,053	4,404	9
Darwin	499	347	492	80	541	576
Melbourne	29,734	27,890	36,428	34,892	32,442	–7
Perth	10,272	10,029	9,354	10,212	9,568	–6
South East Queensland	23,136 ^a	23,082 ^a	18,774 ^b	19,822 ^b	14,755	–26
Sydney	46,951	46,943	43,075	43,342	38,340	–12

Table notes

^a Redland did not report total recycled water data in 2012–13, 2013–14 and 2015–16.

^b Seqwater did not report total recycled water data in 2014–15 and 2015–16.

Melbourne and South East Queensland figures for W26 are the aggregated figures for the bulk utility and the retailers.

2.2 Pricing

2.2.1 Typical residential bill—P8

Table 2.5 reports the typical residential bill received by customers in each major urban centre, including water and sewerage services.

Typical residential bills fell or remained consistent with 2015–16 across all major urban centres. With the exception of Sydney, decreased water usage was a key driver of the reported decreases. Sydney's decrease was driven by the Independent Pricing and Regulatory Tribunal's (IPART) review of residential pricing, which resulted in a \$100 per year decrease to residential bills from 1 July 2016¹¹.

See Section 4—Pricing for the typical bills charged by all utilities.

11 2016, IPART, Water–Determination June 2016, Sydney Water Corporation

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

Major urban centre	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Adelaide	1,468	1,345	1,367	1,393	1,165	–16
Canberra	1,265	1,153	1,131	1,152	1,136	–1
Darwin	1,914	1,872	1,930	1,914	1,796	–6
Melbourne	955	1,142	1,009	1,045	1,003	–4
Perth	1,299	1,350	1,377	1,393	1,386	–1
South East Queensland	1,314 ^a	1,342 ^a	1,417	1,410	1,408	0
Sydney	1,197	1,198	1,192	1,189	1,085	–9

Table notes

^a Redland did not report against this indicator in 2012–13 and 2013–14

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).

The figures exclude bulk utilities as they do not supply to customers.

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 Sydney (22 per cent) and Darwin (17 per cent), while falling significantly for Adelaide (41 per cent).

The expiry of NSW Greenhouse Gas Abatement Certificates (NGACs) was the primary driver of Sydney Water's increases.¹² Adelaide's decrease in net greenhouse gas emissions is attributed to a combination of decreased electricity usage and emissions reduction initiatives by SA Water Corporation. The decreased electricity usage was the result of decreased pumping requirements in the utility's network, driven by above-average rainfall. The above-average rainfall both decreased water usage in the system and increased the availability of surface water in the regions surface water storages. SA Water Corporation's initiatives to reduce greenhouse gas emissions include investment in energy efficiency, increased use of renewable energy (hydro and biogas), and carbon sequestration through bio-sequestration plantings.

See Section 8—Environment for total net greenhouse gas emissions by all utilities.

Table 2.6 Total net greenhouse gas emissions (net tonnes CO₂ equivalent per 1,000 properties)

Major urban centre	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Adelaide	422	258	299	421	250	–41
Canberra	288	260	257	255	242	–5
Darwin	219	205	165	154	179	17
Melbourne	253	229	215	291	266	–9
Perth	663	731	738	817	828	1
South East Queensland						
Sydney	85	85	84	144	176	22

Table notes

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

No data was available for South East Queensland.

¹² Sydney Water Annual Report 2016–17, Energy use and greenhouse gas emissions, page 38

2.4 Finance

2.4.1 Combined operating cost of water and sewerage—F13

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

In real terms combined operating costs fell across many of the major urban centres. Darwin reported a 16 per cent decrease, driven by a reduction in corporate overheads, and labour costs.

Melbourne reported a 9 per cent decrease in operating costs. This was a result of an efficiency review of Victoria's urban water corporations and an Essential Services Commission price review of Melbourne Water's services in 2016, Melbourne Water's bulk water and sewerage prices to metropolitan retailers were reduced from 2017 onwards.

See Section 5—Finance for combined operating for all utilities.

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

Major urban centre	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Adelaide	651	629	570	586	562	–4
Canberra	835	776	787	933 ^b	971 ^b	4
Darwin	1,182	1,054		1,141	962	–16
Melbourne	786	1,053	938	984	900	–9
Perth	597	614	597	607	587	–3
South East Queensland	1,031 ^a	1,117 ^a	1,115	1,102	1,107	0
Sydney	708	698	685	701	673	–4

Table notes

^a Redland did not report against this indicator in 2012–13 and 2013–14

^b Canberra figures for the 2015–16 and 2016–17 years include a water abstraction charge and a utilities network facility tax
Sydney figures are for Sydney Water and include the bulk water purchases from WaterNSW.

2.4.2 Total capital expenditure for water and sewerage—F16

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

Significant capital investment in the replacement of aging infrastructure and the upgrading of wastewater treatment facilities saw South East Queensland and Perth respectively invest an additional \$152 million (37 per cent) and \$136 million (46 per cent) in 2016–17.

See Section 5—Finance for combined capital expenditure for all utilities.

Table 2.8 Total capital expenditure: water and sewerage (\$000)

Major urban centre	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Adelaide	347,239	197,116	156,859	185,781	131,001	–29
Canberra	147,791	61,250	50,460	85,120	91,820	8
Darwin	66,789	26,401		49,378	22,244	–55
Melbourne	758,514	628,818	707,493	739,717	791,985	7
Perth	520,249	270,738	362,680	298,905	435,126	46
South East Queensland	673,740 ^a	533,833 ^a	502,815	411,041	563,211	37
Sydney	735,796	648,981	661,658	675,345	648,285	–4

Table notes

^a Redland did not report against this indicator in 2012–13 and 2013–14

Melbourne, Sydney, and South East Queensland figures are the aggregate for the bulk utility and the respective retailers.

2.5 Customers

2.5.1 Total water and sewerage complaints—C13

The total number of complaints for water and sewerage services, received by utilities and aggregated by major urban centre is reported in Table 2.9.

Customer satisfaction, as measured by the total number of complaints for water and sewerage services, remains consistent with 2015–16.

A reported 31 per cent increase in complaints in Melbourne was driven by a change to the interpretation of the complaints indicators by Yarra Valley Water. Due to the nature of the change Yarra Valley Water is not able to restate its historical figures and comparisons with previous year should be interpreted with caution.

See Section 6—Customers for water and sewerage complaints for all utilities.

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

Major urban centre	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Adelaide	2.4			1.6	2.5	56
Canberra	4.8	4.0	4.3	3.8	4.3	13
Darwin	37.5	49.9	39.5	86.2	85.1	–1
Melbourne	7.4	5.3	4.1	4.8	6.3	31
Perth	0.6	1.0	0.8	0.8	0.8	0
South East Queensland	2.1 ^a	6.6 ^b	3.8	4.3	4.7	9
Sydney	3.9	3.2	2.7	2.6	2.1	–19

Table notes

^a 2012–13 only includes data from Queensland Urban Utilities.

^b 2013–14 only includes data from Queensland Urban Utilities, Gold Coast City Council, and Unitywater.

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.

South East Queensland reported a 13 per cent increase in its durations of unplanned interruptions to water supply. This was driven by an increased number of mains breaks.

See Section 6—Customers for unplanned interruption to water supply for all utilities.

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

Major urban centre	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Adelaide	158	153	165	189	195	3
Canberra	148	104	120	135	135	0
Darwin			94			
Melbourne	103	99	99	106	106	0
Perth	130	117	96	108	103	–5
South East Queensland	106 ^a	104 ^b	137	128	144	13
Sydney	153	151	147	136	133	–2

Table notes

^a 2012–13 data for South East Queensland is based on data from Queensland Urban Utilities.

^b 2013–14 data for South East Queensland is based data from Queensland Urban Utilities, Gold Coast City Council, and Logan City Council.

3 Water resources

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

The average annual residential water supplied (W12) indicator 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:

- climate
- rainfall
- water conservation measures (e.g. water restrictions)
- availability of water supply
- housing density
- 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 data for all utilities reporting in 2016–17 is in Table A1, Appendix A.

3.1.1 Key findings

A summary of the median average annual volume of water supplied to residential customers, by utility group, is in Table 3.1.

Nationally, the median volume remained consistent with 2015–16, decreasing by 2 per cent.

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

Utility group	Range		No. utilities with increase/ decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	223	147	5	9	166	161	–3
	WC (Perth)	City West Water					
Large	361	150	3	8	210	185	–12
	P&W (Darwin)	Central Highlands Water					
Medium	428	120	6	15	196	198	1
	Lower Murray Water	South Gippsland Water					
Small	445	84	6	16	184	191	4
	Central Highlands	Westernport Water					
All utility groups (national)	445	84	20	48	180	176	–2
	Central Highlands	Westernport Water					

Table note

The median average annual residential water supplied (kL/property) is calculated using data from all utilities providing water supply services that reported data for W12 in both the 2015–16 and 2016–17 reporting years.

In contrast to the large number of utilities reporting increases in 2015–16, two-thirds of utilities reported a decrease in their volume of residential water supplied in 2016–17.

A 12 per cent decrease in the median volume supplied by the Large utility group was driven by decreases for seven of the nine reporting utilities in this group. Townsville Water (Townsville Regional Council) reported a 34 per cent decrease in the average annual volume of water supplied to residential customers. This decrease is attributed to the introduction of Level 3 water restrictions in August 2016 after the trigger point of below 20 per cent in the Ross River Dam was reached.¹³

Figure 3.1 shows a ‘box-and-whisker’ plot of the average annual volume of residential water supplied for all utilities reporting W12.

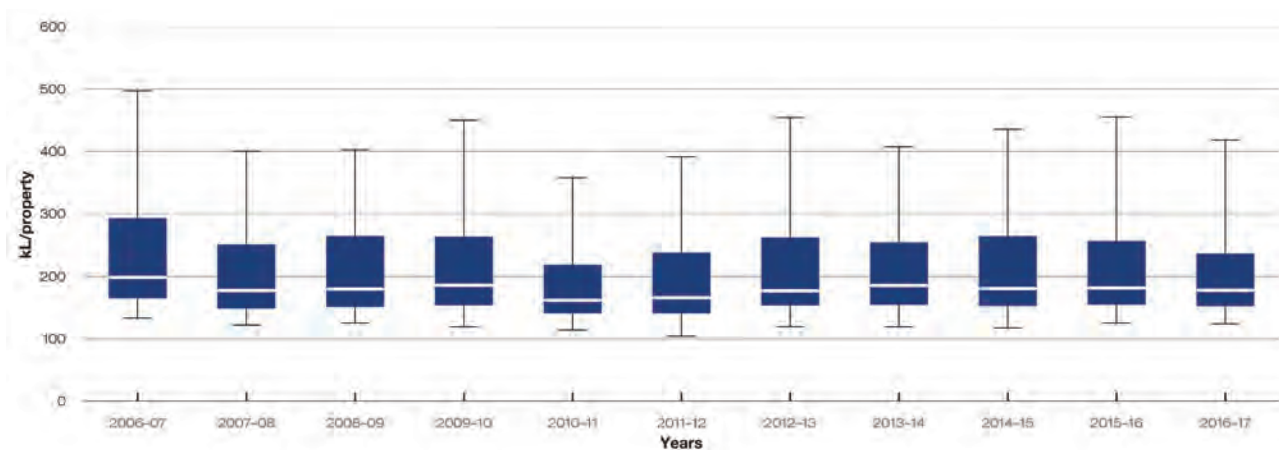


Figure 3.1 Average annual residential water supplied (kL/property)

Across all utilities, the 2016–17 median residential water supply remains consistent with historical trends, reflecting the recent consecutive years (2012–13 to 2015–16) of warmer than average conditions across most of Australia.

3.1.2 Results and analysis—Major utility group

A ranked breakdown of the average residential water supplied for each utility in the Major utility group (2012–13 to 2016–17) is shown in Figure 3.2.

In the Major utility group, SA Water Corporation reported the largest decrease (17 per cent) in its volume of water supplied to residential customers. This decrease is attributed to above average Spring and Summer rainfalls across much of the State in 2016–17.

Only one third of the Major utilities reported an increase in the volume of water supplied. The largest increases were those reported by the Central Coast Council, Hunter Water Corporation, and Sydney Water Corporation. The 4 per cent increase for these regions is attributed to higher temperatures and lower rainfall, and additionally population growth in the Hunter Valley.¹⁴

¹³ 2016–17 Annual Report, City of Townsville, p 25.

¹⁴ Hunter Water 2016–17, Annual report, *General statistics*, page 92

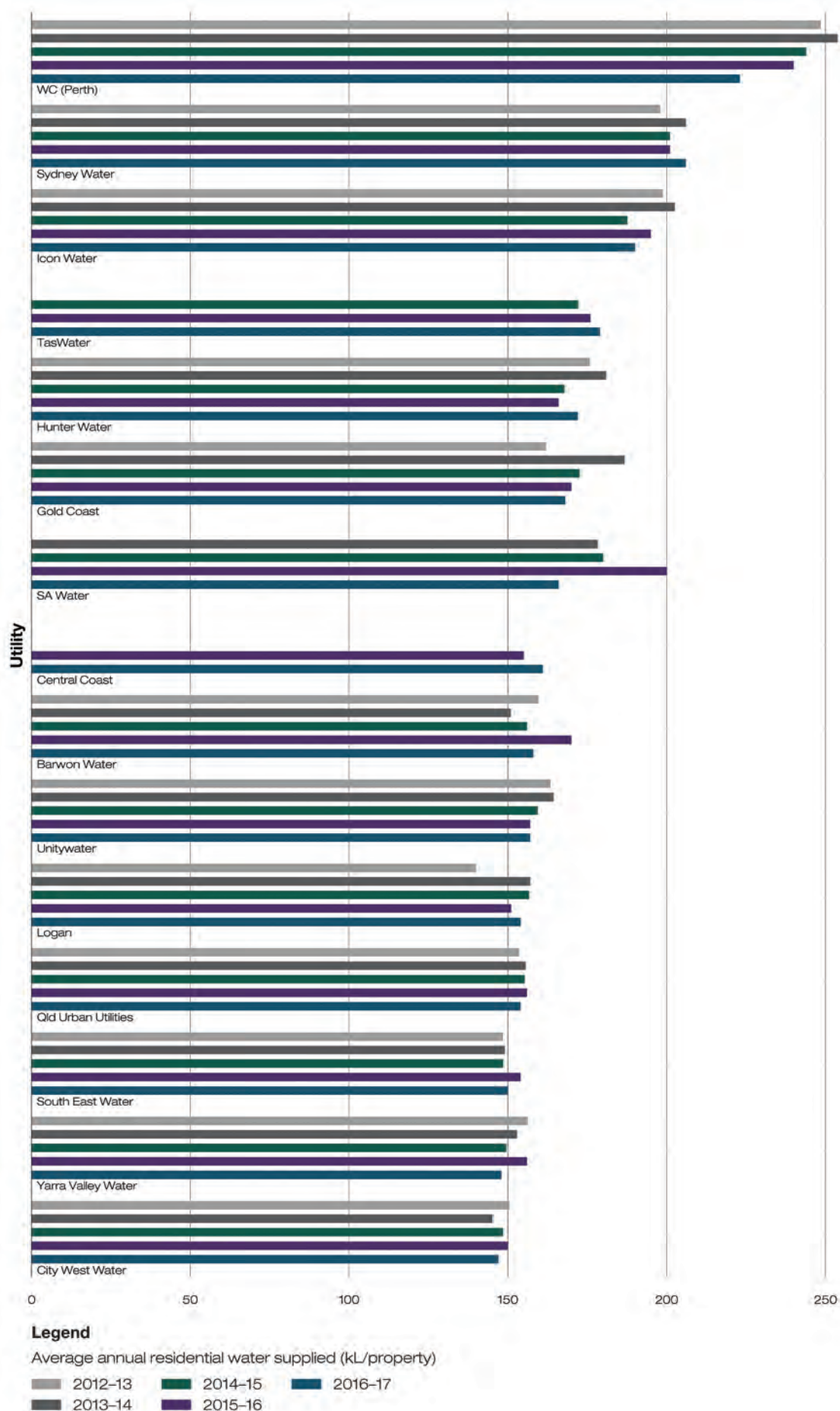


Figure 3.2 Average annual residential water supplied (kL/property) – Major utility group

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:

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

Total recycled water supply data for all utilities reporting in 2016–17 is 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 2015–16		Total		Change from 2015–16
	High	Low	Increase	Decrease	2015–16	2016–17	%
Major	38,339	724	5	8	130,721	111,676	–15
	Sydney Water	Central Coast					
Large	9,739	541	6	4	32,934	37,364	13
	Coliban Water	P&W (Darwin)					
Medium	5,923	0	13	9	45,046	47,408	5
	Wagga Wagga (S)	Riverina Water (W)					
Small	2,145	0	12	11	17,379	16,445	–5
	WC (Albany)	Multiple utilities					
All utility groups (national)	38,340	0	36	32	226,080	212,893	–6
	Sydney Water	Multiple utilities					

Table note

The total recycled water supplied (ML) is calculated using data from all utilities that reported data for W26 in both 2015–16 and 2016–17 reporting years.

Nationally, the total volume of recycled water supplied decreased by 6 per cent in 2016–17. The decrease was driven by significant reductions in the total volume supplied by utilities in the Major group. SA Water Corporation and Sydney Water Corporation reported the largest decreases by volume. SA Water Corporation's 23 per cent (7,291 ML) decrease is attributed to a reduction in agricultural usage resulting from above average Spring rainfalls. Similarly, Sydney Water Corporation's 12 per cent decrease (5,003 ML) was driven by a decrease in agricultural usage.

The Large utility group recorded its third consecutive year of growth in the total volume of recycled water supplied—increasing by 40 per cent over this period.

3.2.2 Results and analysis—Major utility group

In 2016–17, the Major utility group reported a decrease of 15 per cent in the total volume of recycled water supplied. In addition to the reductions outlined in the previous discussion, this result was also driven by a change to the characterisation of onsite use by Queensland Urban Utilities. A review by the utility identified that recycled water used in treatment processes had been incorrectly included in its reported onsite use.

4 Pricing

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

The typical residential bill for water and sewerage (P8) is the sum of fixed charges and volumetric-usage charges for water and sewerage 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–P1.12, 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:

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

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

When drawing comparisons between utilities, it is important to note changes in a typical bill may occur as a result of 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 Regional Council remains an exception. Ratepayers have a choice between a flat charge and a tiered structure.¹⁵

Unlike residential water-supply pricing, the majority of utilities have a fixed price model for sewerage services. The exceptions are the Melbourne utilities¹⁶, Byron Shire Council and Unitywater. These utilities have both a fixed and volumetric component in their sewerage charges.

Billing data is indexed using the consumer price index (CPI) to facilitate comparison in real terms. Typical residential bill data for all utilities reporting in 2016–17 is 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 the median typical residential bill decreased in 2016–17, down \$32 per annum (2 per cent) from 2015–16.

The largest decrease occurred in the Medium utility group, with Bundaberg, Gladstone and Mackay councils, GWMWater, and Wannon Water all reporting decreases of greater than \$70 per annum (between 5 and 7 per cent).

¹⁵ www.townsville.qld.gov.au/payments-rates-and-permits/rates

¹⁶ Western Water, Yarra Valley Water, South East Water, and City West Water.

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

Utility group	Range		No. utilities with increase/decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	1,586	933	4	10	1,170	1,120	–4
	Logan	City West Water					
Large	1,796	860	4	7	1,271	1,303	3
	P&W (Darwin)	North East Water					
Medium	1,602	906	4	7	1,383	1,296	–6
	Fraser Coast	Lower Murray Water					
Small	1,907	1,110	6	4	1,613	1,633	1
	P&W (Alice Springs)	Westernport Water					
All utility groups (national)	1,907	860	18	28	1,364	1,332	–2
	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 that reported data for P3 and P6 in both the 2015–16 and 2016–17 reporting years.

In the Large utility group, the anomaly between the observed decrease in median average residential water supply (W12), and the small increases in the median typical residential bill is explained by two factors. These are: the availability of pricing data for a number of New South Wales regional utilities, and Townsville's use of a flat charge pricing structure, which negates the impact of its significant decrease in residential water supplied.

Figure 4.1 shows a box-and-whisker plot of typical residential bills for all utilities reporting data in a given year.

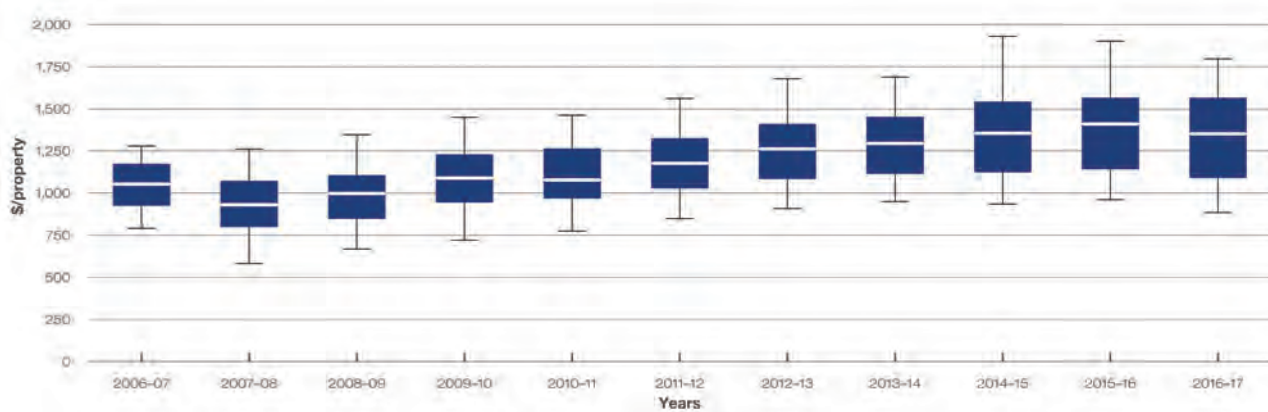


Figure 4.1 Typical residential bill: water and sewerage (\$)

Sixty per cent of utilities reported a decrease in their typical residential bill in 2016–17, curbing the upward trend of the last 8 years. It is important to note, the availability of pricing data for a number of New South Wales regional utilities may be a factor in this result.

Victorian utilities remain amongst those charging the lowest typical residential bills in each utility group. This is due to a combination of the State's typically lower residential water use and downward pressure on bills through the Victorian State Government's Fairer Water Bills Initiative. Temperature and rainfall, as well as demand management, are key factors in the States typically lower residential water usage.

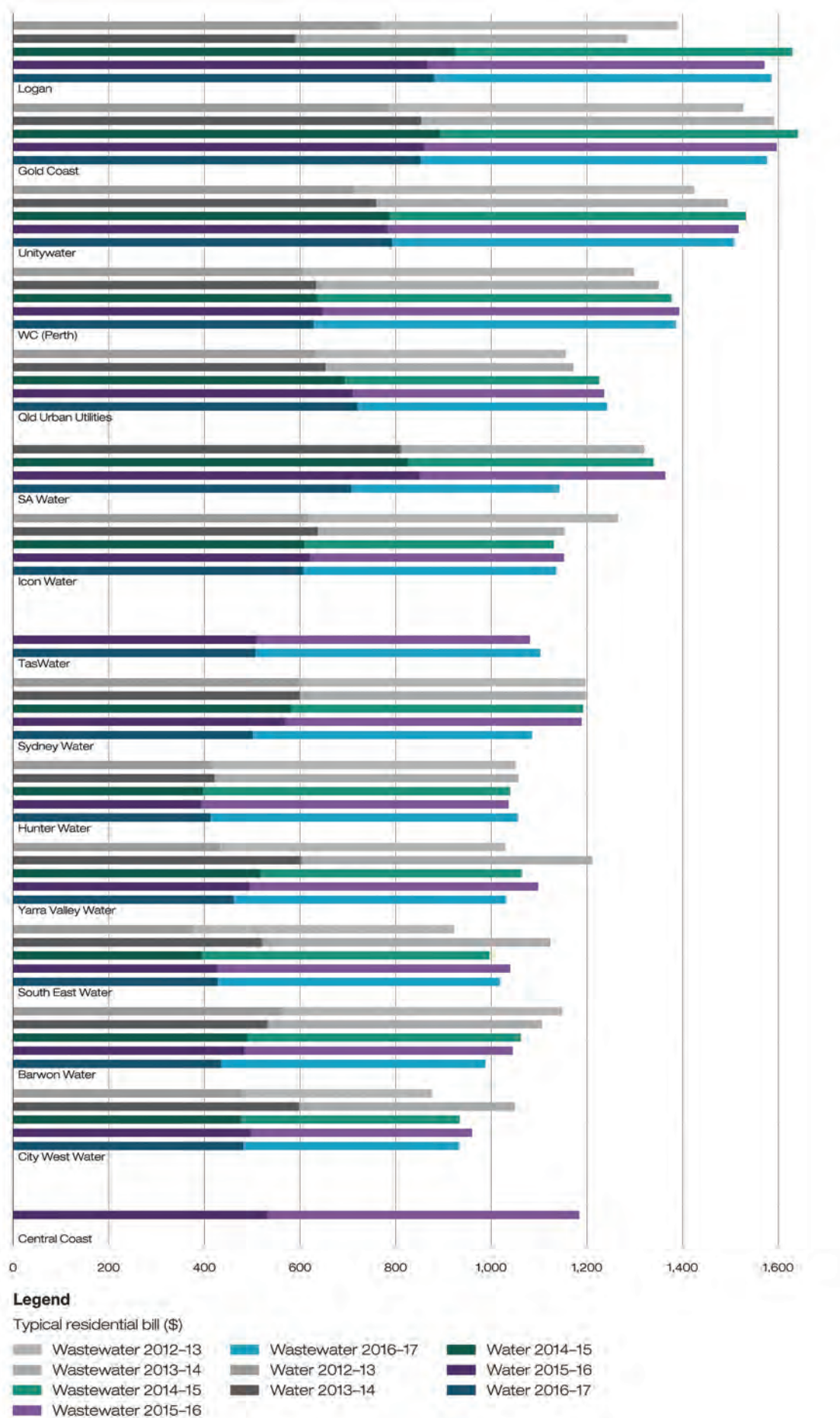


Figure 4.2 Typical residential bill: water and sewerage (\$) – Major utility group

4.1.2 Results and analysis—Major utility group

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

Despite consecutive years of modest reductions by Gold Coast City Council and Unitywater they, along with Logan City Council and Queensland Urban Utilities, remain the most expensive in the large utility group.

Significant reductions in typical residential water bills for SA Water Corporation (16 per cent) and Sydney Water Corporation (9 per cent) have seen respective annual savings of \$222 and \$104 per annum. SA Water Corporation's reduction was driven by decreased residential water usage. Sydney Water Corporation's decrease was driven by the Independent Pricing and Regulatory Tribunal's (IPART) review of residential pricing, which resulted in a \$100 per year decrease to residential bills from 1 July 2016.

4.2 Annual bill based on 200kL: water 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'. The adoption of 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 in to price variations.

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

Annual bill based on 200 kL (water and sewerage) data for all utilities reporting in 2016–17 is in Table A4, Appendix A.

4.2.1 Key findings

A summary of the median 200 kL/annum residential bill data, by utility group, is in Table 4.2.

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

Utility group	Range		No. utilities with increase/decrease from 2015–16		Median		Change from 2015–16
	High	Low	Increase	Decrease	High	Low	%
Major	1,759	1,074	5	9	1,274	1,236	–3
	Logan	Sydney Water					
Large	1,530	835	4	7	1,330	1,362	2
	Redland City	Goulburn Valley Water					
Medium	1,603	755	4	7	1,290	1,298	1
	Fraser Coast	Lower Murray Water					
Small	1,618	1,296	10	2	1,478	1,495	1
	WC (Albany)	Central Highlands					
All utility groups (national)	1,759	755	23	25	1,334	1,360	2
	Logan	Lower Murray Water					

Table note

The 200 kL residential bill data for water and sewerage is calculated using data from all utilities who reported against the P2 and P5 indicators in both 2015–16 and 2016–17.

On a 200 kL/annum basis the national median bill remained consistent with 2015–16, rising 2 per cent, an increase of \$26 per annum. Again, the availability of pricing data for a number of New South Wales regional utilities may be a factor in this result.

The discrepancy between a decrease in the national median typical bill and an increase in the national median annual bill is explained by the competing impacts of decreased water usage and increased prices.

4.2.2 Results and analysis—Major utility group

A ranked breakdown of the annual residential bill based on 200 kL for the Major utility group is presented in Figure 4.3. The figure highlights the water (P2) and sewerage (P5) components of the bill for each utility. The figure reinforces the higher volumetric pricing of water by Queensland's Major utilities.

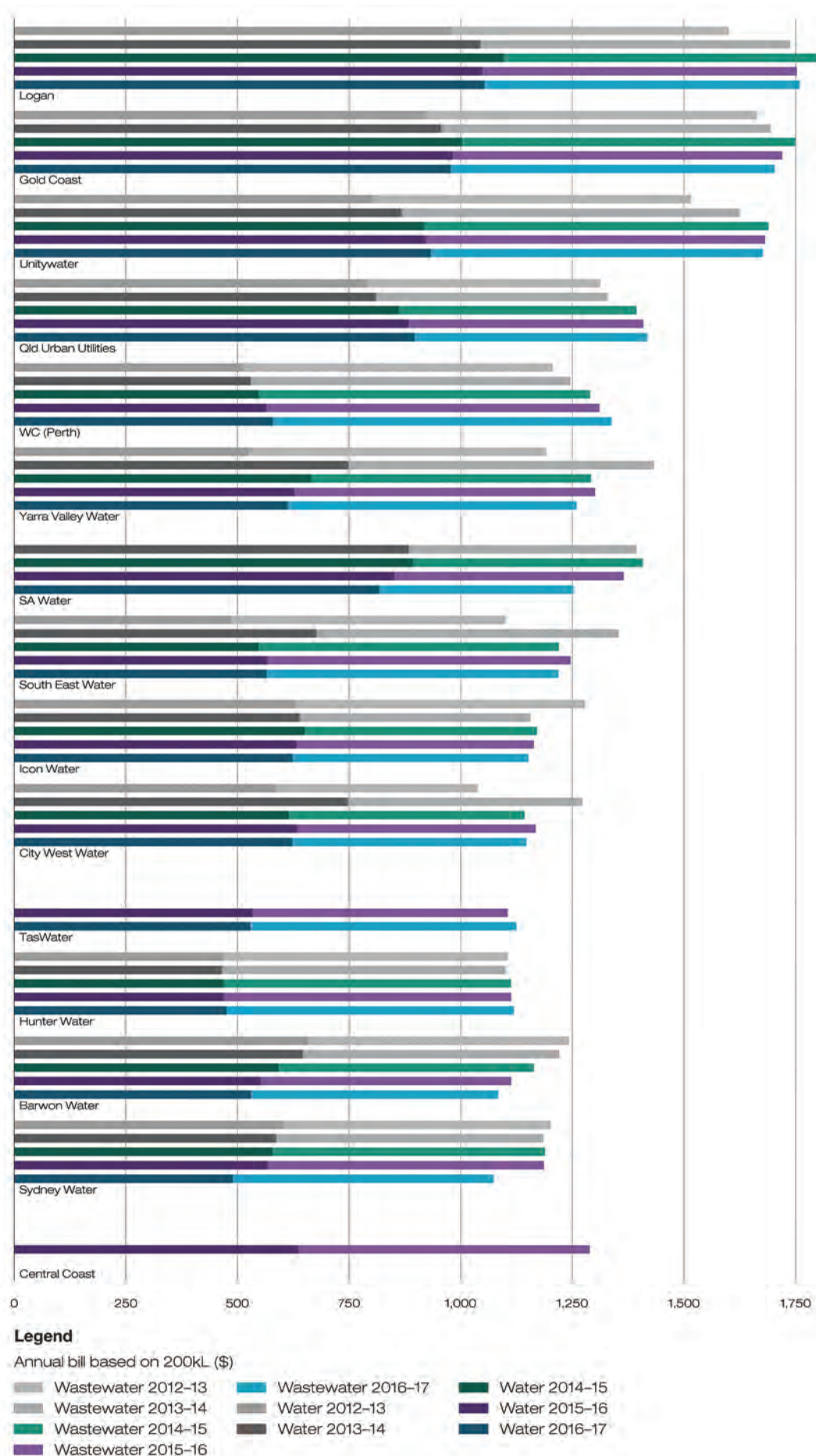


Figure 4.3 Annual bill based on 200 kL: water and sewerage (\$)—Major utility group

5 Finance

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

Total capital expenditure on water 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 programmes often affect operational expenditure, and are influenced by a number of factors:

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

Capital expenditure data is indexed using the consumer price index (CPI) to facilitate comparison in real terms. Total capital expenditure for water and sewerage data for all utilities reporting in 2016–17 is in Table A5, Appendix A.

5.1.1 Key findings

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 2015–16		Total		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	632	60	9	5	2,503	2,651	6
	Sydney Water	Logan					
Large	70	9	4	7	325	334	3
	Western Water	North East Water					
Medium	59	3	11	7	232	297	28
	Shoalhaven	Clarence Valley					
Small	16	2	14	7	147	173	17
	Eurobodalla	Bega Valley					
All utility groups (national)	632	2	38	26	3,207	3,454	8
	Sydney Water	Bega Valley					

Table notes

Total capital expenditure: water and sewerage is calculated using data from all utilities that reported against F14 and F15 in both 2015–16 and 2016–17.

In real terms, total capital expenditure across all utility groups increased by 8 per cent (\$247 million) from 2015–16. This increase was driven by investment in the Major and Medium utility groups, together contributing 86 per cent of the total increase in expenditure.

Figure 5.1 summarises the total capital expenditure from 2007–08 to 2016–17 for utilities reporting in all 10 years. Expenditure is broken down by expenditure on water (F14) and sewerage (F15).

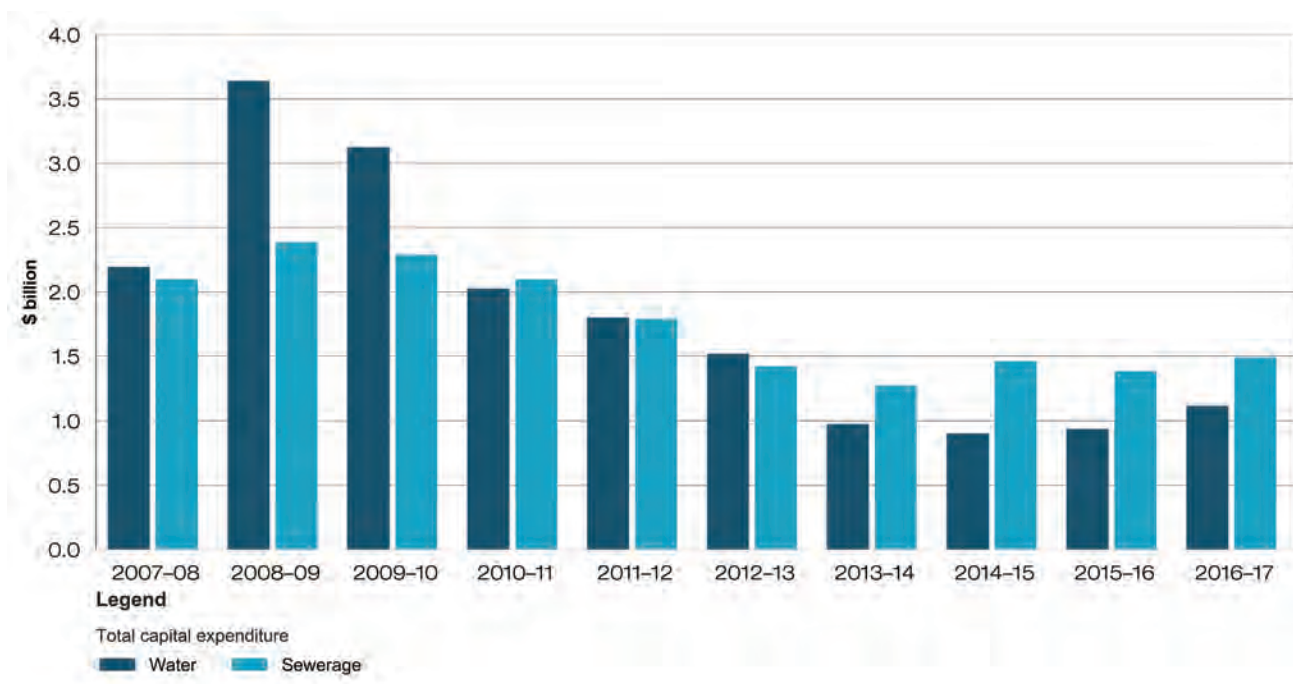


Figure 5.1 Total capital expenditure: water and sewerage (\$ billion)*

* Total is for utilities that reported all ten years and excludes bulk water utilities

5.1.2 Results and analysis—Major utility group

Investment in asset renewal, and wastewater treatment plant upgrades, drove significant increases in capital investment for many of the Major utilities.

Water Corporation—Perth reported the most significant increase (46 per cent) in capital expenditure from 2015–16. The increase was heavily influenced by major projects, including its meter renewal program and renewal of water supply networks.

City of Gold Coast Council reported the second most significant increase of 35 per cent in capital expenditure, primarily associated with maintenance of the water and sewerage network, and pump station.

Unitywater reported an increase of 31 per cent in capital expenditure driven in part by investment in the construction of sewerage pipeline assets—particularly in the Caloundra area.

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

Per connected property capital expenditure data, for water and sewerage services provided by all utilities reporting in 2016–17 is in Table 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 wastewater services.

Nationally the median total capital expenditure per connected property, increased for both water (12 per cent) and sewerage (10 per cent), reflecting the observed trend in total capital investment (F16).

Notable increases in the Small utility group for both water (9 per cent) and sewerage (40 per cent) reflect the increased capital expenditure within the year, and highlight the increased costs of developing and maintaining the supply and treatment systems for small service providers.

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

Utility group	Range (\$000)		No. utilities with increase/decrease 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	369	46	8	6	128	124	–3
	Barwon Water	South East Water					
Large	430	21	7	4	195	203	4
	Western Water	Redland City					
Medium	438	50	11	7	162	204	26
	Fraser Coast	Coffs Harbour					
Small	1391	51	13	7	230	250	9
	Western Downs	Byron					
All utility groups (national)	1391	21	39	24	177	199	12
	Western Downs	Redland City					

Table note

Median capital expenditure: water (\$/property) is calculated using data from all utilities that reported against F28 in both 2015–16 and 2016–17.

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

Utility group	Range (\$000)		No. utilities with increase/decrease 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	364	63	8	6	236	217	–8
	Logan	City West Water					
Large	760	51	3	8	216	255	18
	Western Water	North East Water					
Medium	1103	78	10	8	212	196	–8
	Bundaberg	Lower Murray Water					
Small	707	21	12	8	226	316	40
	Eurobodalla	Western Downs					
All utility groups (national)	1103	21	33	30	218	239	10
	Bundaberg	Western Downs					

Table note

Median capital expenditure: sewerage (\$/property) is calculated using data from all utilities that reported against F29 in both 2015–16 and 2016–17.

5.2.2 Results and analysis—Major utility group

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

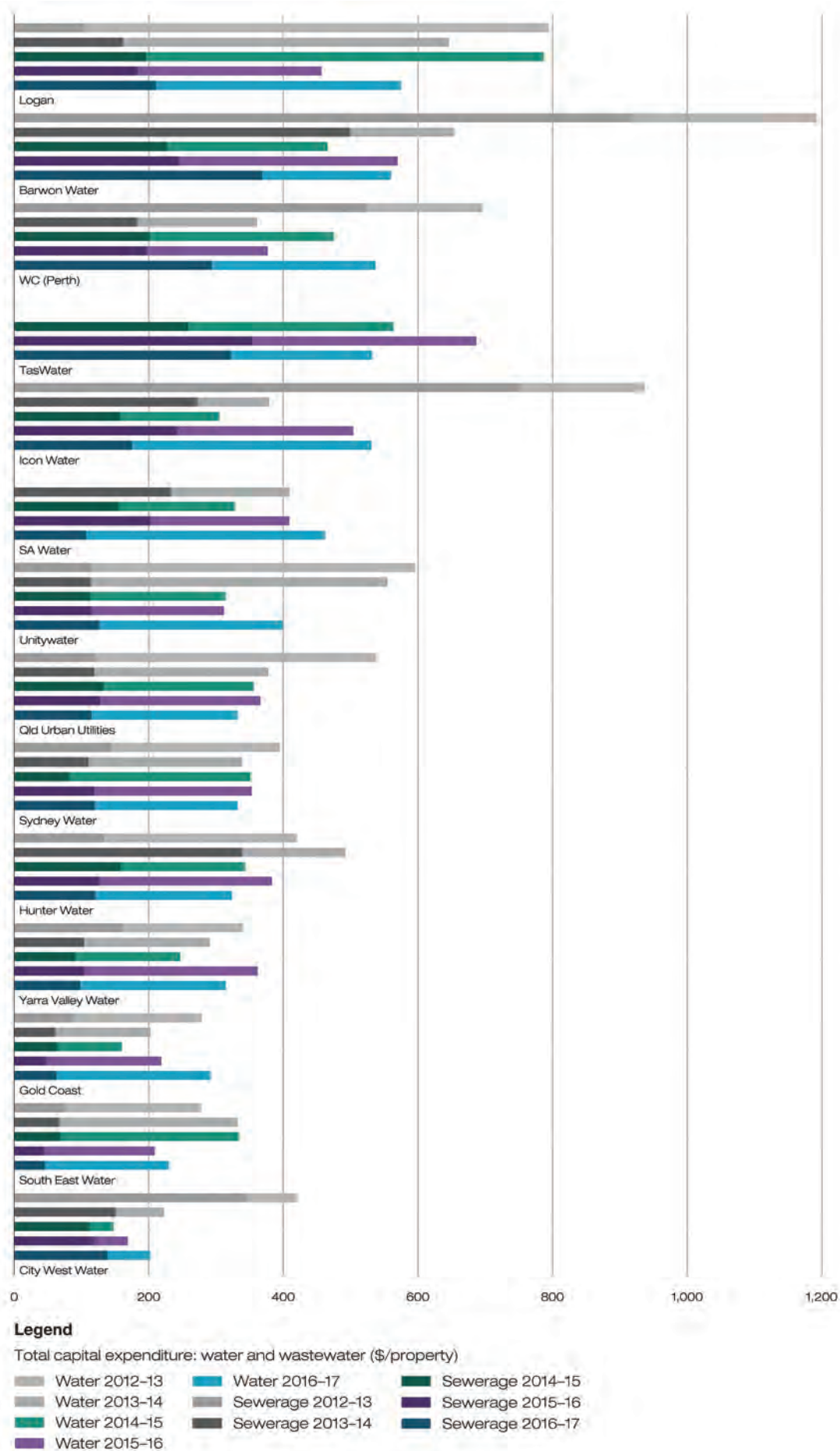


Figure 5.2 Capital expenditure: water and sewerage (\$/property)—Major utility group

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

Combined operating costs for water and sewerage on a per property basis (F13) provides a measure of a utility 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 (e.g. piped)
- sources of water (e.g. purchased from a bulk utility, or sourced from dams, or alternative sources—desalination plants)
- input costs (e.g. fuel, chemicals, and labour)
- level of water and sewage treatment required
- capital procurement strategies (e.g. public–private partnerships, or build–own–operate–transfer (BOOT) schemes).

Operating cost data is indexed using the consumer price index (CPI) to facilitate comparison in real terms. Combined operating cost (water and sewerage) data for all utilities reporting in 2016–17 is in Table A8, Appendix A.

5.3.1 Key findings

Figure 5.3 is a box-and-whisker plot of combined operating cost (water and sewerage) data for all utilities reporting F13 for a given reporting year from 2006–07 to 2016–17. A summary of the median combined operating costs on a per property basis is shown in Table 5.4.

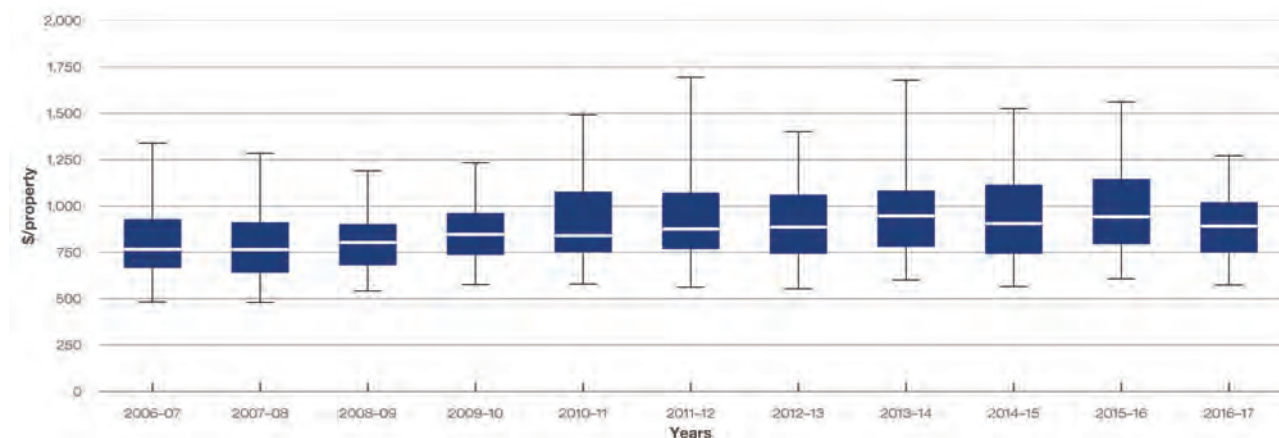


Figure 5.3 Combined operating cost: water and sewerage (\$/property)

In 2016–17, the national median operating cost was \$892, down 5 per cent from \$940 in 2015–16. Figure 5.3 highlights the decrease in the median and also shows a reduction in the variance of the operating costs across utilities. While the result in isolation does not represent a new trend in operating costs, it does curb the existing trend of historical increases.

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

Utility group	Range		No. utilities with increase/decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	1,164	574	4	10	937	917	–2
	Gold Coast	Hunter Water					
Large	1,143	608	4	7	860	870	1
	Gippsland Water	Toowoomba					
Medium	1039	590	4	14	910	908	0
	East Gippsland Water	WC (Mandurah)					
Small	1,749	401	5	16	1,064	962	–10
	Livingstone	Gympie					
All utility groups (national)	1,749	401	17	47	940	892	–5
	Livingstone	Gympie					

Table notes

The combined operating cost: water and sewerage (\$/property) is calculated using F11, F12, and F13 data from utilities that reported in both 2015–16 and 2016–17. Table 5.4 is based on F13 (i.e. 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

A ranked breakdown of operating expenditure on a connected property basis is presented in Figure 5.4. The figure highlights the component of water (F12) and sewerage (F11) expenditure for each utility in the Major utility group from 2012–13 to 2016–17.

5.4 Revenue from community service obligations (%)—F8

Revenue from community service obligations (CSOs) as a percentage of a utilities 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 (e.g. 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)
- 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 2016–17 is in Table A9, Appendix A.

5.4.1 Key findings

A summary of data for the median percentage of total revenue derived from CSOs, by utility group, is in Table 5.5. Nationally, the median percentage of revenue from CSOs remained steady decreasing from 1.7 per cent in 2015–16 to 1.4 per cent in 2016–17.

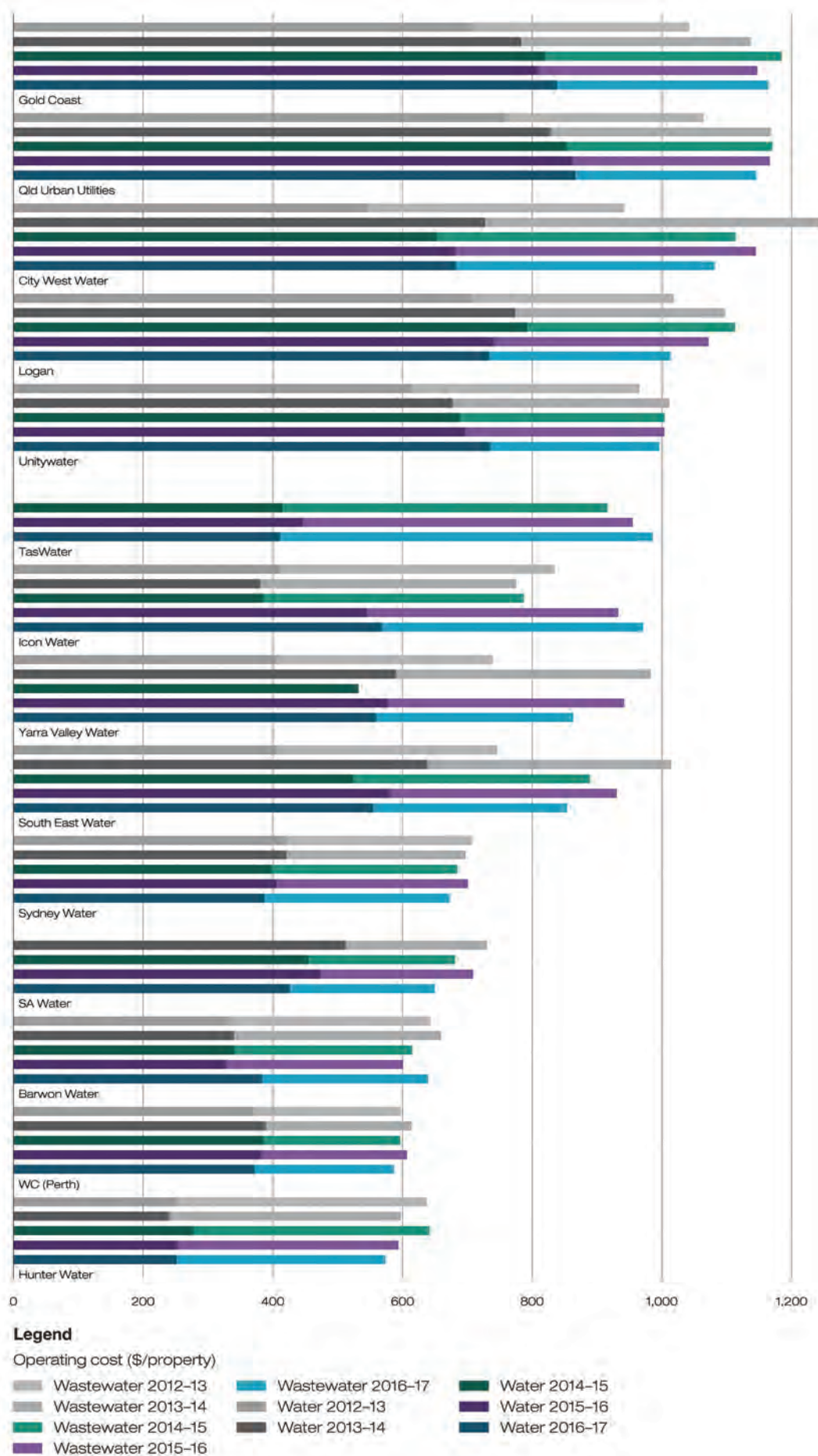


Figure 5.4 Combined operating cost: water and sewerage (\$/property)—Major utility group

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

Utility group	Range		No. utilities with increase/decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	10.5	0	7	4	4	3.9	–3
	SA Water	Multiple utilities					
Large	6.5	0	5	5	3.9	4.2	8
	North East Water	Toowoomba					
Medium	10.4	0	8	4	1.2	1.2	0
	WC (Mandurah)	Gladstone					
Small	14.3	–65.3	7	8	1	0.9	–10
	P&W (Alice Springs)	WC (Geraldton)					
All utility groups (national)	14.3	–65.3	27	21	1.7	1.4	–18
	P&W (Alice Springs)	WC (Geraldton)					

Table note

Median percentage of revenue from CSOs is calculated for all utilities reporting data in both 2015–16 and 2016–17.

5.4.2 Results and analysis—Major utility group

Despite increases in CSO payments for many utilities in the Major utility group, the median remained steady. SA Water Corporation and Water Corporation—Perth continued to have the highest proportions of revenue from CSOs with 10.5 per cent and 6.5 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.

Water Corporation reported negative revenue from CSOs values for its Geraldton, Australind/Eaton, and Albany regions. These figures were a result of a new model for calculating the Country Loss component of CSOs. The new model came into effect in 2016–17.

Queensland Urban Utilities reported a 100 per cent decrease in their revenue from CSO. This was a result of the end to payments made to Queensland Urban Utilities by Brisbane City Council to support pensioner remissions.

6 Customer

6.1 Average duration of an unplanned interruption: water—C15

The average duration of unplanned interruptions (C15), is the average time a customer is without water supply, due to an unforeseen interruption, requiring 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 following factors:

- the scale of the event causing the interruption
- the location of the interruption (e.g. the proximity to a repair crews and the depth of the burst pipe)
- the utility's response policy for outlying areas
- the number of maintenance and repair staff at the utility's disposal.

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

The average duration of unplanned interruptions (water supply) data for all utilities reporting in 2016–17 is in Table A10, Appendix A.

6.1.1 Key findings

A summary of the data for the median average duration of an unplanned interruption, 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 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	231	83	9	5	135	134	–1
	Hunter Water	South East Water					
Large	215	65	6	3	93	107	16
	Western Water	Cairns					
Medium	183	30	6	9	106	92	–13
	Riverina Water (W)	Port Macquarie Hastings					
Small	218	26	3	11	120	87	–27
	Cassowary Coast	Livingstone					
All utility groups (national)	231	26	24	28	112	106	–6
	Hunter Water	Livingstone					

Table note

Median average duration of an unplanned interruption: water (minutes) is calculated for all utilities reporting data for C15 in both 2015–16 and 2016–17.

Nationally, the median average duration of unplanned interruptions remained consistent with 2015–16, decreasing from 112 minutes to 106 minutes (6 per cent).

Despite a 20 per cent decrease in the number of water mains breaks (A8) in the Large utility group, the average duration of unplanned supply interruptions, for this group, increased by 16 per cent. This result was driven by increases for Western Water (132 per cent), Townsville Regional Council (21 per cent), Gippsland Water (15 per cent), and Coliban Water (12 per cent).

6.1.2 Results and analysis—Major utility group

A ranked breakdown of the average duration of an unplanned interruption for this utility group from 2012–13 to 2016–17 is presented in Figure 6.1. The figure highlights the large year to year variation of the indicator that can result from a single major mains break.

In 2016–17, Hunter Water Corporation reported a 70 per cent increase in its average duration of unplanned interruptions, which was dominated by a single major mains break in March 2017. The break on the Wallsend main cut supply to over 4,800 properties and resulted in reduced pressure to 1,000 more properties.¹⁷

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

SA Water Corporation reported a duration of 195 minutes, an increase of 5 per cent from 2015–16. This result is explained by procedures followed to mitigate the safety hazards associated with the repair of cast iron mains. Cast iron pipes were used extensively in South Australia and are more likely to fail from pressure issues. These pipes were repaired under pressure; however, new Work, Health, and Safety measures require the water supply to be shutdown and the area excavated before the pipe is repaired. This process increases the number of shutdowns and is more time consuming than previous practice. Cast iron mains are no longer laid in South Australia but it is predicted future failures will predominantly concern cast iron pipes, and the duration of repairs may increase.

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 utilities customer satisfaction and operational performance. A complaint can be:

- a written or verbal expression of dissatisfaction
- made about an action or a proposed action
- result from 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 2016–17 is in Table A11, Appendix A.

¹⁷ Hunter Water Annual Report 2016–2017, page 7

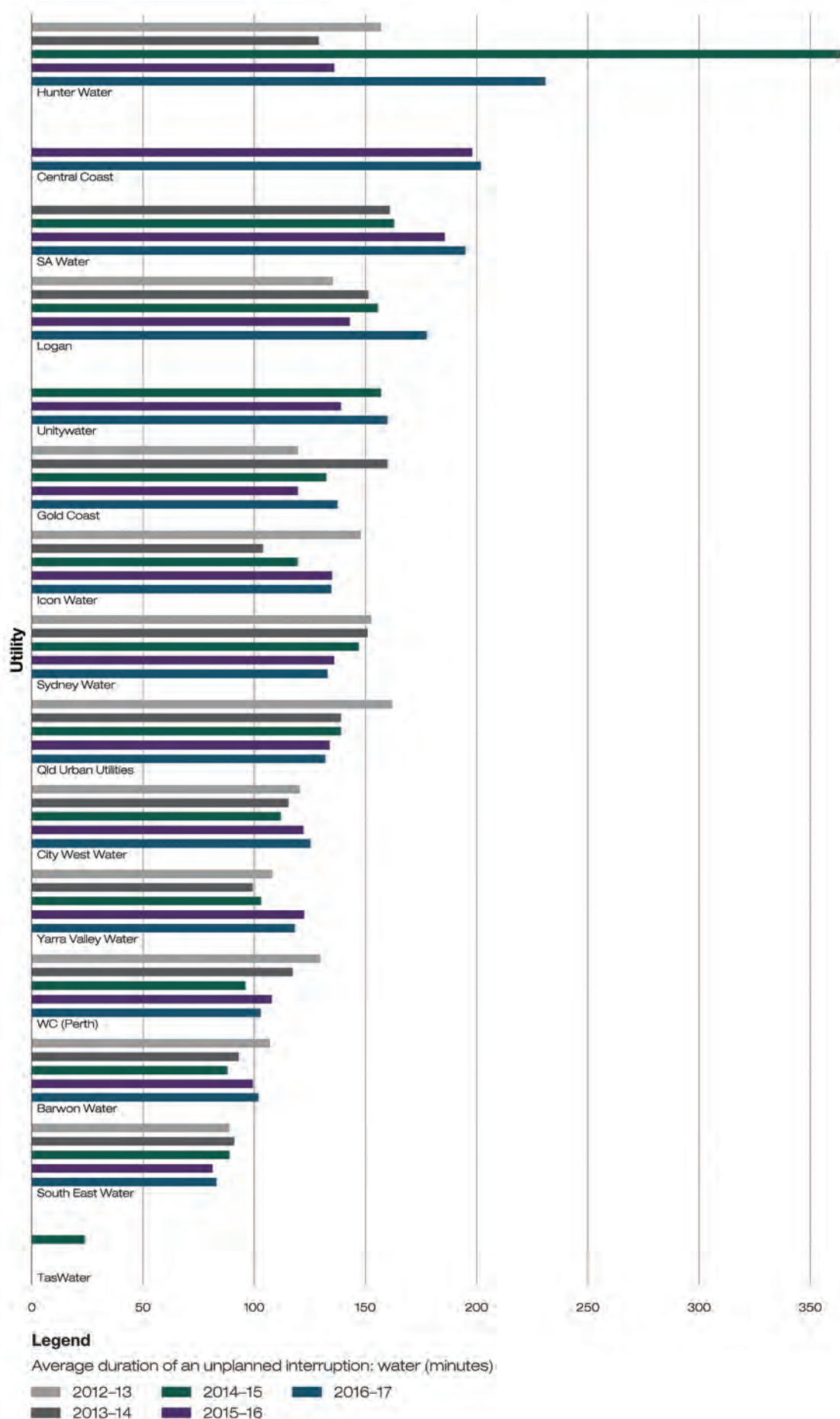


Figure 6.1 Average duration of unplanned interruption: water (minutes)—Major utility group

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, the median total number of complaints remained unchanged. However, results within the Major, Medium and Small utility groups showed some downward movement in the median number of complaints.

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

Utility group	Range		No. utilities with increase/decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	11.0 ^a	0.8	5	6	4.1	3.4	–17
	Yarra Valley Water	WC (Perth)					
Large	85.1	0.8	7	4	5.0	4.1	–18
	P&W (Darwin)	Townsville					
Medium	57.0	0.3	11	7	6.5	6.9	5
	Mackay	Multiple utilities					
Small	146.0	0	11	10	7.1	6.1	–14
	Central Highlands	Goulburn Mulwaree					
All utility groups (national)	146.0	0	34	27	5.2	5.0	–4
	Central Highlands	Goulburn Mulwaree					

Table note

^a Yarra Valley Water's increase was driven by a change to the interpretation of the indicator following advice from the Essential Services Commission.

Median total complaints: water and sewerage (per 1,000 properties) is calculated for all utilities reporting data for C13 in both 2015–16 and 2016–17.

6.2.2 Results and analysis—Major utility group

A ranked breakdown of the total water and sewerage complaints from 2012–13 to 2016–17 is shown in Figure 6.2.

Yarra Valley Water reported the largest increase from 5.8 complaints to 11.0 complaints per 1,000 properties (90 per cent). This increase was driven by a change to the interpretation of the indicator by Yarra Valley Water following advice from the Essential Services Commission. Due to the nature of the change, Yarra Valley Water is not able to restate its historical figures—this should be considered when making comparisons with 2015–16 data.

Hunter Water Corporation reported the largest decrease (35 per cent) in complaints in the Major utility group in 2016–17. Water Corporation—Perth and Unitywater have consistently reported the lowest number of complaints per 1,000 properties since 2012–13.

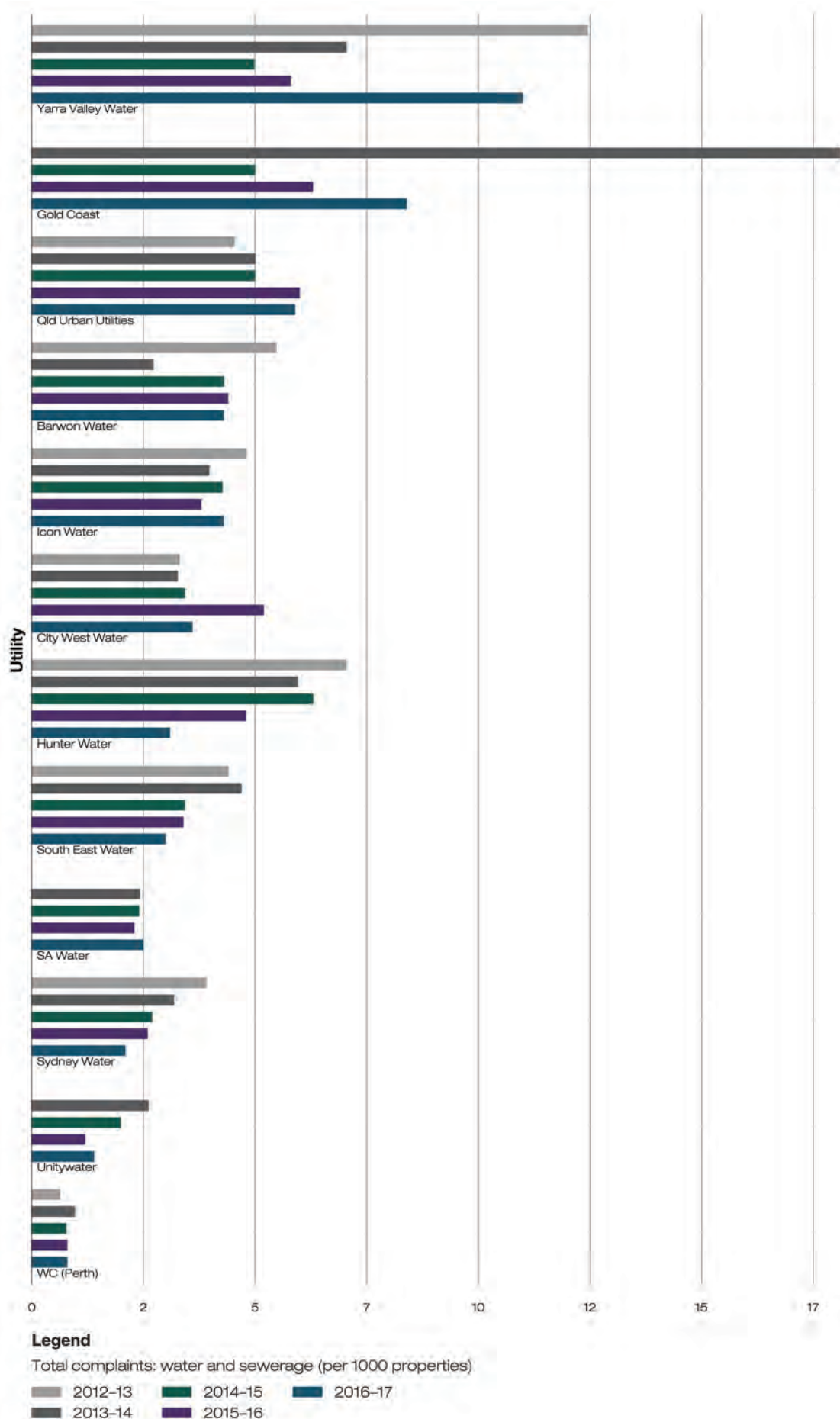


Figure 6.2 Total complaints: water and sewerage (per 1,000 properties)—Major utility group

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 effective ratio of customer service staff to customers
- the occurrence of severe events (e.g. storms or floods that result in a large increase of customer calls).

Percentage of calls answered by an operator within 30 seconds data for all utilities reporting in 2016–17 is in Table A12, Appendix A.

6.3.1 Key findings

A summary of data for the percentage of calls answered within 30 seconds, by utility group, is shown in Table 6.3. Nationally the median percentage of calls answered within 30 seconds remained consistent with 2015–16, decreasing 2 per cent from 2015–16 to 86 per cent in 2016–17. 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.

Table 6.3 Overview of results: Percentage of calls answered within 30 seconds (%)

Utility group	Range		No. utilities with increase/ decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	89	60	3	7	75	69	–8
	TasWater	Sydney Water					
Large	97	84	3	3	90	90	0
	Goulburn Valley Water	Gippsland Water					
Medium	99	50	2	6	98	94	–4
	East Gippsland Water	Tweed					
Small	100	40	4	2	69	79	14
	Westernport Water	Kempsey					
All utility groups (national)	100	40	12	18	88	86	–2
	Westernport Water	Kempsey					

Table note

Median percentage of calls answered by an operator within 30 seconds (%) is calculated for all utilities reporting data in both 2015–16 and 2016–17.

6.3.2 Results and analysis—Major utility group

A ranked breakdown of the percentage of calls answered by an operator within 30 seconds from 2012–13 to 2016–17 is shown in Figure 6.3.

The Major utility group reported an 8 per cent decrease in its median percentage of calls answered by an operator within 30 seconds in 2016–17. This result reflects an ongoing downward trend, as shown in Figure 6.3 for many utilities. The highest percentage of calls answered within 30 seconds, was reported by TasWater (89 per cent), and the lowest was reported by Sydney Water Corporation (60 per cent).

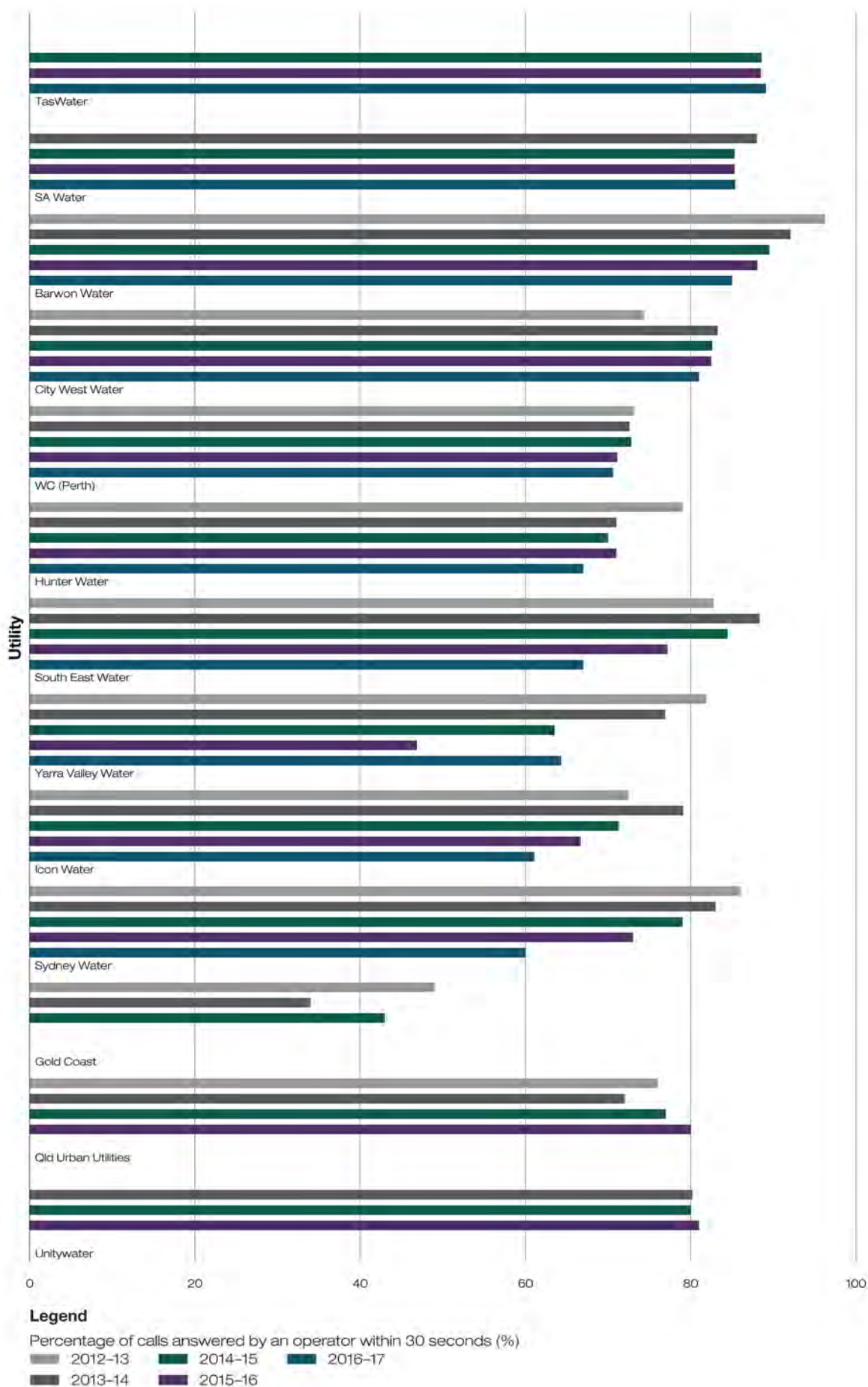


Figure 6.3 Percentage of calls answered by an operator within 30 seconds (%)—Major utility group

7 Asset

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

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

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

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

7.1.1 Key findings

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

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

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

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

Table note

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

¹⁸ Includes both potable and non-potable water mains

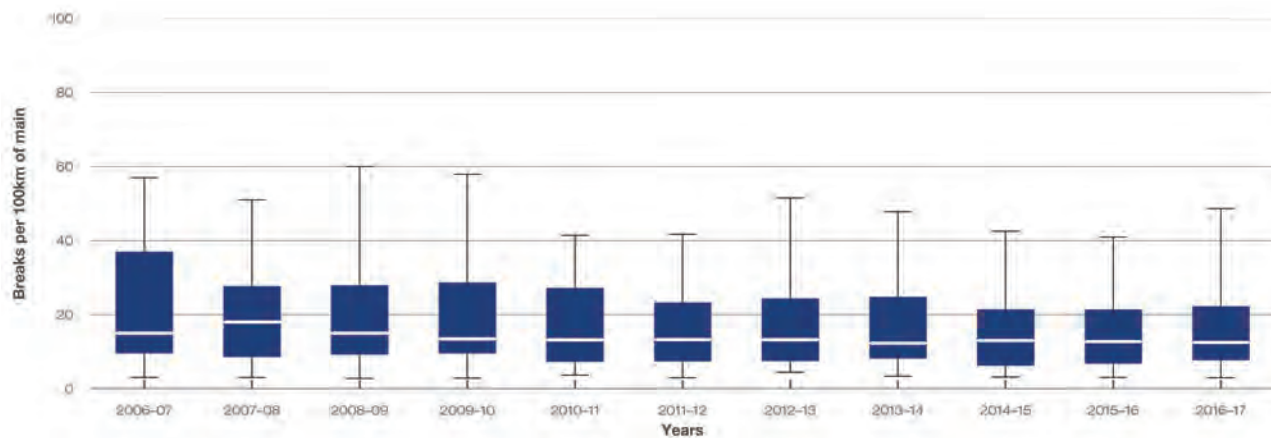


Figure 7.1 Water main breaks per 100 km of water main

7.1.2 Results and analysis—Major utility group

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

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

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

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

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

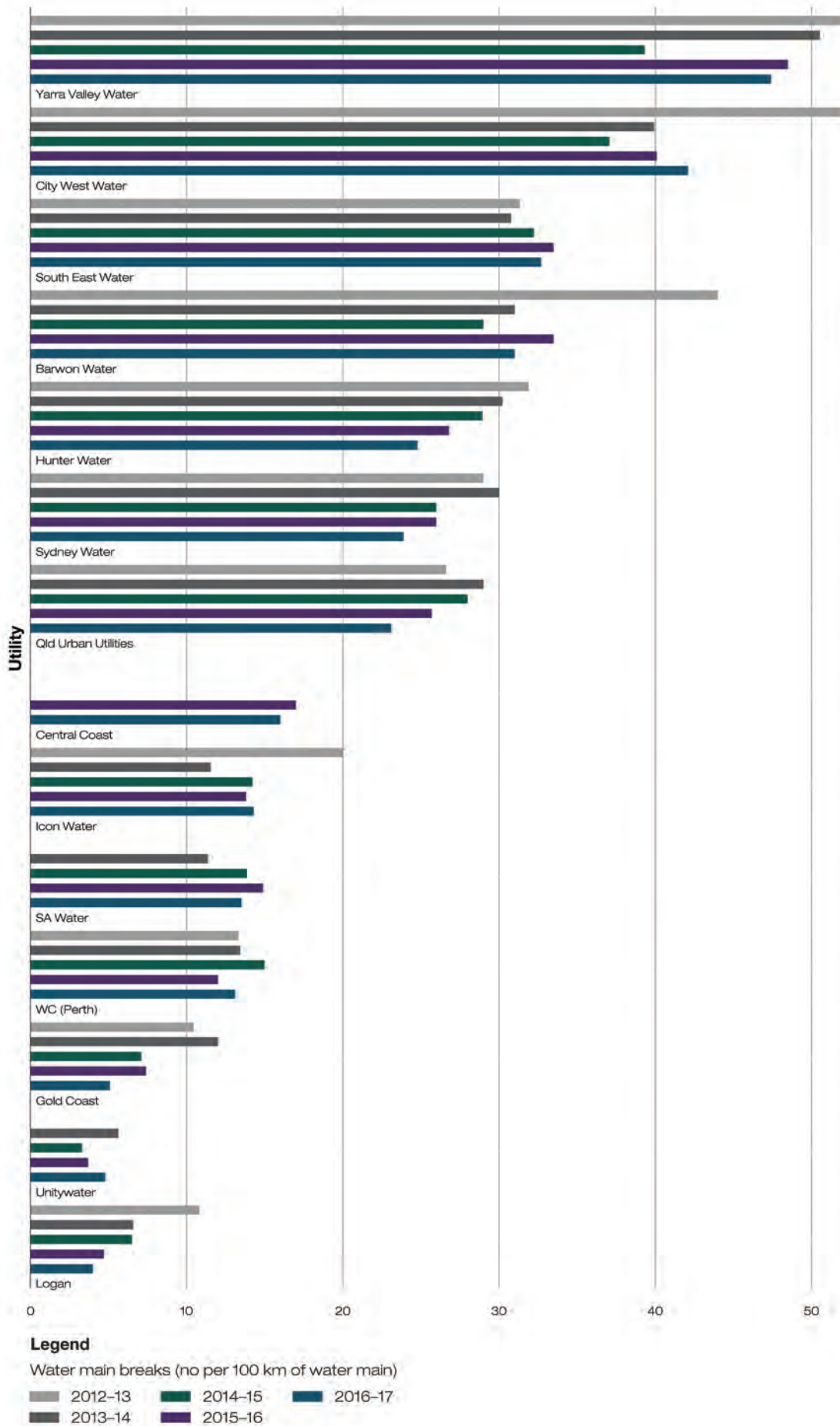


Figure 7.2 Water main breaks per 100 km of water main—Major utility group

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

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

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

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

7.2.1 Key findings

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

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

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

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

Table note

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

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

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

Table note

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

7.2.2 Results and analysis—Major utility group

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

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

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

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

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

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

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

²⁰ Apparent losses

²¹ For example water used for fire-fighting

²² For example water main breaks

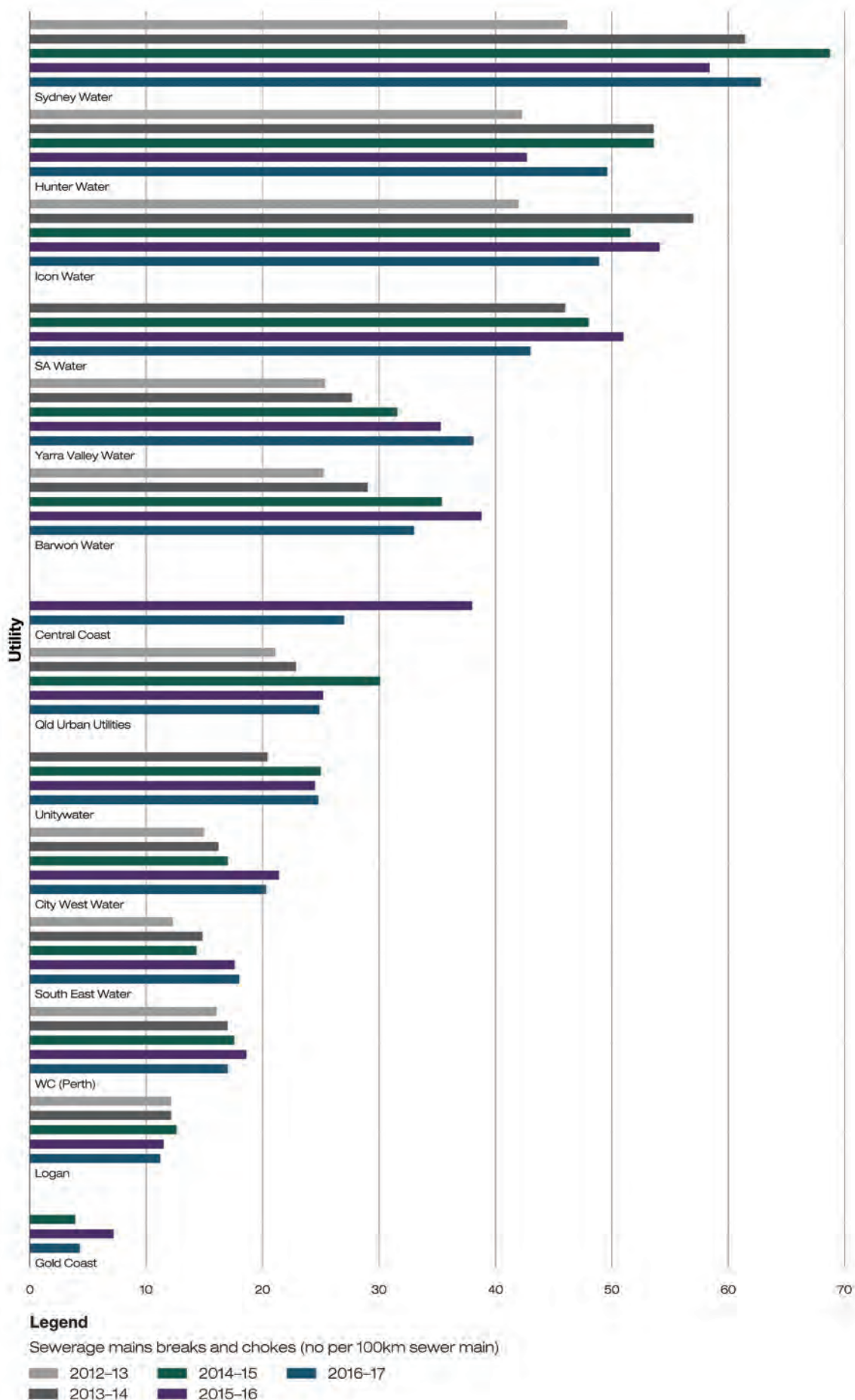


Figure 7.3 Sewerage mains breaks and chokes per 100 km of sewer main—Major utility group

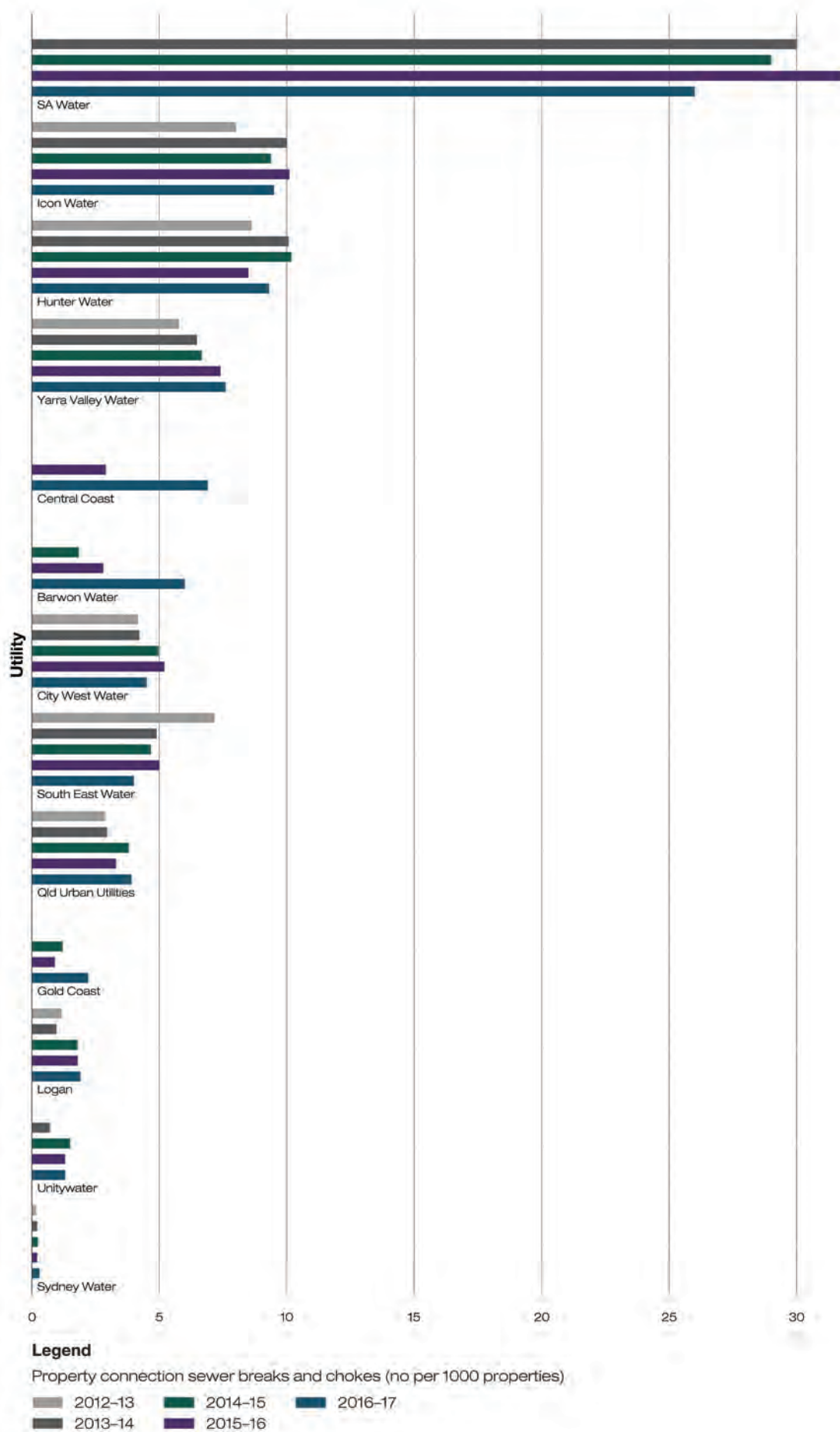


Figure 7.4 Property connection sewer breaks and chokes—Major utility group

7.3.1 Key findings

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

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

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

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

Table note

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

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

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

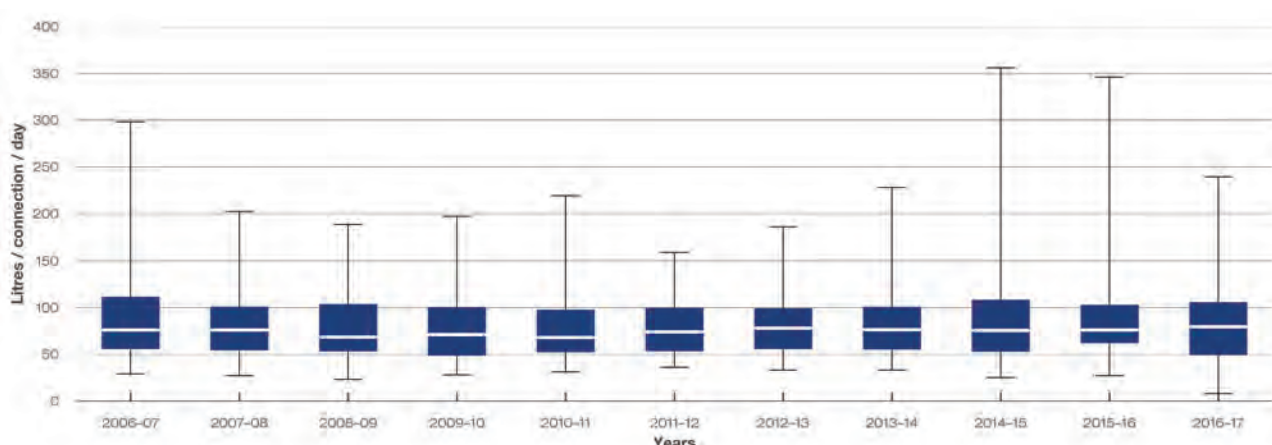


Figure 7.5 Real losses (L/service connection/day)

7.3.2 Results and analysis—Major utility group

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

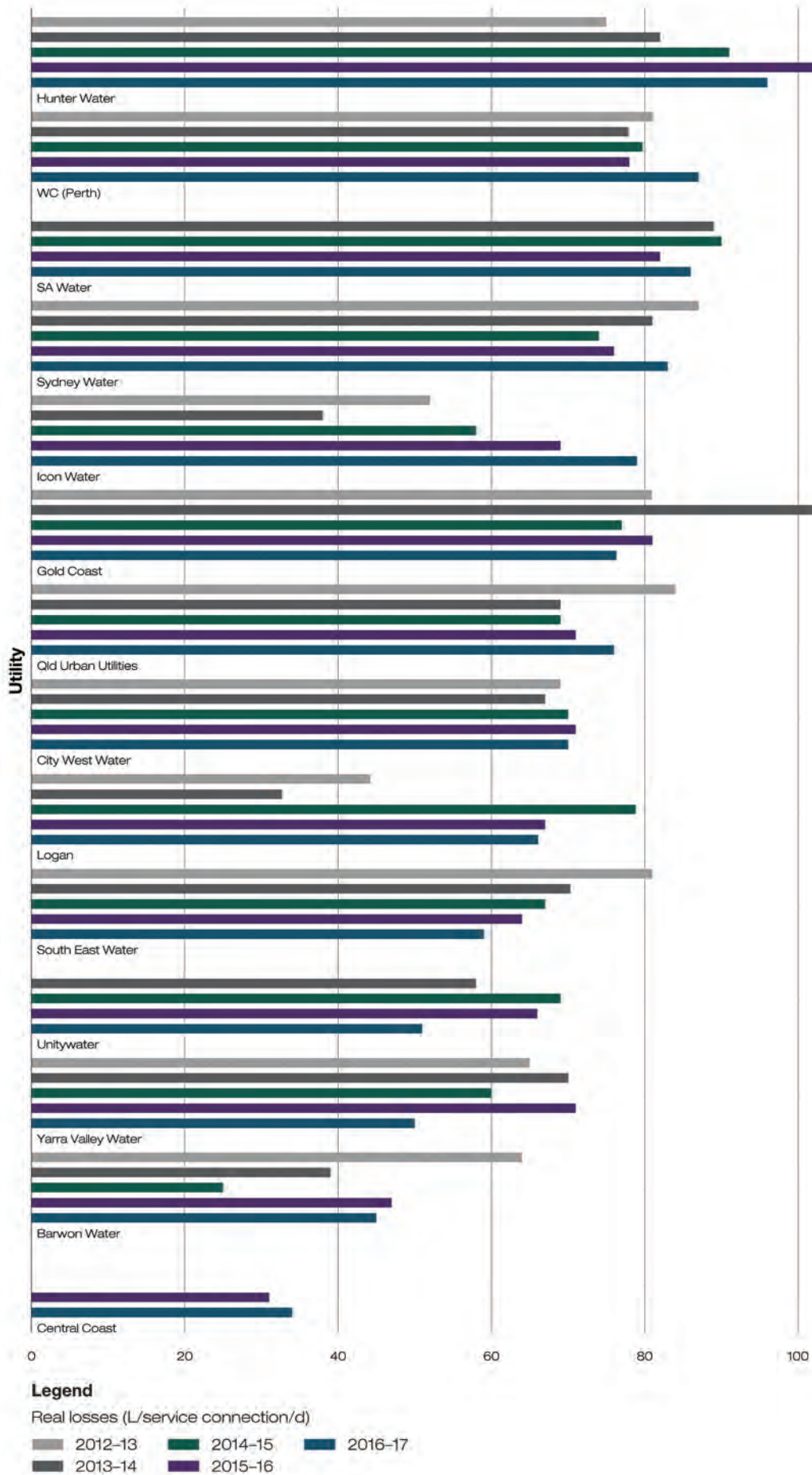


Figure 7.6 Real losses (L/service connection/day) – Major utility group

8 Environment

8.1 Total net greenhouse gas emissions—E12

This indicator reports the contribution of the utility's operations to greenhouse gas (GHG) emissions. Utilities' calculations are required to refer to the National Greenhouse Accounts Factors issued by the Department of the Environment and Energy and updated annually. GHG emissions are reported in net terms; that is, any quantity of carbon sequestered through activities such as the purchase of carbon offsets is deducted.

The National Greenhouse Accounts Factors 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 (CO₂ 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 (i.e. the impact of burning fuels such as coal or gas at the power station), and
- various emission factors (Scope 3), which include the impact of various activities, such as the 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 (i.e. influencing the need for pumping)
- number of large-volume customers
- extent of industry within the customer base
- the prevailing greenhouse policy in the jurisdiction
- the method of calculation.

Total net GHG emissions data for 2016–17 is 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 CO₂ equivalent per 1,000 properties

Utility group	Range		No. utilities with increase/decrease from 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	828	25	2	7	181	176	–3
	WC (Perth)	City West Water					
Large	750	179	1	6	770	454	–41
	North East Water	P&W (Darwin)					
Medium	675	200	9	6	423	422	0
	Wannon Water	Clarence Valley					
Small	761	138	5	10	416	381	–8
	Goulburn Mulwaree	Byron					
All utility groups (national)	828	25	17	29	409	388	–5
	WC (Perth)	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 2015–16 and 2016–17.

Nationally, across all utility groups, the median total net GHG emissions decreased by 5 per cent in 2016–17. This represents a 21 net tonnes of CO₂ equivalents per 1,000 properties reduction from 2015–16.

8.1.2 Results and analysis—Major utility group

The Major utility group reported a 3 per cent decrease in median net GHG emissions from 2015–16. The notable changes from 2015–16 include reductions in emissions by SA Water Corporation (32 per cent) and City West Water (21 per cent) and significant increases by Sydney Water Corporation (22 per cent).

The increase of net GHG emissions by Sydney Water Corporation resulted from the expiry of NSW Greenhouse Gas Abatement Certificates (NGACs) used to offset emissions.²³ In previous year's Sydney Water Corporation was able to surrender NGACs to offset its emissions.

SA Water Corporation's decrease in net greenhouse gas emissions is attributed to a combination of decreased electricity usage and emissions reduction initiatives. The decreased electricity usage was the result of decreased pumping requirements in the utility's network, driven by above-average rainfall. The above-average rainfall both decreased water usage in the system and increased the availability of surface water in the regions surface water storages. SA Water Corporation's initiatives to reduce greenhouse gas emissions include investment in energy efficiency, increased use of renewable energy (hydro and biogas), and carbon sequestration through bio-sequestration plantings.²⁴

City West Water's decrease in emissions is attributed to their investment in renewable energy generation and energy efficiency to reduce greenhouse gas emissions²⁵ with a target to reduce the GHG emissions by 80 per cent by the year 2025.

Water Corporation—Perth reported the highest net GHG emissions with 828 tonnes of CO₂ equivalents, which is an increase of 1 per cent from 2015–16, due to increased electricity consumption at their desalination plants resulting from higher production.

²³ Environment Compliance and Performance Report at sydneywater.com.au/reports, 2017

²⁴ South Australian Water Corporation Annual Report 2016–17.

²⁵ City West Water Annual Report 2017

9 Health

9.1 Percentage of population for which microbiological compliance was achieved—H3

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

Compliance is assessed against the *Australian Drinking Water Guidelines 2011*,²⁶ 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 2016–17 is 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 2016–17, nationwide and across all utility groups, most utilities achieved 100 per cent microbiological compliance with the exceptions of Wannon Water (99.9 per cent), TasWater (99.4 per cent), and Western 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 2015–16		Median		Change from 2015–16 %
	High	Low	Increase	Decrease	2015–16	2016–17	
Major	100	99.4	1	0	100	100	0
	Multiple utilities	TasWater					
Large	100	99.0	1	1	100	100	0
	Multiple utilities	Western Water					
Medium	100	99.9	0	1	100	100	0
	Multiple utilities	Wannon Water					
Small	100	100	0	0	100	100	0
	Multiple utilities	Multiple utilities					
All utility groups (national)	100	99.0	2	2	100	100	0
	Albury	Western Water					

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 for both 2015–16 and 2016–17.

²⁶ www.nhmrc.gov.au/guidelines/publications/eh52, updated October 2017

9.1.2 Results and analysis—Major utility group

TasWater identified remoteness, open catchments and ageing reticulation networks as contributing to its less than 100 per cent compliance. Permanent boil water alerts applied to 28 towns across Tasmania.

In November 2016, TasWater reported their Permanent Boil Water Alert (BWA) was lifted from Scamander after 10 years of alerts, making it the first in TasWater's 24 glasses project²⁷ and also lifted a Do Not Consume Notice in Whitemark.²⁸

TasWater continues its commitment to progress major water quality projects and programmes focusing on upgrade and development of infrastructure, to improve water quality. In 2016–17 TasWater conducted assessments across 70 drinking water catchments, which resulted in a 67 per cent reduction²⁹ in the number of *Escherichia coli* (E.coli) detections.

²⁷ www.24glasses.com.au

²⁸ TasWater Annual report 2016–17, page 8

²⁹ TasWater Annual report 2016–17, page 17

Appendix A Individual utility size group tables

- Tables A1 to A18 present a summary of key indicators by utility group for the period 2012–13 to 2016–17.
- Utilities are sorted in descending order based on their 2016–17 value within each utility 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, by utility size group (kL/property), 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
WC (Perth)	249	254	244	240	223	–7.1
Sydney Water	198	206	201	201	206	2.5
Icon Water	199	203	188	195	190	–2.6
TasWater			172	176	179	1.7
Hunter Water	176	181	168	166	172	3.6
Gold Coast	162	187	173	170	168	–1.2
SA Water		178	180	200	166	–17.0
Central Coast				155	161	3.9
Barwon Water	160	151	156	170	158	–7.1
Unitywater	163	164	159	157	157	0.0
Logan	140	157	157	151	154	2.0
Qld Urban Utilities	154	156	155	156	154	–1.3
South East Water	148	149	149	154	150	–2.6
Yarra Valley Water	156	153	150	156	148	–5.1
City West Water	150	145	148	150	147	–2.0
Median	161	164	164	166	161	
Mean	171	176	171	173	169	
Large						
P&W (Darwin)	454	407	409	405	361	–10.9
Cairns	258	243	263	244	251	2.9
Townsville	383	404	435	369	243	–34.1
Goulburn Valley Water	276	266	265	287	242	–15.7
North East Water	216	206	197	214	198	–7.5
Coliban Water	194	190	192	210	185	–11.9
Western Water	181	182	178	193	179	–7.3
Redland City			168	166	172	3.6
Gippsland Water	176	171	164	170	166	–2.4
Toowoomba	130	144	146	145	155	6.9
Central Highlands Water	150	150	149	163	150	–8.0
Median	205	198	192	210	185	
Mean	242	236	233	233	209	
Medium						
Lower Murray Water	479	450	475	504	428	–15.1
Fitzroy River Water	311	348	317	363	345	–5.0
Dubbo				322	300	–6.8
Riverina Water (W)	347	324	311	333	298	–10.5

Utility	2012-13	2013-14	2014-15	2015-16	2016-17	Change from 2015-16 %
Bundaberg			230	236	234	-0.8
Tamworth	261	287	188	251	230	-8.4
Gladstone			245	243	224	-7.8
WC (Mandurah)	239	241	238	234	221	-5.6
GWMWater	236	226	237	254	210	-17.3
Albury	255	232	205	223	204	-8.5
Fraser Coast	186	197	181	181	201	11.0
Tweed	177	184	178	165	178	7.9
Mackay	216	216	214	196	175	-10.7
Coffs Harbour	161	169	167	167	167	0.0
Clarence Valley	148	161	147	158	162	2.5
Port Macquarie Hastings	157	157	151	158	152	-3.8
Shoalhaven	149	148	143	150	151	0.7
Queanbeyan				163	150	-8.0
East Gippsland Water	158	151	140	146	148	1.4
MidCoast Council	143	150	142	139	143	2.9
Wannon Water	152	140	144	153	136	-11.1
South Gippsland Water	119	118	117	125	120	-4.0
Median	181	191	185	188	190	
Mean	216	217	209	221	208	
Small						
Central Highlands			632	520	445	-14.4
P&W (Alice Springs)	490	466	382	455	418	-8.1
WC (Geraldton)	327	321	306	306	298	-2.6
WC (Australind/Eaton)	338	337	329	315	288	-8.6
Livingstone			260	294	281	-4.4
WC (Kal-Boulder) (W)	335	306	320	295	279	-5.4
Busselton (W)	272	287	284	288	275	-4.5
Cassowary Coast			298	293	251	-14.3
Aqwest-Bunbury (W)	254	267	265	261	248	-5.0
Whitsunday			281	292	238	-18.5
Bathurst	260	227	225	235	231	-1.7
Ballina	177	194	181	168	192	14.3
Wingecarribee	186	200	178	186	190	2.2
WC (Albany)	179	188	188	178	175	-1.7
Orange	180	174	170	173	173	0.0
Gympie		215	300	182	170	-6.6
Southern Downs			210	145	158	9.0
Byron	176	181	180	169	157	-7.1
Goulburn Mulwaree	150	165	139	162	156	-3.7
Lismore	145	155	155	155	155	0.0
Bega Valley	139	134	137	135	150	11.1
Kempsey	156	157	155	149	141	-5.4
Eurobodalla	116	119	114	117	124	6.0
Westernport Water	80	80	80	77	84	9.1
Median	180	194	218	184	191	
Mean	220	220	240	231	220	

Table A2 W26—Total recycled water supplied, by utility size group (ML), 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Sydney Water	46,951	46,943	43,075	43,342	38,339	–11.5
SA Water		28,048	31,666	31,181	23,890	–23.4
WC (Perth)	10,272	10,029	9,354	10,212	9,568	–6.3
Gold Coast	7,307	8,931	7,269	9,241	8,256	–10.7
Barwon Water	4,790	5,008	10,157	6,187	5,541	–10.4
Hunter Water		4,895	4,600	5,373	5,384	0.2
Icon Water	4,416	4,372	4,352	4,053	4,404	8.7
Qld Urban Utilities	9,961	9,760	9,322	8,828	4,188	–52.6
Yarra Valley Water	2,687	3,134	3,817	3,905	4,107	5.2
South East Water	3,091	2,967	3,891	3,968	3,233	–18.5
City West Water	1,140	138	140	2,567	2,581	0.5
Unitywater	1,713	1,737	1,215	969	1,461	50.8
Logan	2,000	1,372	681	784	738	–5.9
Central Coast				895	724	–19.1
Median	4,416	4,895	4,600	4,713	4,296	
Mean	8,575	9,795	9,965	9,393	8,030	
Large						
Coliban Water	3,346	2,658	3,198	3,444	9,739	182.8
Western Water	4,880	5,701	5,747	8,956	9,073	1.3
Goulburn Valley Water	7,344	6,594	7,687	7,194	5,698	–20.8
Toowoomba	1,213	1,683	2,864	2,773	2,854	2.9
North East Water	2,203	1,895	2,561	2,590	2,391	–7.7
Cairns	2,101	2,300	2,212	2,278	2,184	–4.1
Gippsland Water	1,651	1,104	1,701	1,958	2,169	10.8
Townsville	3,166	2,740	2,877	1,606	1,719	7.0
Central Highlands Water	1,971	1,683	1,530	2,055	1,104	–46.3
P&W (Darwin)	499	347	492	80	541	576.2
Median	2,152	2,098	2,712	2,434	2,288	
Mean	2,837	2,670	3,087	3,293	3,747	
Medium						
Wagga Wagga (S)	5,543	5,523	5,620	5,679	5,923	4.3
Fraser Coast	4,061	4,794	3,830	4,933	4,893	–0.8
Albury	2,733	2,468	2,398	2,503	4,655	86.0
GWMWater	2,366	2,302	2,233	2,108	4,416	109.5
Tamworth	3,595	4,128	4,278	4,071	4,188	2.9
Lower Murray Water	2,491	3,202	3,855	2,791	3,759	34.7
East Gippsland Water	2,959	2,902	2,754	3,172	2,933	–7.5
Gladstone			3,521	3,572	2,899	–18.8
Mackay	8,314	4,412	5,076	4,967	2,602	–47.6
Dubbo				2,599	2,327	–10.5
Wannon Water	1,490	1,251	1,979	1,725	1,656	–4.0
Shoalhaven	1,992	2,352	1,705	1,551	1,576	1.6
Coffs Harbour	801	1,436	1,013	1,113	1,229	10.4
MidCoast Council	848	1,439	1,327	944	1,033	9.4
Tweed	431	604	551	695	824	18.6

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Fitzroy River Water	1,807	681	696	682	801	17.4
Port Macquarie Hastings	242	363	386	340	481	41.5
Bundaberg			642	758	452	–40.4
Clarence Valley	128	176	195	385	329	–14.5
WC (Mandurah)	104	119	131	137	168	22.6
Queanbeyan				100	158	58.0
South Gippsland Water	168	108	146	221	136	–38.5
Riverina Water (W)	0			0	0	
Median	1,807	1,871	1,842	1,551	1,576	
Mean	2,109	2,126	2,117	1,959	2,063	
Small						
WC (Albany)	2,051	2,114	2,009	2,131	2,145	0.7
Goulburn Mulwaree	1,567	1,593	1,806	1,730	1,843	6.5
Central Highlands				1,753	1,619	–7.6
Southern Downs			1,545	1,538	1,524	–0.9
WC (Australind/Eaton)	1,350	1,378	1,433	1,469	1,181	–19.6
P&W (Alice Springs)	1,034	835	910	1,121	1,078	–3.8
Kal-Boulder (S)	1,793	1,410	1,607	1,449	946	–34.7
Orange	1,681	2,947	2,826	2,051	786	–61.7
Livingstone			458	0	786	
Essential Energy	629	709	776	669	704	5.2
Ballina	132	273	517	500	701	40.2
Byron	596	478	444	367	661	80.1
Bega Valley	680	626	446	401	535	33.4
Whitsunday			727	667	460	–31.0
Westernport Water	238	273	261	295	299	1.4
WC (Busselton) (S)	261	245	230	225	221	–1.8
WC (Geraldton)	235	237	227	216	220	1.9
Wingecarribee	98	124	163	232	187	–19.4
Eurobodalla	189	216	243	195	186	–4.6
Kempsey	10	110	77	96	123	28.1
Gympie		1,243	549	160	118	–26.2
WC (Bunbury) (S)	110	148	102	109	114	4.6
Lismore	0	34	5	5	8	60.0
Cassowary Coast				0	0	
Bathurst	4,788	3,942	3,712	0	0	
Aqwest-Bunbury (W)				0	0	
Median	596	552	517	331	498	
Mean	918	947	916	668	632	

Table A3 P8—Typical annual bill, by utility size group (\$), 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Logan	1,389	1,284	1,630	1,571	1,586	1.0
Gold Coast	1,526	1,591	1,641	1,597	1,577	–1.3
Unitywater	1,424	1,495	1,533	1,517	1,508	–0.6
WC (Perth)	1,299	1,350	1,377	1,393	1,386	–0.5
Qld Urban Utilities	1,156	1,172	1,226	1,236	1,242	0.5
SA Water		1,320	1,339	1,364	1,142	–16.3
Icon Water	1,265	1,153	1,131	1,152	1,136	–1.4
TasWater				1,081	1,103	2.0
Sydney Water	1,197	1,198	1,192	1,189	1,085	–8.7
Hunter Water	1,051	1,057	1,040	1,036	1,056	1.9
Yarra Valley Water	1,030	1,211	1,064	1,098	1,031	–6.1
South East Water	922	1,124	996	1,040	1,018	–2.1
Barwon Water	1,148	1,106	1,062	1,045	988	–5.5
City West Water	876	1,049	934	960	933	–2.8
Median	1,176	1,198	1,192	1,170	1,120	
Mean	1,190	1,239	1,243	1,234	1,199	
Large						
P&W (Darwin)	1,914	1,872	1,930	1,914	1,796	–6.2
Redland City			1,433	1,496	1,517	1.4
Townsville	1,489	1,545	1,533	1,524	1,498	–1.7
Toowoomba	1,239	1,367	1,353	1,351	1,384	2.4
Coliban Water	1,146	1,294	1,323	1,367	1,332	–2.6
Cairns	1,293	1,292	1,316	1,259	1,303	3.5
Gippsland Water	1,358	1,303	1,278	1,271	1,295	1.9
Central Highlands Water	1,259	1,277	1,222	1,247	1,208	–3.1
Western Water	1,052	1,076	994	1,056	956	–9.5
Goulburn Valley Water	931	911	919	941	884	–6.1
North East Water	993	956	869	899	860	–4.3
Median	1,249	1,293	1,316	1,271	1,303	
Mean	1,267	1,289	1,288	1,302	1,276	
Medium						
Fraser Coast	1,472	1,529	1,533	1,550	1,602	3.4
WC (Mandurah)	1,363	1,399	1,449	1,552	1,554	0.1
Gladstone			1,341	1,601	1,513	–5.5
Bundaberg			1,747	1,499	1,415	–5.6
Mackay	1,459	1,579	1,502	1,450	1,377	–5.0
GWMWater	1,305	1,324	1,357	1,383	1,296	–6.3
Fitzroy River Water	1,083	1,160	1,171	1,219	1,222	0.2
East Gippsland Water	1,223	1,170	1,136	1,151	1,189	3.3
Wannon Water	1,254	1,195	1,135	1,143	1,069	–6.5
South Gippsland Water	1,081	1,041	987	987	957	–3.0
Lower Murray Water	896	914	950	975	906	–7.1
Median	1,254	1,195	1,341	1,383	1,296	
Mean	1,237	1,257	1,301	1,319	1,282	

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Small						
P&W (Alice Springs)	1,983	1,985	1,970	2,004	1,907	–4.8
WC (Geraldton)	1,536	1,582	1,621	1,718	1,746	1.6
Central Highlands			2,086	1,901	1,730	–9.0
WC (Australind/Eaton)	1,612	1,657	1,709	1,715	1,703	–0.7
Livingstone			1,591	1,557	1,699	9.1
Whitsunday			1,642	1,633	1,633	0.0
Cassowary Coast			1,561	1,613	1,603	–0.6
WC (Albany)	1,307	1,367	1,424	1,523	1,565	2.8
Gympie		1,219	1,411	1,241	1,492	20.2
Southern Downs			1,386	1,482	1,483	0.1
Westernport Water	1,123	1,116	1,105	1,098	1,110	1.1
Median	1,536	1,474	1,591	1,613	1,633	
Mean	1,512	1,488	1,591	1,590	1,606	

Table A4 P7—Annual bill based on 200 kL, by utility size group (\$), 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Logan	1,601	1,738	1,802	1,753	1,759	0.3
Gold Coast	1,664	1,694	1,750	1,720	1,703	–1.0
Unitywater	1,516	1,625	1,689	1,682	1,676	–0.4
Qld Urban Utilities	1,312	1,329	1,394	1,409	1,418	0.6
WC (Perth)	1,206	1,246	1,290	1,311	1,338	2.1
Yarra Valley Water	1,191	1,433	1,292	1,301	1,260	–3.2
SA Water		1,394	1,408	1,365	1,253	–8.2
South East Water	1,100	1,354	1,220	1,246	1,219	–2.2
Icon Water	1,278	1,156	1,171	1,164	1,152	–1.0
City West Water	1,038	1,272	1,143	1,168	1,147	–1.8
TasWater				1,105	1,125	1.8
Hunter Water	1,105	1,100	1,113	1,113	1,119	0.5
Barwon Water	1,243	1,221	1,164	1,113	1,084	–2.6
Sydney Water	1,202	1,185	1,189	1,187	1,074	–9.5
Median	1,224	1,329	1,290	1,274	1,236	
Mean	1,288	1,365	1,356	1,331	1,309	
Large						
Redland City			1,433	1,515	1,530	1.0
Townsville	1,489	1,545	1,533	1,524	1,498	–1.7
Toowoomba	1,489	1,500	1,475	1,475	1,490	1.0
P&W (Darwin)	1,442	1,476	1,521	1,513	1,487	–1.7
Coliban Water	1,160	1,317	1,347	1,344	1,366	1.6
Gippsland Water	1,408	1,361	1,350	1,330	1,362	2.4
Central Highlands Water	1,354	1,353	1,326	1,321	1,308	–1.0
Cairns	1,228	1,243	1,244	1,246	1,244	–0.2
Western Water	1,088	1,111	1,038	1,070	987	–7.8
North East Water	953	941	876	870	864	–0.7
Goulburn Valley Water	843	836	843	840	835	–0.6
Median	1,291	1,335	1,347	1,330	1,362	
Mean	1,245	1,268	1,271	1,277	1,270	
Medium						
Fraser Coast	1,525	1,524	1,565	1,613	1,603	–0.6
WC (Mandurah)	1,290	1,319	1,373	1,482	1,510	1.9
Gladstone			1,258	1,473	1,468	–0.3
Mackay	1,410	1,439	1,456	1,436	1,412	–1.7
Bundaberg			1,301	1,345	1,384	2.9
East Gippsland Water	1,296	1,266	1,258	1,262	1,298	2.9
GWMWater	1,245	1,279	1,295	1,290	1,289	–0.1
Wannon Water	1,357	1,321	1,254	1,243	1,201	–3.4
Fitzroy River Water	1,002	1,028	1,073	1,082	1,101	1.8
South Gippsland Water	1,224	1,184	1,135	1,119	1,100	–1.7
Lower Murray Water	735	746	758	760	755	–0.7
Median	1,290	1,279	1,258	1,290	1,298	
Mean	1,232	1,234	1,248	1,282	1,284	

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Small						
WC (Albany)	1,346	1,390	1,448	1,568	1,618	3.2
Cassowary Coast			1,497	1,545	1,562	1.1
Southern Downs			1,429	1,540	1,555	1.0
WC (Geraldton)	1,288	1,344	1,408	1,498	1,537	2.6
WC (Australind/Eaton)	1,340	1,384	1,445	1,475	1,517	2.8
Livingstone			1,402	1,457	1,503	3.2
P&W (Alice Springs)	1,442	1,476	1,521	1,513	1,487	-1.7
Whitsunday			1,484	1,480	1,484	0.3
Western Downs			1,140	1,182	1,362	15.2
Westernport Water	1,345	1,348	1,341	1,339	1,358	1.4
Gympie		1,175	1,268	1,285	1,300	1.2
Central Highlands			1,322	1,328	1,296	-2.4
Median	1,345	1,366	1,418	1,478	1,495	
Mean	1,352	1,353	1,392	1,434	1,465	

Table A5 F16—Total capital expenditure: water and sewerage (\$000s), by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Sydney Water	716,730	615,133	647,247	659,252	631,598	–4.2
WC (Perth)	520,249	270,738	362,680	298,905	435,126	45.6
SA Water		278,740	221,006	279,867	297,655	6.4
Yarra Valley Water	237,859	206,634	179,107	266,048	233,876	–12.1
Qld Urban Utilities	285,600	204,905	196,437	204,499	193,454	–5.4
South East Water	182,520	222,914	228,871	147,031	165,932	12.9
Unitywater	156,142	148,193	87,078	88,702	116,437	31.3
TasWater		77,780	105,671	130,845	103,677	–20.8
Icon Water	147,791	61,250	50,460	85,120	91,820	7.9
City West Water	163,190	89,510	61,424	72,330	89,378	23.6
Barwon Water	165,968	92,526	65,473	81,260	83,292	2.5
Hunter Water	94,500	114,218	79,806	89,889	77,364	–13.9
Gold Coast	63,862	46,059	37,004	52,388	70,929	35.4
Logan	73,366	61,563	76,965	46,776	60,373	29.1
Median	164,579	131,206	96,374	110,367	110,057	
Mean	233,981	177,869	171,374	178,779	189,351	
Large						
Western Water	17,557	27,429	27,178	15,994	69,515	334.6
Townsville	43,832	25,909	48,504	52,907	51,223	–3.2
Goulburn Valley Water	19,593	23,303	31,447	31,019	33,467	7.9
Cairns	30,480	37,722	30,143	17,710	33,019	86.4
Gippsland Water	55,703	47,149	49,181	32,716	30,751	–6.0
Toowoomba	46,458	20,706	26,834	39,807	28,745	–27.8
P&W (Darwin)	66,789	26,401		49,378	22,244	–55.0
Coliban Water	44,362	43,397	20,437	34,373	22,200	–35.4
Central Highlands Water	15,018	14,788	15,738	18,052	18,825	4.3
Redland City			15,921	18,676	14,834	–20.6
North East Water	38,250	20,271	10,105	13,930	8,811	–36.7
Median	41,041	26,155	27,006	31,019	28,745	
Mean	37,804	28,708	27,549	29,506	30,330	
Medium						
Shoalhaven	22,576	24,830	23,333	22,078	59,307	168.6
Bundaberg			22,455	15,893	31,776	99.9
Port Macquarie Hastings	14,569	9,341	16,357	19,226	26,251	36.5
Gladstone			10,396	12,870	22,468	74.6
Fraser Coast	19,032	18,569	11,748	18,216	21,423	17.6
WC (Mandurah)	31,699	29,986	22,319	14,284	21,272	48.9
Wannon Water	23,089	15,537	13,131	14,556	18,419	26.5
Fitzroy River Water	24,527	23,348	16,337	19,162	16,360	–14.6
Tamworth	13,639	21,638	9,315	5,784	15,528	168.5
East Gippsland Water	6,975	10,372	7,842	7,371	11,130	51.0
Mackay	49,482	49,384	27,159	16,340	11,048	–32.4
Albury	6,232	6,025	4,259	8,578	9,190	7.1
Tweed	14,310	13,718	7,215	8,602	6,853	–20.3
GWMWater	14,822	16,651	11,163	6,533	6,704	2.6
Coffs Harbour	9,137	10,809	14,409	5,552	5,391	–2.9
South Gippsland Water	7,914	10,323	12,523	8,223	5,342	–35.0
Lower Murray Water	9,871	10,055	8,001	9,817	4,956	–49.5
Clarence Valley	12,647	11,375	26,298	18,775	3,445	–81.7

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Median	14,440	14,628	12,827	13,577	13,329	
Mean	17,533	17,623	14,681	12,881	16,492	
Small						
Eurobodalla	7,138	7,071	6,712	13,389	16,184	20.9
Western Downs			17,381	11,467	16,008	39.6
Wingecarribee	14,843	3,060	6,119	6,098	15,561	155.2
Bathurst	7,167	6,944	13,420	7,777	14,577	87.4
WC (Albany)	6,365	8,421	5,015	9,874	13,479	36.5
Lismore	9,475	5,187	6,124	8,455	11,093	31.2
WC (Geraldton)	13,588	8,617	13,591	11,296	9,796	-13.3
Kempsey	7,290	6,825	7,200	6,473	8,701	34.4
Cassowary Coast			5,863	7,500	8,137	8.5
WC (Australind/Eaton)	7,301	3,564	4,776	6,736	6,716	-0.3
P&W (Alice Springs)	12,301	10,165		5,239	6,632	26.6
Whitsunday			746	5,285	6,569	24.3
Westernport Water	13,705	3,580	4,872	4,268	5,813	36.2
Essential Energy	5,753	4,305	6,498	14,678	5,592	-61.9
Livingstone				1,762	5,524	213.5
Central Highlands			28,054	898	5,348	495.5
Gympie		6,773	5,573	9,163	5,091	-44.4
Ballina	29,783	11,426	8,476	4,705	3,619	-23.1
Southern Downs			3,333	2,592	3,574	37.9
Byron	2,641	2,046	1,234	4,073	2,632	-35.4
Bega Valley	4,644	8,564	8,409	5,541	2,313	-58.3
Median	7,296	6,825	6,124	6,473	6,632	
Mean	10,142	6,437	8,073	7,013	8,236	

Table A6 F28—Capital expenditure: water (\$/property), by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Barwon Water	917	499	227	245	369	50.6
TasWater			259	353	322	–8.8
WC (Perth)	523	183	201	197	294	49.2
Logan	105	162	196	183	211	15.3
Icon Water	750	272	158	242	175	–27.7
City West Water	344	151	112	118	139	17.8
Unitywater	115	114	113	115	127	10.4
Hunter Water	134	339	158	127	121	–4.7
Sydney Water	144	111	82	119	120	0.8
Qld Urban Utilities	120	119	133	128	115	–10.2
SA Water		233	155	202	107	–47.0
Yarra Valley Water	161	104	91	105	98	–6.7
Gold Coast	89	61	64	47	63	34.0
South East Water	76	67	69	45	46	2.2
Median	139	151	144	128	124	
Mean	290	186	144	159	165	
Large						
Western Water	98	183	200	79	430	444.3
Townsville	317	101	327	461	374	–18.9
Goulburn Valley Water	193	232	439	272	350	28.7
Cairns	165	275	216	54	257	375.9
P&W (Darwin)	478	256		628	233	–62.9
Coliban Water	512	429	120	195	203	4.1
Toowoomba	119	220	199	168	199	18.5
Gippsland Water	225	152	151	199	194	–2.5
Central Highlands Water	63	116	131	143	173	21.0
North East Water	316	230	136	199	129	–35.2
Redland City			26	12	21	75.0
Median	209	225	175	195	203	
Mean	249	219	194	219	233	
Medium						
Fraser Coast	390	298	265	355	438	23.4
Gladstone			140	210	388	84.8
Tamworth	527	536	314	187	371	98.4
Shoalhaven	98	237	224	284	350	23.2
Port Macquarie Hastings	220	85	335	209	329	57.4
Fitzroy River Water	355	384	301	369	288	–22.0
Albury	157	108	91	110	249	126.4
Wannon Water	130	169	151	228	243	6.6
East Gippsland Water	156	225	115	111	235	111.7
South Gippsland Water	166	100	138	84	174	107.1
WC (Mandurah)	515	260	176	132	129	–2.3
Mackay	552	349	449	166	119	–28.3
Tweed	179	284	63	99	116	17.2
GWMWater	324	455	184	135	98	–27.4
Bundaberg			91	107	95	–11.2
Clarence Valley	122	106	93	159	93	–41.5
Lower Murray Water	157	179	169	249	80	–67.9
Coffs Harbour	148	70	55	49	50	2.0

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Median	172	231	160	162	204	
Mean	262	240	186	180	214	
Small						
Western Downs			635	324	1391	329.3
Bathurst	189	244	488	334	655	96.1
Cassowary Coast			315	363	458	26.2
WC (Albany)	172	171	217	319	414	29.8
Kempsey	385	424	442	326	310	-4.9
P&W (Alice Springs)	556	368		282	305	8.2
Wingecarribee	139	41	151	114	288	152.6
Southern Downs			284	172	283	64.5
WC (Australind/Eaton)	89	106	221	177	273	54.2
WC (Geraldton)	623	265	505	403	251	-37.7
Lismore	150	168	90	321	248	-22.7
Whitsunday			2	151	212	40.4
Westernport Water	844	109	47	88	182	106.8
Central Highlands			2372	35	167	377.1
Livingstone				85	161	89.4
Eurobodalla	147	124	135	152	157	3.3
Gympie		156	163	214	143	-33.2
Bega Valley	150	190	292	264	111	-58.0
Ballina	123	155	222	110	83	-24.5
Byron	95	40	32	247	51	-79.4
Median	150	162	222	230	250	
Mean	282	183	367	224	307	

Table A7 F29—Capital expenditure: Sewerage, by utility size group, (\$/property), 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Logan	689	484	591	274	364	32.8
Icon Water	187	107	147	262	356	35.9
SA Water		176	173	207	355	71.5
Unitywater	481	441	201	197	273	38.6
WC (Perth)	173	178	274	180	243	35.0
Gold Coast	190	142	96	172	229	33.1
Qld Urban Utilities	418	259	223	238	217	–8.8
Yarra Valley Water	179	187	156	257	217	–15.6
Sydney Water	251	228	269	234	212	–9.4
TasWater			305	334	210	–37.1
Hunter Water	286	153	185	256	203	–20.7
Barwon Water	275	155	239	325	191	–41.2
South East Water	202	265	265	164	184	12.2
City West Water	76	72	36	51	63	23.5
Median	226	178	212	236	217	
Mean	284	219	226	225	237	
Large						
Western Water	245	333	295	207	760	267.1
Toowoomba	880	174	325	629	346	–45.0
Gippsland Water	730	649	669	317	283	–10.7
Townsville	267	250	298	194	266	37.1
Goulburn Valley Water	184	210	133	308	259	–15.9
Redland City			282	353	255	–27.8
Cairns	235	271	219	194	216	11.3
P&W (Darwin)	840	246		216	149	–31.0
Central Highlands Water	204	130	125	147	120	–18.4
Coliban Water	141	204	181	303	106	–65.0
North East Water	555	212	78	90	51	–43.3
Median	256	229	250	216	255	
Mean	428	268	260	269	256	
Medium						
Bundaberg			795	518	1103	112.9
Shoalhaven	437	326	304	204	992	386.3
Gladstone			327	343	595	73.5
Port Macquarie Hastings	294	248	222	457	538	17.7
WC (Mandurah)	275	510	378	205	374	82.4
Tamworth	128	524	127	83	342	312.0
East Gippsland Water	189	281	273	247	286	15.8
Fitzroy River Water	263	402	234	250	239	–4.4
Wannon Water	505	238	189	134	220	64.2
Coffs Harbour	235	385	550	182	173	–4.9
Fraser Coast	198	251	74	172	168	–2.3
Mackay	690	890	204	218	149	–31.7
GWMWater	188	95	211	87	137	57.5
Albury	118	158	80	239	107	–55.2
South Gippsland Water	287	505	579	381	105	–72.4
Tweed	289	154	169	173	97	–43.9
Clarence Valley	686	622	1653	1041	97	–90.7
Lower Murray Water	172	150	85	54	78	44.4

Utility	2012-13	2013-14	2014-15	2015-16	2016-17	Change from 2015-16 %
Median	269	304	228	212	196	
Mean	310	359	359	277	322	
Small						
Eurobodalla	239	258	225	565	707	25.1
Wingecarribee	833	146	205	239	595	149.0
Lismore	580	218	378	308	587	90.6
WC (Albany)	328	496	134	393	549	39.7
Kempsey	262	157	171	262	514	96.2
WC (Geraldton)	207	319	342	299	402	34.4
Cassowary Coast			301	465	360	-22.6
Central Highlands			43	51	347	580.4
WC (Australind/Eaton)	768	279	252	507	343	-32.3
Livingstone				61	339	455.7
Gympie		416	293	508	293	-42.3
Whitsunday			62	214	289	35.0
P&W (Alice Springs)	555	552		156	253	62.2
Bathurst	284	203	363	150	237	58.0
Westernport Water	40	130	289	198	193	-2.5
Byron	153	152	82	114	191	67.5
Ballina	2042	655	375	211	159	-24.6
Bega Valley	206	478	344	141	58	-58.9
Southern Downs			14	70	43	-38.6
Western Downs			1093	858	21	-97.6
Median	284	268	270	226	316	
Mean	500	318	276	288	324	

Table A8 F13—Combined operating cost: water and sewerage (\$/property), by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Gold Coast	1,042	1,137	1,185	1,147	1,164	1.5
Qld Urban Utilities	1,064	1,168	1,170	1,167	1,146	–1.8
City West Water	942	1,244	1,113	1,145	1,081	–5.6
Logan	1,019	1,097	1,113	1,072	1,013	–5.5
Unitywater	965	1,011	1,004	1,004	996	–0.8
TasWater			916	955	986	3.2
Icon Water	835	776	787	933	971	4.1
Yarra Valley Water	739	983		942	864	–8.3
South East Water	746	1,014	889	931	854	–8.2
Sydney Water	708	697	685	701	673	–4.0
SA Water		730	681	709	650	–8.3
Barwon Water	642	659	615	601	640	6.4
WC (Perth)	597	614	597	607	587	–3.3
Hunter Water	637	597	642	594	574	–3.4
Median	790	983	889	937	917	
Mean	828	902	877	893	871	
Large						
Gippsland Water	1,351	1,263	1,231	1,188	1,143	–3.8
Townsville	779	1,085	1,025	1,006	1,010	0.4
P&W (Darwin)	1,182	1,054		1,141	962	–15.7
Goulburn Valley Water	842	829	826	860	888	3.2
North East Water	791	834	828	847	880	3.8
Western Water	1,267	867	715	939	870	–7.3
Central Highlands Water	879	833	786	815	839	3.0
Redland City			889	891	816	–8.4
Coliban Water	820	821	794	836	795	–4.9
Cairns	710	712	693	660	660	0.0
Toowoomba	553	667	1,200	702	608	–13.3
Median	831	834	827	860	870	
Mean	917	896	899	899	861	
Medium						
East Gippsland Water	462	977	845	927	1,039	12.1
Gladstone			2,433	1,444	1,028	–28.8
GWMWater	937	983	956	1,007	959	–4.8
Clarence Valley	974	919	876	820	945	15.3
Tweed	957	974	972	950	944	–0.6
Coffs Harbour	1,047	1,055	1,046	988	942	–4.6
Wannon Water	1,031	1,008	1,008	972	923	–5.1
Fraser Coast	430	915	865	894	919	2.8
South Gippsland Water	1,121	1,075	1,089	1,137	917	–19.4
Tamworth	1,019	1,056	971	932	900	–3.4
Mackay	1,360	1,547	1,308	1,124	896	–20.3
Port Macquarie Hastings	892	923	905	889	829	–6.8
Lower Murray Water	642	632	673	677	797	17.7
Shoalhaven	804	789	800	757	738	–2.5
Bundaberg			789	792	667	–15.9
Fitzroy River Water	681	591	725	672	643	–4.4
Albury	824	771	691	686	642	–6.3
WC (Mandurah)	572	600	565	666	590	–11.4

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Median	915	949	891	910	908	
Mean	860	926	973	907	851	
Small						
Livingstone				1,199	1,749	45.8
Byron	1,308	1,315	1,323	1,274	1,318	3.4
P&W (Alice Springs)	2,167	1,782		1,818	1,271	-30.1
Bega Valley	1,323	1,301	1,321	1,473	1,207	-18.1
Ballina	1,400	1,348	1,332	1,254	1,187	-5.4
Central Highlands			1,704	1,561	1,135	-27.3
Whitsunday			1,240	1,240	1,128	-9.0
Bathurst	1,005	994	1,010	1,064	1,123	5.5
Lismore	1,147	1,135	1,099	1,136	1,108	-2.4
Eurobodalla	985	1,035	932	977	987	1.0
Westernport Water	711	3,707	458	976	962	-1.5
Western Downs			1,146	1,239	850	-31.4
Kempsey	1,112	1,074	1,072	1,036	822	-20.7
Orange	744	793	771	759	799	5.3
Southern Downs			1,525	1,397	776	-44.4
Wingecarribee	833	950	835	824	776	-5.8
WC (Australind/Eaton)	1,077	809	970	855	764	-10.7
WC (Albany)	753	698	681	773	701	-9.3
WC (Geraldton)	778	720	706	652	595	-8.7
Cassowary Coast			954	1,004	568	-43.4
Gympie		920	295	698	401	-42.5
Median	1,041	1,035	1,010	1,064	962	
Mean	1,096	1,239	1,020	1,105	963	

Table A9 F8—Revenue from community service obligations (%), by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
SA Water	7.4	9.7	9.4	9.1	10.5	15.4
WC (Perth)	7.9	7.9	6.2	6.2	6.5	4.8
Sydney Water	6.3	6	6	5.9	5.5	–6.8
Yarra Valley Water	6.1	4.8	5.3	5	5.2	4.0
Barwon Water	4.6	5	4.8	4.7	4.9	4.3
South East Water	5.7	4.6	4.9	4.4	4.6	4.5
Hunter Water	4.7	4.6	4.6	4.4	4.5	2.3
City West Water	4.3	3.6	3.9	3.5	3.3	–5.7
Icon Water	3.9	3.3	3.7	3.2	3.3	3.1
TasWater		2.8	2.7	2.7	2.7	0.0
Unitywater	9.4	1	0.9	0.9	0.8	–11.1
Gold Coast	0	0	0	0	0	
Logan	0	0	0	0	0	
Qld Urban Utilities	6.3	2	1.8	1.6	0	–100.0
Median	5.7	4.1	4.2	4	3.9	
Mean	5.1	4	3.9	3.7	3.7	
Large						
North East Water	5.7	6.1	6.6	6.1	6.5	6.6
Goulburn Valley Water	5.7	5.6	5.5	5.6	5.7	1.8
Gippsland Water	3.9	4	4.2	3.9	4.3	10.3
Central Highlands Water	0	0	0	5.3	4.3	–18.9
Western Water	4	4.6	4.6	4	4.3	7.5
Coliban Water	5.1	4	4.4	4.1	4.2	2.4
Cairns	2.8	3.1	2.7	2.9	2.8	–3.4
P&W (Darwin)	2	3.3		3.6	2.8	–22.2
Townsville	0	1.7	1.6	1.2	1	–16.7
Redland City			0.4	0.3	0.3	0.0
Toowoomba	0.8	0.8		0.7	0	–100.0
Median	3.4	3.6	4.2	3.9	4.2	
Mean	3	3.3	3.3	3.4	3.3	
Medium						
WC (Mandurah)	19.3	19.9	18.3	6.3	10.4	65.1
GWMWater	7.4	7.1	6.5	6.6	6.9	4.5
East Gippsland Water	0.5	5.2	6.1	6.2	6.2	0.0
Lower Murray Water	6	5.9	5.7	5.7	6	5.3
South Gippsland Water	5.2	5.3	5.5	5.5	6	9.1
Wannon Water	3.9	4.4	4.3	4.5	4.8	6.7
Bundaberg			1.8	1.7	3.3	94.1
Clarence Valley	1.6	1.4	1.4	1.3	1.3	0.0
Shoalhaven	1.6	1.6	1.5	1.5	1.3	–13.3
Tweed	1.5	1.1	1.2	1.2	1.1	–8.3
Port Macquarie Hastings	1.7	1.2	1.4	1	1.1	10.0
Fitzroy River Water	1.7	0.7	1.3	0.9	1.1	22.2
Coffs Harbour	1.1	1.1	1	1	0.9	–10.0
Tamworth	1.1	0.9	1	0.9	0.8	–11.1
Albury	1	0.9	0.9	0.8	0.8	0.0
Fraser Coast	1.7	0.4	0.4	0.4	0.4	0.0
Mackay	0	0.1	0.2	0.2	0.2	0.0
Gladstone			0	0	0	

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Median	1.6	1.3	1.4	1.2	1.2	
Mean	3.5	3.6	3.2	2.5	2.9	
Small						
P&W (Alice Springs)	12	7.5		9.3	14.3	53.8
Gympie		4.4	4.4	2.5	4.2	68.0
Westernport Water	3.6	4.3	3.7	3.9	3.9	0.0
Whitsunday			1.7	2.5	3.2	28.0
Essential Energy	1.1	1.7	2.2	1.4	1.9	35.7
Lismore	1.4	1.2	1	1	1.5	50.0
Kempsey	1.5	1.5	1.3	1.3	1.4	7.7
Ballina	1.4	1.1	1.9	1	1.1	10.0
Eurobodalla	1.4	1.2	1.1	1	1	0.0
Bega Valley	1.1	1	1	1	0.9	-10.0
Orange	1	0.9	0.8	0.9	0.8	-11.1
Wingecarribee	1.3	1.2	1.2	1	0.8	-20.0
Bathurst	0.9	0.8	0.8	0.8	0.6	-25.0
Byron	0.7	0.6	0.6	0.6	0.5	-16.7
Central Highlands			0	0	0	
Livingstone			0	0	0	
Cassowary Coast			0	0	0	
WC (Australind/Eaton)	29.2	25.1	22.9	13.8	-1.1	-108.0
WC (Albany)	20.8	36.5	34.6	22.5	-8.2	-136.4
WC (Geraldton)	14.1	14.5	13.6	6.2	-65.3	-1153.2
Median	1.4	1.4	1.2	1	0.9	
Mean	6.1	6.5	4.9	3.5	-1.9	

Table A10 C15—Average duration of an unplanned interruption: water (minutes), by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Hunter Water	157	129	364	136	231	69.9
Central Coast				198	202	2.0
SA Water		161	163	186	195	5.0
Logan	135	151	156	143	178	24.2
Unitywater			157	139	160	15.1
Gold Coast	120	160	132	120	138	14.9
Icon Water	148	104	120	135	135	–0.2
Sydney Water	153	151	147	136	133	–2.2
Qld Urban Utilities	162	139	139	134	132	–1.5
City West Water	121	115	112	122	125	2.5
Yarra Valley Water	108	99	103	123	118	–3.5
WC (Perth)	130	117	96	108	103	–4.5
Barwon Water	107	93	88	100	102	2.5
South East Water	89	91	89	81	83	2.1
Median	130	123	132	135	134	
Mean	130	126	144	133	145	
Large						
Western Water	129	77	95	93	215	131.5
Coliban Water	114	170	115	118	132	11.5
Redland City			21	24	114	377.0
North East Water	87	102	105	108	112	3.5
Central Highlands Water	142	104	69	109	107	–1.7
Goulburn Valley Water	128	100	113	108	98	–8.7
Gippsland Water	86	74	89	76	87	14.7
Townsville	4	3	67	64	77	20.5
Cairns	109	50	44	92	65	–29.2
Median	112	89	89	93	107	
Mean	100	85	80	88	112	
Medium						
Riverina Water (W)	308	173	185	206	183	–11.2
Tweed	160	149	134	112	136	21.4
Albury	104	124	137	137	119	–13.1
Fraser Coast		39	130	128	106	–17.4
Shoalhaven	194	220	135	202	104	–48.5
GWMWater	65	73	85	106	94	–10.7
Wannon Water	111	101	91	105	94	–10.9
East Gippsland Water	71	76	64	72	92	28.7
South Gippsland Water	118	139	160	96	91	–4.8
WC (Mandurah)	64	68	61	50	71	42.3
Mackay	113	121	92	115	67	–42.2
Lower Murray Water	51	43	57	54	57	5.4
Gladstone			16	46	48	3.5
Fitzroy River Water	60	4	98	33	40	20.6
Port Macquarie Hastings	163	174	210	121	30	–75.2
Median	111	111	98	106	92	
Mean	122	107	110	105	89	

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Small						
Cassowary Coast			418	375	218	–41.9
Eurobodalla	240	190	220	214	213	–0.5
WC (Geraldton)	140	110	102	120	137	14.2
Orange						
Lismore	288	120	140	214	129	–39.7
WC (Albany)	124	123	124	132	121	–8.3
Whitsunday			120	120	120	0.0
Westernport Water	124	92	103	80	109	35.9
Southern Downs			120	120	87	–27.4
WC (Australind/Eaton)	76	78	75	56	85	51.8
Gympie		240	97	85	82	–4.0
Busselton (W)	87	77	198	86	64	–25.9
Aqwest-Bunbury (W)	57	48	44	61	49	–19.7
WC (Kal-Boulder) (W)	34	56	45	62	44	–29.5
Central Highlands			45	30	30	0.0
Kempsey	165	127	215	155	26	–83.2
Livingstone			23	26	26	–1.2
Median	124	115	120	120	87	
Mean	143	125	138	122	99	

Table A11 C13— Total complaints: water and sewerage (per 1,000 properties), by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Yarra Valley Water	12.5	7.0	5.0	5.8	11.0	89.7
Gold Coast		18.1	5.0	6.3	8.4	33.3
Qld Urban Utilities	4.6	5.0	5.0	6.0	5.9	–1.7
Barwon Water	5.5	2.7	4.3	4.4	4.3	–2.3
Icon Water	4.8	4.0	4.3	3.8	4.3	13.2
City West Water	3.3	3.3	3.4	5.2	3.6	–30.8
Hunter Water	7.0	6.0	6.3	4.8	3.1	–35.4
South East Water	4.4	4.7	3.4	3.4	3.0	–11.8
SA Water		2.4	2.4	2.3	2.5	8.7
Sydney Water	3.9	3.2	2.7	2.6	2.1	–19.2
Unitywater		2.6	2.0	1.2	1.4	16.7
WC (Perth)	0.6	1.0	0.8	0.8	0.8	0.0
Median	4.6	3.6	3.9	4.1	3.4	
Mean	5.2	5.0	3.7	3.9	4.2	
Large						
P&W (Darwin)	37.5	49.9	39.5	86.2	85.1	–1.3
Gippsland Water	9.5	9.2	9.5	9.4	10.9	16.0
Coliban Water	5.7	5.6	6.3	6.5	8.6	32.3
Central Highlands Water	13.5	8.3	3.2	5.0	6.9	38.0
Goulburn Valley Water	5.9	5.9	4.3	6.6	5.4	–18.2
Toowoomba	10.9	5.8	2.0	2.6	4.1	57.7
Cairns			3.0	2.9	3.6	24.1
Western Water	4.0	4.7	4.0	5.5	3.3	–40.0
North East Water	1.6	0.8	2.6	1.7	2.9	70.6
Redland City			4.0	3.6	2.6	–27.8
Townsville	9.9	10.7	10.0	0.7	0.8	14.3
Median	9.5	5.9	4.0	5.0	4.1	
Mean	10.9	11.2	8.0	11.9	12.2	
Medium						
Mackay	119.2	131.8	30.0	33.4	57.0	70.7
Fitzroy River Water	61.9	56.0	51.0	48.0	47.2	–1.7
Tamworth	67.0	78.0	59.0	54.5	39.5	–27.5
Fraser Coast			4.0	7.7	20.5	166.2
Dubbo				23.1	18.3	–20.8
Port Macquarie Hastings	33.0	31.0	32.0	31.2	15.5	–50.3
Bundaberg			2.0	2.8	12.8	357.1
Albury	6.0	5.0	6.0	7.0	11.2	60.0
GWMWater	21.5	11.0	7.3	7.4	7.6	2.7
South Gippsland Water	14.3	5.9	6.1	5.2	6.2	19.2
Wannon Water	5.6	3.5	3.6	6.1	5.3	–13.1
Lower Murray Water	5.8	1.4	1.8	2.9	4.8	65.5
MidCoast Council	7.0	7.0	11.0	8.2	4.4	–46.3
East Gippsland Water	1.3	0.6	1.0	1.8	4.0	122.2
Shoalhaven	1.0	1.0	2.0	1.5	1.8	20.0
Coffs Harbour	1.0	0.0	1.0	0.4	1.6	300.0
Gladstone			0.0	0.0	0.3	
WC (Mandurah)	0.4	0.7	0.4	0.4	0.3	–25.0
Median	6.5	5.4	4.0	6.5	6.9	
Mean	24.6	23.8	12.8	13.4	14.4	

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Small						
Central Highlands			182.0	184.2	146.0	–20.7
Orange	85.0	92.0	104.0	123.1	111.6	–9.3
P&W (Alice Springs)	60.0	9.6	3.0	45.2	101.3	124.1
Southern Downs			49.0	48.5	95.6	97.1
Wingecarribee	105.0	103.0	74.0	87.9	90.0	2.4
Whitsunday			150.0	106.2	84.7	–20.2
Bathurst	100.0	82.0	91.0	89.3	69.4	–22.3
Livingstone			140.0	7.1	61.6	767.6
Cassowary Coast			128.0	115.4	16.6	–85.6
Bega Valley	16.0	17.0	16.0	7.2	7.5	4.2
Byron	5.0	7.0	5.0	4.5	6.1	35.6
Gympie		11.3	0.0	2.3	5.5	139.1
Westernport Water	9.1	3.6	4.9	6.8	4.8	–29.4
Eurobodalla	1.0	3.0	1.0	1.9	2.0	5.3
WC (Australind/Eaton)	2.5	0.7	0.7	0.8	1.5	87.5
WC (Geraldton)	1.7	1.3	1.3	1.2	1.5	25.0
Kempsey	2.0	3.0	2.0	2.4	1.1	–54.2
WC (Albany)	0.7	0.8	0.6	1.0	0.9	–10.0
Ballina	1.0	12.0	3.0	0.9	0.6	–33.3
Lismore	4.0	19.0	4.0	0.3	0.5	66.7
Goulburn Mulwaree				98.5	0.0	–100.0
Median	4.5	9.6	5.0	7.1	6.1	
Mean	28.1	24.4	48.0	44.5	38.5	

Table A12 C14—Percentage of calls answered by an operator within 30 seconds (%), by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
TasWater			89	89	89	0.7
SA Water		88	85	85	85	0.1
Barwon Water	96	92	90	88	85	–3.5
City West Water	74	83	83	83	81	–1.8
WC (Perth)	73	73	73	71	71	–0.7
Hunter Water	79	71	70	71	67	–5.6
South East Water	83	88	84	77	67	–13.2
Yarra Valley Water	82	77	64	47	64	37.2
Icon Water	73	79	71	67	61	–8.4
Sydney Water	86	83	79	73	60	–17.8
Median	80	83	79	75	69	
Mean	81	82	78	75	73	
Large						
Goulburn Valley Water	98	99	99	97	97	0.1
Coliban Water	80	85	91	91	92	1.0
North East Water	97	90	90	91	90	–0.9
Central Highlands Water	90	90	92	88	89	1.3
Western Water	97	98	94	88	86	–2.6
Gippsland Water	83	83	83	89	84	–5.7
Median	93	90	92	90	90	
Mean	91	91	92	91	90	
Medium						
East Gippsland Water	100	100	100	100	99	–0.5
Wannon Water	99	99	99	99	99	–0.5
Shoalhaven	100	96	96	98	98	0.0
Port Macquarie Hastings	77	75	84	98	96	–2.0
Lower Murray Water	88	86	88	86	94	8.8
South Gippsland Water	100	100	100	100	94	–5.5
Wagga Wagga (S)	100	100	100	100	94	–6.0
GWMWater	91	94	94	93	92	–0.9
Tweed	51	56	48	49	50	2.0
Median	99	96	96	98	94	
Mean	89	90	90	91	91	
Small						
Westernport Water	95	98	98	98	100	2.2
Wingecarribee	66	79	53	66	96	45.5
Lismore	80	80	80	77	80	3.9
Orange				65	77	18.5
Eurobodalla	84		100	72	68	–5.6
Kempsey	49	48	45	42	40	–4.8
Median	80	80	80	69	79	
Mean	75	76	75	70	77	

Table A13 A8—Water main breaks (no. per 100 km of water main), by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Yarra Valley Water	52.3	50.5	39.3	48.5	47.4	–2.3
City West Water	52.2	39.9	37.1	40.1	42.1	5.0
South East Water	31.3	30.8	32.2	33.5	32.7	–2.4
Barwon Water	44.0	31.0	29.0	33.5	31.0	–7.5
Hunter Water	31.9	30.2	28.9	26.8	24.8	–7.5
Sydney Water	29.0	30.0	26.0	26.0	23.9	–8.1
Qld Urban Utilities	26.6	29.0	28.0	25.7	23.1	–10.1
Central Coast				17.0	16.0	–5.9
Icon Water	20.0	11.5	14.2	13.8	14.3	3.6
SA Water		11.4	13.9	14.9	13.5	–9.4
WC (Perth)	13.3	13.4	15.0	12.0	13.1	9.2
Gold Coast	10.5	12.0	7.1	7.4	5.1	–31.1
Unitywater		5.6	3.3	3.7	4.8	29.7
Logan	10.8	6.6	6.5	4.7	4.0	–14.9
Median	29.0	29.0	26.0	21.4	19.6	
Mean	29.3	23.2	21.6	22.0	21.1	
Large						
Townsville	17.7	24.6	28.6	31.6	33.5	6.0
Coliban Water	26.7	28.6	26.1	29.1	28.7	–1.4
Gippsland Water	33.6	25.2	25.1	24.5	23.0	–6.1
Central Highlands Water	23.4	22.8	20.7	18.8	18.2	–3.2
Toowoomba	18.5	13.8	20.7	13.3	16.3	22.6
North East Water	21.3	13.3	12.5	8.7	13.7	57.5
Goulburn Valley Water	29.4	27.5	22.6	19.9	12.9	–35.2
Western Water	18.8	13.3	12.2	13.3	12.3	–7.5
P&W (Darwin)	16.9	20.2	21.1	17.2	11.2	–34.9
Cairns	13.0	14.1	13.3	12.4	10.5	–15.3
Redland City			3.4	3.2	3.1	–3.1
Median	20.0	21.5	20.7	17.2	13.7	
Mean	21.9	20.3	18.8	17.5	16.7	
Medium						
GWMWater	51.5	60.3	55.4	55.5	56.6	2.0
South Gippsland Water	41.7	47.8	39.5	40.9	29.5	–27.9
Lower Murray Water	45.0	30.0	35.4	32.0	28.6	–10.6
Fitzroy River Water	18.7	24.9	12.9	16.7	16.2	–3.0
Clarence Valley	12.0	12.5	10.7	12.3	15.4	25.2
East Gippsland Water	7.9	7.5	17.3	12.9	12.8	–0.8
Riverina Water (W)	14.3	19.0	6.9	18.6	11.6	–37.6
Coffs Harbour	10.0	3.3	2.7	7.1	10.0	40.8
Wannon Water	12.7	10.5	9.7	11.1	9.6	–13.5
Mackay	10.4	11.8	10.3	11.8	9.4	–20.3
Tweed	4.4	8.0	4.1	7.5	9.1	21.3
Queanbeyan				7.5	8.3	10.7
Bundaberg			3.9	4.2	8.0	90.5
Dubbo				6.5	7.8	20.0
MidCoast Council	7.5	8.3	9.2	1.7	6.9	305.9
Gladstone			141.0	33.9	6.7	–80.2

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Shoalhaven	10.1	9.5	7.9	8.0	5.7	–28.7
Tamworth	7.5	6.6	13.9	8.9	5.5	–38.2
Fraser Coast	4.5	6.2	3.6	3.0	4.2	40.0
WC (Mandurah)	6.3	4.2	4.2	3.6	4.0	11.1
Albury	7.7	10.3	4.7	4.1	3.3	–19.5
Port Macquarie Hastings	3.0	2.4	3.1	2.6	1.8	–30.8
Median	10.1	9.9	9.5	8.4	8.7	
Mean	15.3	15.7	19.8	14.1	12.3	
Small						
Central Highlands			42.5	40.4	48.6	20.3
P&W (Alice Springs)	17.6	26.7	2.2	8.3	30.7	269.9
Lismore	25.1	36.7	20.1	35.8	29.5	–17.6
Western Downs			24.6	20.5	28.0	36.6
WC (Geraldton)	27.7	23.4	26.9	25.2	27.4	8.7
Westernport Water	28.2	16.6	13.6	22.0	18.2	–17.3
Aqwest-Bunbury (W)	12.0	10.4	12.4	13.5	17.5	29.6
Essential Energy	24.1	16.5	14.1	20.9	16.2	–22.5
WC (Kal-Boulder) (W)	13.1	16.8	20.8	20.3	15.5	–23.6
Wingecarribee	5.5	11.8	5.3	12.0	15.0	25.0
Byron	7.2	9.3	8.8	7.1	13.7	93.0
Kempsey	7.3	9.8	7.3	5.5	12.6	129.1
Gympie		9.6	4.8	3.8	11.1	192.1
WC (Albany)	13.8	11.6	11.3	11.4	10.9	–4.4
Bathurst	4.9	8.2	6.8	14.8	10.8	–27.0
Whitsunday			19.4	15.0	10.4	–30.7
Ballina	12.1	6.3	5.4	3.7	10.1	173.0
Eurobodalla	11.4	13.4	13.0	12.7	10.0	–21.3
Bega Valley	7.9	8.8	6.3	4.5	9.5	111.1
WC (Australind/Eaton)	5.2	5.5	4.7	7.4	9.2	24.3
Cassowary Coast			18.0	7.6	8.8	15.8
Orange	9.2	8.5	7.1	8.8	7.3	–17.0
Busselton (W)	6.6	7.5	8.3	7.2	7.1	–1.4
Southern Downs			16.6	3.7	4.5	21.6
Livingstone			3.9	3.2	2.9	–9.4
Median	11.7	10.4	11.3	11.4	11.1	
Mean	13.3	13.5	13.0	13.4	15.4	

Table A14 A14—Sewerage mains breaks and chokes, by utility size group (no. per 100 km sewer main), 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Sydney Water	46.2	61.4	68.7	58.4	62.8	7.5
Hunter Water	42.3	53.6	53.6	42.7	49.6	16.2
Icon Water	42.0	57.0	51.6	54.1	48.9	–9.6
SA Water		46.0	48.0	51.0	43.0	–15.7
Yarra Valley Water	25.4	27.6	31.6	35.3	38.1	7.9
Barwon Water	25.2	29.0	35.4	38.8	33.0	–14.9
Central Coast				38.0	27.0	–28.9
Qld Urban Utilities	21.1	22.9	30.1	25.2	24.9	–1.2
Unitywater		20.4	25.0	24.5	24.8	1.2
City West Water	15.0	16.2	17.0	21.4	20.3	–5.1
South East Water	12.3	14.8	14.3	17.6	18.0	2.3
WC (Perth)	16.1	17.0	17.6	18.6	17.0	–8.6
Logan	12.1	12.1	12.6	11.5	11.2	–2.6
Gold Coast			3.9	7.2	4.3	–40.3
Median	23.2	25.3	30.1	30.2	25.9	
Mean	25.8	31.5	31.5	31.7	30.2	
Large						
Toowoomba	16.1	30.7	29.0	64.8	56.9	–12.2
Coliban Water	53.7	62.9	48.1	53.7	40.5	–24.6
Central Highlands Water	16.9	18.8	19.7	22.6	19.3	–14.6
P&W (Darwin)	15.7	8.5	8.9	22.2	19.0	–14.4
Cairns	14.6	14.7	7.6	7.2	11.8	63.9
North East Water	5.7	9.7	8.8	9.6	11.8	22.9
Western Water	12.7	15.7	15.5	14.1	11.5	–18.4
Goulburn Valley Water	22.4	20.4	10.1	9.5	9.1	–4.2
Gippsland Water	7.8	8.6	8.0	8.0	8.4	5.0
Redland City			7.2	7.2	4.0	–44.4
Townsville	2.7	5.4	2.8	3.9	2.7	–30.8
Median	15.2	15.2	8.9	9.6	11.8	
Mean	16.8	19.5	15.1	20.3	17.7	
Medium						
South Gippsland Water	17.0	14.8	23.6	29.9	110.0	267.9
Coffs Harbour	65.0	76.0	89.0	97.0	95.0	–2.1
Queanbeyan				33.0	86.0	160.6
Albury	67.0	75.0	65.0	76.0	78.0	2.6
Wagga Wagga (S)	88.0	80.0	80.0	72.0	62.0	–13.9
GWMWater	33.2	38.7	45.0	50.5	46.3	–8.3
Tamworth	77.0	74.0	50.0	20.0	41.0	105.0
Fitzroy River Water	70.3	12.1	24.4	25.9	28.1	8.5
MidCoast Council	6.0	6.0	6.0	8.0	20.0	150.0
Wannon Water	10.7	11.5	13.4	18.2	18.0	–1.1
Lower Murray Water	16.1	16.7	17.1	15.6	18.0	15.4
Port Macquarie Hastings				27.0	15.0	–44.4
Gladstone			6.9	10.9	12.4	13.8
Bundaberg			9.1	11.4	10.1	–11.4
WC (Mandurah)	9.4	8.1	7.5	9.0	10.0	11.1
Fraser Coast	23.7	8.5	5.4	6.2	8.1	30.6

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Shoalhaven	14.0	8.0	11.0	13.0	8.0	–38.5
East Gippsland Water	3.6	5.3	6.1	5.2	5.9	13.5
Mackay	4.3	19.3	4.1	5.1	3.8	–25.5
Tweed	2.0	1.0	0.0	1.0	1.0	0.0
Median	16.5	13.4	12.2	16.9	18.0	
Mean	31.7	28.4	25.8	26.7	33.8	
Small						
Bathurst	58.0	84.0	99.0	162.0	91.0	–43.8
Orange	15.0	24.0	33.0	42.0	78.0	85.7
Central Highlands			24.9	39.4	32.9	–16.5
Wingecarribee	44.0	46.0	22.0	10.0	31.0	210.0
Kal-Boulder (S)	24.4	30.3	17.7	27.0	30.0	11.1
Eurobodalla	29.0	30.0	32.0	23.0	25.0	8.7
WC (Albany)	30.7	19.5	25.0	30.6	20.9	–31.7
Lismore	55.0	49.0	50.0	28.0	16.0	–42.9
Bega Valley	9.0	22.0	9.0	20.0	14.0	–30.0
Southern Downs			13.2	35.7	12.0	–66.4
Kempsey	24.0	16.0	33.0	25.0	10.0	–60.0
WC (Bunbury) (S)	14.6	12.1	12.4	12.8	9.2	–28.1
Whitsunday			0.3	8.9	8.9	0.0
WC (Australind/Eaton)	6.5	6.4	10.4	7.9	7.4	–6.3
WC (Geraldton)	14.3	7.0	10.8	8.7	7.1	–18.4
Byron	32.0	11.0	11.0	21.0	7.0	–66.7
Cassowary Coast			3.5	1.3	4.8	269.2
Western Downs			9.6	4.8	4.8	0.0
Westernport Water	4.6	2.8	2.0	4.2	4.1	–2.4
WC (Busselton) (S)	8.4	3.1	3.5	3.7	3.8	2.7
P&W (Alice Springs)	9.6	1.4	0.9	1.8	3.6	100.0
Livingstone			3.6	6.0	3.3	–45.0
Gympie		21.3	40.9	3.8	3.0	–21.1
Median	19.5	19.5	12.4	12.8	9.2	
Mean	23.7	22.7	20.3	22.9	18.6	

Table A15 A15—Property connection sewer breaks and chokes, by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
SA Water		30.0	29.0	32.0	26.0	–18.8
Icon Water	8.0	10.0	9.4	10.1	9.5	–5.9
Hunter Water	8.6	10.1	10.2	8.5	9.3	9.4
Yarra Valley Water	5.8	6.5	6.7	7.4	7.6	2.7
Central Coast				2.9	6.9	137.9
Barwon Water	0.0	0.0	1.8	2.8	6.0	114.3
City West Water	4.2	4.2	5.0	5.2	4.5	–13.5
South East Water	7.2	4.9	4.7	5.0	4.0	–20.0
Qld Urban Utilities	2.9	2.9	3.8	3.3	3.9	18.2
Gold Coast			1.2	0.9	2.2	144.4
Logan	1.2	1.0	1.8	1.8	1.9	5.6
Unitywater		0.7	1.5	1.3	1.3	0.0
Sydney Water	0.2	0.2	0.2	0.2	0.3	50.0
Median	4.2	4.2	4.2	3.3	4.5	
Mean	4.2	6.4	6.3	6.3	6.4	
Large						
Coliban Water	14.5	18.0	4.5	5.2	8.9	71.2
Western Water	4.1	5.2	5.0	5.6	4.8	–14.3
Toowoomba				0.6	4.3	616.7
Townsville	3.1	4.1	3.0	4.3	4.2	–2.3
North East Water	2.4	4.5	1.8	2.0	2.9	45.0
Gippsland Water		0.0	1.8	1.8	2.4	33.3
Goulburn Valley Water	8.2	5.2	0.0	4.3	2.3	–46.5
Cairns	1.3	3.2	3.2	1.4	2.2	57.1
Central Highlands Water	1.9	2.6	1.0	1.7	2.2	29.4
Redland City			0.3	0.6	1.3	116.7
P&W (Darwin)	2.2	3.3	3.1	3.1	0.8	–74.2
Median	2.7	4.1	2.4	2.0	2.4	
Mean	4.7	5.1	2.4	2.8	3.3	

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Medium						
South Gippsland Water	0.0	0.0	4.5	1.8	64.0	3455.6
GWMWater	4.8	0.0	25.1	31.4	29.2	-7.0
Albury	11.6	10.3	13.4	12.5	10.7	-14.4
Fitzroy River Water	11.4	11.5	9.7	9.8	10.6	8.2
Tamworth	3.1	8.7	2.4	10.8	8.6	-20.4
Wagga Wagga (S)	17.2	20.8	14.7	13.4	6.7	-50.0
Lower Murray Water	0.0	0.0	0.0	6.2	6.0	-3.2
Wannon Water		0.0	4.6	3.5	3.0	-14.3
Coffs Harbour	12.8	2.7	3.5	1.5	2.8	86.7
Fraser Coast	0.8	1.9	1.3	1.3	2.7	107.7
Mackay	0.1	0.3	1.7	0.6	1.7	183.3
East Gippsland Water	1.3	0.4	0.6	0.8	1.2	50.0
Gladstone			0.8	0.7	1.2	71.4
Tweed	0.4	0.4	0.3	1.2	1.2	0.0
Bundaberg			0.2	0.2	0.6	200.0
Shoalhaven	0.5	0.2	0.2	0.1	0.1	0.0
Median	1.3	0.4	2.0	1.6	2.9	
Mean	4.9	4.1	5.2	6.0	9.4	
Small						
Essential Energy	36.2	36.9	41.3	44.0	82.0	86.4
Kempsey	10.0	13.6	9.6	14.1	24.9	76.6
Byron	9.9	7.7	7.9	10.3	10.8	4.9
Lismore	6.3	9.3	10.1	8.2	5.9	-28.0
Eurobodalla	5.9	5.0	5.7	4.4	4.6	4.5
Wingecarribee	9.1	6.9	8.5	3.7	4.6	24.3
Bathurst	2.8	2.5	1.7	3.1	3.2	3.2
Cassowary Coast			0.9	3.2	3.1	-3.1
Western Downs			1.6	2.8	2.9	3.6
Westernport Water	0.0	0.0	0.6	2.3	2.3	0.0
Southern Downs			8.4	6.3	2.1	-66.7
P&W (Alice Springs)	1.6	0.2	0.2	0.2	2.0	900.0
Bega Valley	3.0	3.3	0.9	2.0	1.5	-25.0
Central Highlands				2.3	1.1	-52.2
Kal-Boulder (S)		4.2	2.5	0.0	1.0	
Whitsunday			1.7	0.3	0.9	200.0
Goulburn Mulwaree	12.9	5.2	6.6	17.0	0.8	-95.3
Orange	0.6	4.5	9.9	1.4	0.3	-78.6
Median	6.1	5.0	5.7	3.2	2.6	
Mean	8.2	7.6	6.9	7.0	8.6	

Table A16 A10—Real losses (L/service connection/d)by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Hunter Water	75	82	91	104	96	–7.7
WC (Perth)	81	78	80	78	87	11.5
SA Water		89	90	82	86	4.9
Sydney Water	87	81	74	76	83	9.2
Icon Water	52	38	58	69	79	14.5
Gold Coast	81	110	77	81	76	–5.8
Qld Urban Utilities	84	69	69	71	76	7.0
City West Water	69	67	70	71	70	–1.4
Logan	44	33	79	67	66	–1.3
South East Water	81	70	67	64	59	–7.8
Unitywater		58	69	66	51	–22.7
Yarra Valley Water	65	70	60	71	50	–29.6
Barwon Water	64	39	25	47	45	–4.3
Central Coast				31	34	9.7
Median	75	70	70	71	73	
Mean	71	68	70	70	69	
Large						
P&W (Darwin)	416	268	229	96	143	49.0
Townsville				276	143	–48.2
Goulburn Valley Water	75	82	111	93	104	11.8
Gippsland Water	87	98	78	72	90	25.0
Coliban Water	85	54	65	74	63	–14.9
Toowoomba	100	112	85	85	59	–30.2
North East Water	60	60	120	60	48	–20.0
Central Highlands Water	59	40	30	30	40	33.3
Western Water	53	33	47	37	32	–13.5
Redland City			44	17	16	–5.3
Cairns	78	51	24	27	8	–70.7
Median	78	60	72	72	59	
Mean	112.6	88.6	83.3	78.8	67.8	
Medium						
Gladstone			860	336	239	–28.8
Mackay	168	118	107	131	130	–0.5
Fitzroy River Water	185	228	180	152	114	–24.9
GWMWater	186	215	110	109	112	2.8
Shoalhaven	43	57	92	72	107	48.6
Fraser Coast	68	53	84	78	89	14.2
South Gippsland Water	95	138	104	100	87	–13.0
Riverina Water (W)	81	81	86	115	87	–24.3
MidCoast Council	57	57	61	71	84	18.3
Wannon Water	110	82	71	72	84	16.7
Lower Murray Water	57	68	46	76	80	5.3
Tamworth	83	91	69	87	79	–9.2
WC (Mandurah)	45	74	55	67	77	14.9
Coffs Harbour	75	63	50	48	56	16.7
Bundaberg			50	354	51	–85.7
East Gippsland Water	68	43	51	66	48	–27.3
Port Macquarie Hastings	37	37	45	43	40	–7.0

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Median	75	74	71	78	84	
Mean	90	94	125	116	92	
Small						
Cassowary Coast			356	390	464	18.9
P&W (Alice Springs)	428	291	200	126	153	21.4
Gympie		75	190	98	148	50.8
WC (Albany)	82	90	175	189	115	-39.2
WC (Australind/Eaton)	83	89	140	107	109	1.9
Wingecarribee	122	133	61	116	107	-7.8
Orange	64	60	61	63	106	68.3
WC (Geraldton)	156	220	262	217	106	-51.2
Aqwest-Bunbury (W)	95	115	106	95	104	9.5
Whitsunday			537	346	102	-70.6
Kempsey	50	96	97	93	96	3.2
Ballina	156	145	156	156	89	-42.9
WC (Kal-Boulder) (W)	45	63	30	42	88	109.5
Busselton (W)	88	96	80	69	78	13.0
Southern Downs			182	96	67	-30.7
Eurobodalla	50	50	48	50	54	8.0
Bega Valley	143	50	50	50	51	2.0
Byron	78	68	53	90	50	-44.4
Westernport Water	15	25	13	47	50	6.4
Lismore	37	39	40	39	38	-2.6
Livingstone				0	0	
Median	83	89	102	95	96	
Mean	106	100	142	118	104	

Table A17 E12—Total net greenhouse gas emissions (net tonnes CO2 equivalents), by utility size group, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
WC (Perth)	663	731	738	817	828	1.3
SA Water		287	320	402	272	–32.2
Barwon Water	266	274	262	268	263	–1.6
Icon Water	288	260	257	255	242	–5.0
Sydney Water	85	85	84	144	176	21.5
Hunter Water	381	412	220	181	166	–8.1
South East Water	59	53	60	60	54	–9.2
Yarra Valley Water	41	44	44	44	44	–1.4
City West Water	25	26	27	32	25	–21.0
Median	176	260	220	181	176	
Mean	226	241	224	245	230	
Large						
North East Water	837	860	838	885	750	–15.2
Goulburn Valley Water	848	873	872	782	701	–10.3
Gippsland Water	661	580	639	897	546	–39.2
Coliban Water	475	446	610	770	454	–41.1
Western Water	282	267	520	530	440	–17.0
Central Highlands Water	228	250	246	444	230	–48.2
P&W (Darwin)	219	205	165	154	179	16.6
Median	475	446	610	770	454	
Mean	507	497	556	637	471	
Medium						
Wannon Water	739	693	751	776	675	–13.0
Lower Murray Water	346	533	544	602	564	–6.4
Coffs Harbour	515	362	487	456	489	7.1
Shoalhaven	423	377	437	454	476	4.9
Tweed	434	441	413	453	457	0.9
Albury	541	451	393	477	437	–8.5
GWMWater	384	652	607	583	426	–26.9
Tamworth	378	419	393	423	422	–0.3
South Gippsland Water	445	354	377	372	416	11.8
Port Macquarie Hastings	417	386	416	385	395	2.7
East Gippsland Water	380	359	344	346	365	5.4
WC (Mandurah)	306	290	193	189	348	84.6
MidCoast Council	340	483	490	371	337	–9.3
Queanbeyan				233	299	28.4
Clarence Valley	114	114	119	177	200	13.0
Median	400	402	414	423	422	
Mean	412	422	426	420	420	

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Small						
Goulburn Mulwaree	615	618	449	662	761	14.9
P&W (Alice Springs)	778	686	609	636	577	–9.2
Orange	414	416	405	515	512	–0.5
Wingecarribee	398	467	469	492	474	–3.8
Bathurst	384	362	337	416	418	0.4
Bega Valley	331	343	342	422	399	–5.4
Westernport Water	402	411	412	379	397	4.9
Eurobodalla	352	363	359	335	381	13.8
WC (Albany)	554	541	434	419	380	–9.3
WC (Geraldton)	419	433	341	373	351	–6.0
WC (Australind/Eaton)	443	469	457	448	347	–22.5
Kempsey	376	349	324	292	332	13.8
Ballina	366	425	390	386	295	–23.6
Lismore	210	248	233	229	171	–25.3
Byron	164	167	166	172	138	–19.5
Median	398	416	390	416	381	
Mean	414	420	382	412	396	

Table A18 H3—Percentage of population where microbiological compliance was achieved, 2012–13 to 2016–17

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Major						
Barwon Water	100	100	100	100	100	0
Central Coast				100	100	0
City West Water	100	100	100	100	100	0
Hunter Water	100	100	100	100	100	0
Icon Water	100	100	100	100	100	0
Qld Urban Utilities	100	100	100	100	100	0
SA Water		100	100	100	100	0
South East Water	100	100	100	100	100	0
Sydney Water	100	100	100	100	100	0
WC (Perth)	100	100	100	100	100	0
Yarra Valley Water	100	100	100	100	100	0
TasWater		99	98.6	99.2	99.4	0.2
Median	100	100	100	100	100	
Mean	100	99.9	99.9	99.9	100	
Large						
Gippsland Water	100	100	100	88.6	100	12.9
Central Highlands Water	100	100	100	100	100	0
Coliban Water	99.8	99.4	100	100	100	0
Goulburn Valley Water	100	100	100	100	100	0
North East Water	100	100	100	100	100	0
P&W (Darwin)	100	100	100	100	100	0
Western Water	100	100	100	100	99	–1.0
Median	100	100	100	100	100	
Mean	100	99.9	100	98.4	99.9	
Medium						
Albury	100	100	100	100	100	0
Clarence Valley	73	100	100	100	100	0
Coffs Harbour	100	100	100	100	100	0
East Gippsland Water	100	100	100	100	100	0
GWMWater	100	100	100	100	100	0
Lower Murray Water	100	100	100	100	100	0
MidCoast Council	100	100	100	100	100	0
Port Macquarie Hastings	100	100	100	100	100	0
Queanbeyan				100	100	0
Riverina Water (W)	100	100	100	100	100	0
Shoalhaven	100	100	100	100	100	0
South Gippsland Water	100	100	100	100	100	0
Tamworth	99	100	100	100	100	0
Tweed	100	100	100	100	100	0
WC (Mandurah)	100	100	100	100	100	0
Wannon Water	100	100	100	100	99.9	–0.1
Median	100	100	100	100	100	
Mean	98.1	100	100	100	100	

Utility	2012–13	2013–14	2014–15	2015–16	2016–17	Change from 2015–16 %
Small						
Aqwest–Bunbury (W)	100	100	100	100	100	0
Lismore	100	100	100	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
P&W (Alice Springs)	100	100	100	100	100	0
Orange	100	100	100	100	100	0
Kempsey	100	100	100	100	100	0
Ballina	100	100	100	100	100	0
Goulburn Mulwaree	100	100	100	100	100	0
Eurobodalla	100	100	100	100	100	0
Essential Energy	100	100	100	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
Wingecarribee	100	100	100	100	100	0
Median	100	100	100	100	100	
Mean	100	100	100	100	100	

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, 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 2016–17 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 2017 Urban NPR.

The audit requirements state that:

- 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, W11.1–W11.3, W12, W14, W18, W18.5, W19, W26, W27, A2, A3, A5, A6, A8–A11, A14, A15, E1–E3, E8, E12, E12.1, E13, C2, C4, C8, C13, C14–C19, H3, H4, F1–F8, F11–F16, F20–F30, P7, and P8.

Appendix C Utilities reporting

Utility name	Jurisdiction	Type or size group
Albury City Council	New South Wales	Medium
Aqwest—Bunbury Water Corporation (W)	Western Australia	Small
Ballina Shire Council	New South Wales	Small
Barwon Water	Victoria	Major
Bathurst Regional Council	New South Wales	Small
Bega Valley Shire Council	New South Wales	Small
Bundaberg Regional Council	Queensland	Medium
Busselton Water (W)	Western Australia	Small
Byron Shire Council	New South Wales	Small
Cairns Water and Waste (Cairns Regional Council)	Queensland	Large
Cassowary Coast Regional Council	Queensland	Small
Central Coast Council	New South Wales	Major
Central Gippsland Water	Victoria	Large
Central Highlands Regional Council	Queensland	Small
Central Highlands Water	Victoria	Large
City of Kalgoorlie—Boulder (S)	Western Australia	Small
City West Water	Victoria	Major
Clarence Valley Council	New South Wales	Medium
Coffs Harbour City Council	New South Wales	Medium
Coliban Water	Victoria	Large
Dubbo Regional Council	New South Wales	Medium
East Gippsland Water	Victoria	Medium
Essential Energy	New South Wales	Small
Eurobodalla Shire Council	New South Wales	Small
Fitzroy River Water (Rockhampton Regional Council)	Queensland	Medium
Gladstone Area Water Board	Queensland	Bulk utility
Gladstone Regional Council	Queensland	Medium
Gold Coast City Council	Queensland	Major
Goldenfields Water (W)	New South Wales	Small
Goulburn Mulwaree Council	New South Wales	Small
Goulburn Valley Water	Victoria	Large
GWMWater	Victoria	Medium
Gympie Regional Council	Queensland	Small
Hunter Water Corporation	New South Wales	Major
Icon Water Limited	Australian Capital Territory	Major
Kempsey Shire Council	New South Wales	Small
Lismore City Council	New South Wales	Small
Livingstone Shire Council	Queensland	Small
Logan City Council	Queensland	Major
Lower Murray Water	Victoria	Medium
Mackay Regional Council	Queensland	Medium
Melbourne Water	Victoria	Bulk utility
MidCoast Council	New South Wales	Medium
North East Water	Victoria	Large
Orange City Council	New South Wales	Small
Port Macquarie Hastings Council	New South Wales	Medium

Utility name	Jurisdiction	Type or size group
Power and Water—Alice Springs	Northern Territory	Small
Power and Water—Darwin	Northern Territory	Large
Queanbeyan—Palerang Regional Council	New South Wales	Medium
Queensland Urban Utilities	Queensland	Major
Redland City Council	Queensland	Large
Riverina Water (W)	New South Wales	Medium
Rous Water	New South Wales	Bulk utility
SA Water Corporation	South Australia	Major
Seqwater	Queensland	Bulk utility
Shoalhaven City Council	New South Wales	Medium
South East Water Ltd	Victoria	Major
South Gippsland Water	Victoria	Medium
Southern Downs Regional Council	Queensland	Small
Sydney Water Corporation	New South Wales	Major
Tamworth Regional Council	New South Wales	Medium
Tasmanian Water and Sewerage Corporation	Tasmania	Major
Toowoomba Regional Council	Queensland	Large
Townsville Water (Townsville Regional Council)	Queensland	Large
Tweed Shire Council	New South Wales	Medium
Unitywater	Queensland	Major
Wagga Wagga Council (S)	New South Wales	Medium
Wannon Water	Victoria	Medium
Water Corporation—Albany	Western Australia	Small
Water Corporation—Australind/Eaton	Western Australia	Small
Water Corporation—Bunbury (S)	Western Australia	Small
Water Corporation—Busselton (S)	Western Australia	Small
Water Corporation—Geraldton	Western Australia	Small
Water Corporation—Kalgoorlie—Boulder (W)	Western Australia	Small
Water Corporation—Mandurah	Western Australia	Medium
Water Corporation—Perth	Western Australia	Major
WaterNSW	New South Wales	Bulk utility
Western Downs Regional Council	Queensland	Medium
Western Water	Victoria	Large
Westernport Water	Victoria	Small
Whitsunday Regional Council	Queensland	Small
Wide Bay Water (Fraser Coast Regional Council)	Queensland	Medium
Wingecarribee Shire Council	New South Wales	Small
Yarra Valley Water	Victoria	Major

Appendix D Urban performance indicators

Indicator category	Indicator subcategory	Indicator Code	Indicator name
Asset	Water treatment plants	A1	Number of water treatment plants providing full treatment (no.)
Asset	Other water assets	A2	Length of water mains (km)
Asset	Other water assets	A3	Properties served per km of water main (no./km)
Asset	Other water assets	A4	Number of sewage treatment plants (no.)
Asset	Other water assets	A5	Length of sewerage mains and channels (km)
Asset	Sewerage assets	A6	Properties served per km of sewer main (no./km)
Asset	Water main breaks	A8	Water main breaks (no. per 100 km of water main)
Asset	Water main breaks	IA8	Total number of water main breaks
Asset	Water losses	A9	Infrastructure leakage index (ILI)
Asset	Water losses	A10	Real losses (L/service connection/d)
Asset	Water losses	A11	Real losses (kL/km water main/d)
Asset	Sewerage breaks & chokes	A14	Sewerage mains breaks and chokes (no. per 100 km sewer main)
Asset	Sewerage breaks & chokes	A15	Property connection sewer breaks and chokes (no. per 1,000 properties)
Customers	Connected properties & population	C1	Population receiving water supply services (000s)
Customers	Connected properties & population	C2	Connected Residential properties—water supply (000s)
Customers	Customers	C3	Connected non-residential properties—water supply (000s)
Customers	Connected properties & population	C4	Total connected properties—water supply (000s)
Customers	Connected properties & population	C5	Population receiving sewage services (000s)
Customers	Connected properties & population	C6	Connected residential properties—sewerage (000s)
Customers	Connected properties & population	C7	Connected non-residential properties—sewerage (000s)
Customers	Connected properties & population	C8	Total connected properties—sewerage (000s)
Customers	Water quality complaints	C9	Water quality complaints (per 1,000 properties)
Customers	Water quality complaints	IC9	Total number of water quality complaints
Customers	Water service complaints	C10	Water service complaints (per 1,000 properties)
Customers	Water service complaints	IC10	Total number of water service complaints
Customers	Sewerage service complaints	C11	Sewerage service complaints (per 1,000 properties)
Customers	Sewerage service complaints	IC11	Total number of sewerage service complaints
Customers	Billing & account complaints	C12	Billing and account complaints—water and sewerage (per 1,000 properties)
Customers	Billing & account complaints	IC12	Total number of billing and account complaints—water and sewerage
Customers	Total water & sewerage complaints	C13	Total water and sewerage complaints (per 1,000 properties)
Customers	Total water & sewerage complaints	IC13	Total number of water and sewerage complaints for the reporting period
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 (minutes)
Customers	Average Sewerage interruption	C16	Average sewerage interruption (minutes)
Customers	Water interruption frequency	C17	Average frequency of unplanned interruptions—water (no per 1,000 properties)
Customers	Water interruption frequency	IC17	Total number of unplanned interruptions

Indicator category	Indicator subcategory	Indicator Code	Indicator name
Customers	Restrictions/legal action for non-payment of water bill	C18	Number of restrictions applied for non-payment of water bill (per 1,000 properties)
Customers	Restrictions/legal action for non-payment of water bill	IC18	Total number of customers to which restrictions applied for non-payment of water bill
Customers	Restrictions/legal action for non-payment of water bill	C19	Number of legal actions applied for non-payment of water bill (per 1,000 properties).
Customers	Restrictions/legal action for non-payment of water bill	IC19	Total number of customers to which legal action applied for non-payment of water bill
Environment	Comparative sewage treatment levels	E1	Percentage of sewage treated to a primary level (%)
Environment	Comparative sewage treatment levels	IE1	Total volume of sewage treated only to a primary level (ML)
Environment	Comparative sewage treatment levels	E2	Percentage of sewage treated to a secondary level (%)
Environment	Comparative sewage treatment levels	IE2	Total volume of sewage treated to a secondary level but not to a tertiary level (ML)
Environment	Comparative sewage treatment levels	E3	Percentage of sewage treated to a tertiary or advanced level (%)
Environment	Comparative sewage treatment levels	IE3	Total volume of sewage treated to a tertiary level (ML)
Environment	Biosolids reuse	E8	Percent of biosolids reused (%)
Environment	Net greenhouse gas emissions	E9	Greenhouse gas emissions — water (tonnes CO ₂ equivalents per 1,000 properties)
Environment	Net greenhouse gas emissions	IE9	Greenhouse gas emissions—water (tonnes CO ₂ equivalents)
Environment	Net greenhouse gas emissions	E9.1	Greenhouse gas emissions—bulk utility (tonnes CO ₂ equivalents per ML)
Environment	Net greenhouse gas emissions	E10	Greenhouse gas emissions—sewerage (tonnes CO ₂ equivalents per 1,000 sewerage properties)
Environment	Net greenhouse gas emissions	IE10	Greenhouse gas emissions—sewerage (tonnes CO ₂ equivalents)
Environment	Net greenhouse gas emissions	E10.1	Greenhouse gas emissions—bulk utility sewerage (tonnes CO ₂ equivalents per ML)
Environment	Net greenhouse gas emissions	E11	Net greenhouse gas emissions other (net tonnes CO ₂ equivalents per 1,000 properties)
Environment	Net greenhouse gas emissions	IE11	Net greenhouse gas emissions—other (net tonnes CO ₂ equivalents)
Environment	Net greenhouse gas emissions	E11.1	Net greenhouse gas emissions—other: bulk utility (net tonnes CO ₂ equivalents per ML)
Environment	Net greenhouse gas emissions	E12	Total net greenhouse gas emissions (net tonnes CO ₂ equivalents per 1,000 connected water properties)
Environment	Net greenhouse gas emissions	IE12	Total net greenhouse gas emissions (net tonnes CO ₂ equivalents)
Environment	Net greenhouse gas emissions	E12.1	Total net greenhouse gas emissions—bulk utility (net tonnes CO ₂ equivalents per ML)
Environment	Sewer overflows	E13	Sewer overflows reported to the environmental regulator (no. per 100 km of sewer main)
Environment	Sewer overflows	IE13	Total number of sewer overflows reported to the environmental regulator
Finance	Revenue	F1	Total revenue—water (\$000)
Finance	Revenue	F2	Total revenue—sewerage (\$000)
Finance	Revenue	F3	Total Income for utility (\$000)
Finance	Revenue	F4	Residential revenue from usage charges—water (%)
Finance	Revenue	F5	Revenue per property for water supply services (\$/property)
Finance	Revenue	F5.1	Revenue for water supply services: bulk utility (\$/ML)

Indicator category	Indicator subcategory	Indicator Code	Indicator name
Finance	Revenue	F6	Revenue per property for sewerage services (\$/property)
Finance	Revenue	F6.1	Revenue for sewerage services—bulk utility (\$/ML)
Finance	Revenue	F7	Income per property for utility (\$/property)
Finance	Revenue	F7.1	Income for utility: bulk utility (\$/ML)
Finance	Revenue from community service obligations (CSOs)	F8	Revenue from Community Service Obligations (%)
Finance	Written-down replacement costs of fixed assets	F9	Written-down value of fixed water supply assets (\$000s)
Finance	Written down replacement costs of fixed assets	F10	Written-down value of fixed sewerage assets (\$000s)
Finance	Costs	F11	Operating cost—water (\$/property)
Finance	Costs	IF11	Operating cost—water (000s)
Finance	Costs	F11.1	Operating cost—water: bulk utility (\$/ML)
Finance	Costs	F12	Operating cost—sewerage (\$/property)
Finance	Costs	IF12	Operating cost—sewerage (000s)
Finance	Costs	F12.1	Operating cost—sewerage: bulk utility (\$/ML)
Finance	Costs	F13	Combined operating cost—water and sewerage (\$/property)
Finance	Costs	F13.1	Combined operating cost—water and sewerage: bulk utility (\$/ML)
Finance	Capital expenditure	F14	Total water supply capital expenditure (\$000s)
Finance	Capital expenditure	F15	Total sewerage capital expenditure (\$000s)
Finance	Capital expenditure	F16	Total capital expenditure for water and sewerage (\$000s)
Finance	Economic real rate of return	F17	Economic real rate of return—water (ratio)
Finance	Economic real rate of return	F18	Economic real rate of return—sewerage (ratio)
Finance	Economic real rate of return	F19	Economic real rate of return—water and sewerage (ratio)
Finance	Dividends	F20	Dividend (\$000s)
Finance	Dividends	F21	Dividend payout ratio (%)
Finance	Net debt to equity	F22	Net debt to equity (%)
Finance	Interest cover	F23	Interest cover (ratio)
Finance	Net profit after tax	F24	Net profit after tax (\$000s)
Finance	Community service obligations (CSOs)	F25	Community service obligations (\$000s)
Finance	Capital works grants	F26	Capital works grants—water (\$000s)
Finance	Capital works grants	F27	Capital works grants—sewerage (\$000s)
Finance	Capital expenditure	F28	Water supply capital expenditure (\$/property)
Finance	Capital expenditure	F28.1	Water supply capital expenditure: bulk utility (\$/ML)
Finance	Capital expenditure	F29	Sewerage capital expenditure (\$/property)
Finance	Capital expenditure	F29.1	Sewerage capital expenditure—bulk utility (\$/ML)
Finance	Net profit after tax	F30	NPAT ratio (%)
Health	Water quality compliance	H1	Water quality guidelines (text)
Health	Water quality compliance	H3	Percentage of population where microbiological compliance was achieved (%)
Health	Water quality compliance	H4	Number of zones where chemical compliance was achieved (e.g. 23/24)
Health	Water quality compliance	H5	Risk-based drinking water management plan externally assessed? (yes/no)
Pricing	Residential tariff structure	P1	Tariff structure—water (text)
Pricing	Residential tariff structure	P1.1	Free water allowance—water (kL/property)

Indicator category	Indicator subcategory	Indicator Code	Indicator name
Pricing	Residential tariff structure	P1.2	Fixed charge—water (\$/property))
Pricing	Residential tariff structure	P1.3	Usage charge 1st step (\$/kL)
Pricing	Residential tariff structure	P1.4	Usage charge 2nd step (\$/kL)
Pricing	Residential tariff structure	P1.5	Usage charge 3rd step (\$/kL)
Pricing	Residential tariff structure	P1.6	Usage charge 4th step (\$/kL)
Pricing	Residential tariff structure	P1.7	Usage charge 5th step (\$/kL)
Pricing	Residential tariff structure	P1.8	Usage charge 6th step (\$/kL)
Pricing	Residential tariff structure	P1.9	Usage charge 7th step (\$/kL)
Pricing	Residential tariff structure	P1.10	Usage charge 8th step (\$/kL)
Pricing	Residential tariff structure	P1.11	Usage charge 9th step (\$/kL)
Pricing	Residential tariff structure	P1.12	Special levies—water (\$)
Pricing	Residential tariff structure	P1.13	Income from special levies reported by utility—water (yes/no)
Pricing—annual bill	Annual bill (based on 200 kL residential water supplied)	P2	Annual bill based on 200kL/a—water (\$)
Pricing	Residential tariff structure	P2.1	Average annual residential water supplied (kL/property)
Pricing—annual bill	Annual bill (based on 200 kL residential water supplied)	P3	Typical residential bill—water (\$)
Pricing	Residential tariff structure	P4	Tariff structure—sewerage (text)
Pricing	Residential tariff structure	P4.1	Fixed charge—sewerage (\$/property)
Pricing	Residential tariff structure	P4.2	Usage charge—sewerage (\$/kL)
Pricing	Residential tariff structure	P4.3	Special levies—sewerage (\$/property)
Pricing	Residential tariff structure	P4.4	Income from special levies reported by utility—sewerage (yes/no)
Pricing—annual bill	Annual bill (based on 200 kL residential water supplied)	P5	Annual bill based on 200 kL/a—sewerage (\$)
Pricing—annual bill	Annual bill (based on average residential annual water supplied)	P6	Typical residential bill—sewerage
Pricing—annual bill	Annual bill (based on 200 kL residential water supplied)	P7	Annual bill based on 200 kL/a—water and sewerage (\$)
Pricing—annual bill	Annual bill (based on average residential annual water supplied)	P8	Typical residential bill—water and sewerage (\$)
Water resources	Sources of water	W1	Volume of water sourced from surface water (ML)
Water resources	Sources of water	W2	Volume of water sourced from groundwater (ML)
Water resources	Sources of water	W3.1	Volume of water sourced from desalination of marine water (ML)
Water resources	Sources of water	W4	Volume of water sourced from recycling (ML)
Water resources	Sources of water	W5	Volume of water received from bulk supplier (ML)
Water resources	Sources of water	W5.1	Volume of potable water received from bulk supplier (ML)
Water resources	Sources of water	W5.2	Volume of non-potable water received from bulk supplier (ML)
Water resources	Sources of water	W6	Volume of bulk recycled water purchased (ML)
Water resources	Sources of water	W7	Total sourced water (ML)
Water resources	Uses of water supplied	W8	Volume of water supplied—residential (ML)
Water resources	Uses of water supplied	W8.1	Volume of potable water supplied—residential
Water resources	Uses of water supplied	W8.2	Volume of non-potable water supplied—residential
Water resources	Uses of water supplied	W9	Volume of water supplied—commercial, municipal and industrial (ML)
Water resources	Uses of water supplied	W9.1	Volume of potable water supplied—commercial, municipal and industrial (ML)

Indicator category	Indicator subcategory	Indicator Code	Indicator name
Water resources	Uses of water supplied	W9.2	Volume of non-potable water supplied—commercial, municipal and industrial (ML)
Water resources	Uses of water supplied	W10	Volume of water supplied—other (ML)
Water resources	Uses of water supplied	W10.1	Volume of potable water supplied—other (ML)
Water resources	Uses of water supplied	W10.2	Volume of non-potable water supplied—other (ML)
Water resources	Uses of water supplied	W10.3	Volume of water supplied—managed aquifer recharge (ML)
Water resources	Uses of water supplied	W10.4	Volume of water supplied—agricultural irrigation (ML)
Water resources	Uses of water supplied	W11	Total urban water supplied (ML)
Water resources	Uses of water supplied	W11.1	Total urban potable water supplied (ML)
Water resources	Uses of water supplied	W11.2	Total urban non-potable water supplied (ML)
Water resources	Uses of water supplied	W11.3	Total volume of potable water produced (ML)
Water resources	Uses of water supplied	W12	Average annual residential water supplied (kL/property)
Water resources	Uses of water supplied	W13	Volume of water supplied—environmental flows (ML)
Water resources	Uses of water supplied	W14	Volume of bulk water exports (ML)
Water resources	Uses of water supplied	W14.1	Volume of potable bulk water exports (ML)
Water resources	Uses of water supplied	W14.2	Volume of non-potable bulk water exports (ML)
Water resources	Uses of water supplied	W15	Volume of bulk recycled water exports (ML)
Water resources	Sewage collected	W16	Volume of sewage collected—residential sewage, non-residential sewage and non-trade waste (ML)
Water resources	Sewage collected	W17	Volume of sewage collected—trade waste (ML)
Water resources	Sewage collected	W18	Total sewage collected (ML)
Water resources	Sewage collected	W18.1	Volume of sewage supplied to other infrastructure operators (ML)
Water resources	Sewage collected	W18.2	Volume of sewage taken from other infrastructure operators (ML)
Water resources	Sewage collected	W18.3	Volume of sewage taken from sewer mining (ML)
Water resources	Sewage collected	W18.4	Volume of sewage measured at inlet to treatment works (ML)
Water resources	Sewage collected	W18.5	Volume of sewage treated effluent (ML)
Water resources	Sewage collected	W19	Sewage collected per property (kL/property)
Water resources	Uses of recycled water & stormwater	W20	Volume of recycled water supplied – residential (ML)
Water resources	Uses of recycled water & stormwater	W21	Volume of recycled water supplied—commercial, municipal and industrial (ML)
Water resources	Uses of recycled water & stormwater	W22	Volume of recycled water supplied—agricultural (ML)
Water resources	Uses of recycled water & stormwater	W23	Volume of recycled water supplied—environmental (ML)
Water resources	Uses of recycled water & stormwater	W24	Volume of recycled water supplied—on-site (ML)
Water resources	Uses of recycled water & stormwater	W25	Volume of recycled water supplied—other (ML)
Water resources	Uses of recycled water & stormwater	W25.1	Volume of recycled water supplied—managed aquifer recharge (ML)
Water resources	Uses of recycled water & stormwater	W26	Total recycled water supplied (ML)
Water resources	Uses of recycled water & stormwater	W27	Recycled water (percent of effluent recycled)
Water resources	Uses of recycled water & stormwater	W28.1	Volume of urban stormwater supplied to other infrastructure operators (ML)
Water resources	Uses of recycled water & stormwater	W28.4	Volume of urban stormwater used (ML)
Water resources	Uses of recycled water & stormwater	W29	Total volume of treated and untreated sewage discharges from a sewage discharge point (ML)

Appendix E CPI indexation

Period	CPI-weighted average	% change from previous period	% change applied to values
2016–17	110.2	1.8	0.000
2015–16	108.3	1.4	1.018
2014–15	106.8	1.7	1.032
2013–14	105.0	2.6	1.050
2012–13	102.3	2.3	1.077
2011–12	100.0	2.4	1.102
2010–11	97.7	3.1	1.128
2009–10	94.8	2.4	1.162
2008–09	92.6	3.1	1.190
2007–08	89.8	3.3	1.227
2006–07	86.9	3.0	1.268
2005–06	84.4	3.2	1.306
2004–05	81.8	2.4	1.347
2003–04	79.9	2.4	1.379

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*, the *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*, the *Water Resources Act 2007*, *Environment Protection Act 1997*, *Water and Sewerage Act 2000* (for plumbing and sanitation services), and *Public Health Act 1997*.

The *Utilities Act 2000* 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 incorporating biennial reviews was issued in June 2013 for the next price-path period up to 30 June 2018. That price path was reviewed by an independent panel which made a substitute decision in May 2015. An annual review 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. Prices set for 2016–17 are:

Water prices (\$, current prices), 2015–16 to 2016–17 (\$, current prices)

	2015–16	2016–17	Change (%)
Fixed (\$/year)	101.14	101.48	0.3
Tier 1 (0–200 kL/a) (\$/kL)	2.60	2.61	0.4
Tier 2 (200 kL/a+) (\$/kL)	5.22	5.24	0.4

Sewerage services prices (\$, current prices), 2015–16 to 2016–17

	2015–16	2016–17	Change (%)
Supply charge (\$/year)	523.18	529.38	1.2
Fixture charge non-residential customers (\$/year) ^a	511.66	517.73	1.2

The next determination is due in June 2018 to commence for the period 1 July 2018 to 30 June 2023.

Since November 2015, the ICRC has released a number of issues papers on the pricing of Icon Water's water and sewerage services tariff. During 2016–17, the ICRC released the following reports:

- *Report 5 of 2016: Tariff Review—Draft Report*
- *Report 3 of 2017: Tariff Structure Review*
- *Report 4 of 2017: Issues Paper—Regulated Water and Sewerage prices 2018–2023s*

Icon Water on 1 July 2017 submitted its price proposal for 2018–2023 determination to the ICRC.

Report 5 of 2017 is the ICRC report on maximum prices for water and sewerage services as a price adjustment for 2017–18.

The community was able to make submissions to these reports and there have been public hearings on the price path determination process.

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 1990*.

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.

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*.

In 2016–17, the ACT received a rainfall amount 611.8 mm (at the airport reading), which is just below the long-term average of 616 mm. The period was marked by dry periods such as June 2017 but good rainfall in March and September.

Water consumption remained similar to recent years.

F1.3 Operation of water utilities

ACT Health regulates water quality under the *Territory's Public Health Act 1997*, 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 Drinking Water Utility Licence and the Public Health (Drinking Water) Code of Practice (2007) in 2014–15. Icon Water also published its *Annual drinking water quality report 2016–17* in accordance with the code in 2017.

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–Goongong 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 2016–17* was provided to the ACT Government in September 2017.

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 NSW, urban water supply and sewerage services are provided by three State-owned metropolitan 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 metropolitan water utilities in NSW: Hunter Water, Sydney Water, and WaterNSW. IPART also determines maximum prices that Central Coast Council and Essential Energy can charge their customers for the provision of water and sewerage services.

The Department of Industry oversees and monitors regional water utility performance, and is the primary regulator for all of the New South Wales LWUs, including 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 Office of Environment and Heritage (NSW), and the NSW Dam Safety Committee, are each responsible for aspects of the regulation of NSW 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 2008*, and the following NSW legislation: *Water Management Act 2000*, *Water Act 1912*, *Protection of the Environment 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 NSW metropolitan utilities, (Sydney Water, WaterNSW, and Hunter Water), are created by and derive their responsibilities and areas of operations from their respective Acts (the *Sydney Water Act 1994*, the *Water NSW Act 2014*, and the *Hunter Water Act 1991*).

The 92 regional urban LWUs derive their responsibilities from and operate mainly under the *Local Government Act 1993*. Four LWUs (Central Coast, Essential Energy, Fish River, and Cobar Water Board) operate as water supply authorities under the *Water Management Act 2000*.

F2.3 Operation of water utilities

The regulatory oversight of water utilities in NSW is shared between different agencies. IPART regulates operating licences that have been issued to Sydney Water (under Part 5 of the *Sydney Water Act 1994*), Hunter Water (under Part 5 of the *Hunter Water Act 1991*), and WaterNSW (under Part 2 of the *WaterNSW Act 2014*). The operating licences include obligations relating to water quality, asset management, water quantity, environmental/catchment management, compliance, and performance reporting. IPART also determines the maximum prices these utilities can charge its customers for water services.

IPART conducts major operating 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 Industry is the primary regulator of all of New South Wales 92 regional LWUs, under the NSW Government's comprehensive Best-Practice Management of Water Supply and Sewerage Framework (www.water.nsw.gov.au). The Framework is the key driver for the reform of planning, management, pricing, and continuing performance improvement of the LWUs. Eligibility for dividend payments to councils' general revenue is conditional on the implementation of the 19 requirements of the Framework.

Under the current Framework each LWU needs to prepare and implement a 30-year Integrated Water Cycle Management (IWCM)³⁰ strategy, and Strategic Business Plan (SBP), alternatively, every four years in consultation with their community—that is, if an IWCM strategy is prepared this year, in four years' time a 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 planning for sustainable and equitable delivery of water supply, sewerage and stormwater services into the future that encompasses water security and quality measures, new infrastructure and asset renewals needs and associated resourcing and financing needs. The strategy 'right sizes' any necessary infrastructure projects and provides the best value for money on the triple bottom line (TBL) basis of social, environmental, and economic considerations. The Department of Industry reviews each LWU's IWCM strategy and provides confirmation to each utility that its final IWCM strategy is sound. The key outcomes of the IWCM strategy is a sound 30-year total asset management plan, associated resourcing and financing plan and an emergency response plan. The SBP is effectively a mid-term review of the strategy and the underlying assumptions and updates the asset management and financial plans.

Each LWU needs to prepare and implement a risk-based drinking water management system (NSW Health and the Department of Industry 2013, in accordance with the *Australian Drinking Water Guidelines 2011*). The water-quality management systems need to be independently audited.

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 NSW regional water utility will need 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 is 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 1993*. This ensures that an independent and objective review of the proposed works is undertaken by the Department of Industry, where insights and expertise obtained from the Department of Industry'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 Department of Industry section 90(1) concurrence.

Under section 61 of the *Local Government Act 1993*, the Department of Industry 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 of Industry 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.

³⁰ The later of the integrated water cycle management strategy and strategic business plan is an LWU's peak planning document for water supply and sewerage. These must disclose the utility's levels of service, total asset management plan, and projected typical residential bills and should be made available on the utility's website. All of the LWUs serving more than 3,000 properties have completed a sound 20 to 30-year strategic business plan and financial plan that demonstrates the long-term financial sustainability of their water and sewerage businesses. The plans cover 94 per cent of LWUs and over 99 per cent of the urban population in regional New South Wales.

NSW Health regulates water quality in NSW and administers functions relating to water suppliers (Sydney Water, Hunter Water, and the regional LWUs) under the *Public Health Act 2010*. 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 programmes. NSW Health also conducts the NSW Drinking Water Quality Program,³¹ which tests and monitors the water quality of samples collected by the LWUs in accordance with the *Australian Drinking Water Guidelines 2011*.

F2.4 Water utilities in New South Wales

Sydney Water, 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 four million people in Sydney, the Illawarra, and the Blue Mountains. Drinking water is sourced from a network of dams managed by WaterNSW 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 *WaterNSW Act 2014* 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.

Hunter Water 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.

There are 92 regional LWUs in NSW, down from the previously reported 105 LWUs due to amalgamations of 25 of the LWUs into 12 new LWUs. The 92 regional LWUs in NSW range in area from 285 square km (Orange) to over 50,000 square km (Central Darling), while the population served ranges from 1,000 (Central Darling) to approximately 324,000 (Central Coast). There are 28 regional NSW 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 (Productivity Commission 2011).

The metropolitan water utilities are required to report on the performance indicators in their operating licences and this reporting is audited each year through the annual operating licence audit. The audit results are presented to the responsible minister. These utilities also report the NWI performance indicators required for the Urban NPR.

With the exception of the 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 audits the 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.

31 See Appendixes B (p. 235), D1 (p. 281) and H (p. 344) of the NSW Office Water 2015.

Department of Industry annually reports the performance of all the New South Wales utilities.³² The LWU data is audited as follows:

- All of the 30 NWI financial performance indicators are independently audited annually for 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 the NSW Performance Monitoring System is not independently audited; however, in order to assure data reliability, the data is subject to a comprehensive data validation process.

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

F3 Northern Territory

F3.1 Establishment of service providers

The NT *Water Supply and Sewerage Services Act 2009* 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 in so far 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 2009* 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
- 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
- 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 2009*

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
- that the licensee procures an audit, if required by the Utilities Commission, of its compliance with the terms of the licence.

³² The NSW reference rates manual for valuation of water supply, sewerage, and stormwater assets provides current unit rates and guidance on the valuation and depreciation of such assets. Further information is available from www.water.nsw.gov.au.

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 1992* 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 2009*, 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 1992* 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 2012*.

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 is 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 is publicly available is reviewed and/or signed off at the senior management level. NPR data is 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 of Environment, Water and Natural Resources 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 2012* 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
- removal and treatment of wastewater.

SA Water Corporation provides drinking water to approximately 766,000 customers, servicing around 99 per cent of the State's drinking water customers. SA Water Corporation also provides sewerage services to approximately 599,000 customers, servicing around 87 per cent of the State's sewerage customers.

The 66 other water and sewerage retailers provide drinking water to approximately 6,000 customers and sewerage services to around 91,000.

F4.3 Operation of water utilities

Section 35 of the *Water Industry Act 2012* 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 *SA Water Corporation Act 1994* 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
- 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.

Industry regulators for the sector are the: Office of the Tasmanian Economic Regulator (OTTER), 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*.

In March 2017, the Tasmanian Government announced that it would introduce legislation to take over ownership of the Tasmanian Water and Sewerage Corporation Pty Ltd (TasWater) from 1 July 2018. TasWater is the only licensed water utility in the State. Legislation dealing with the proposed transfer of ownership of TasWater and its restructure as a Government Business Enterprise was passed by the House of Assembly (the lower house) on 17 August 2017. The legislation was read for the first time in the Legislative Council (the upper house) on 15 September 2017. A Select Committee was also established by the Legislative Council to inquire into and report on the benefits and challenges of the Government's proposal, which included public hearings. Following debate on 23 November 2017, the Legislative Council voted against the legislation.

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 re-use 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
- deliver water and sewerage services to customers in the most cost-efficient manner.

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 (ie 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 (ie the estimated demand placed on the system) of each property.

F5.4 Performance reporting

One of the OTTER's regulatory functions is to monitor and report on the state of the Tasmanian water and sewerage industry.³³ 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 OTTER'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
- 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 during 2018–19.

The OTTER's approach to regulatory reporting is set out in its *Regulatory Reporting Guideline Version 3*. Its approach to managing noncompliance 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 SEQ by Seqwater.

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).

³³ The OTTER's annual water and sewerage state of the industry reports are available on its website, www.economicregulator.tas.gov.au

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 2008*, *South East Queensland Water (Distribution and Retail Restructuring) Act 2009*, *South East Queensland Water (Restructuring) Act 2007*, and *Queensland Water Act 2000* (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 2002* 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 2009* and *Water Act 2000* (managed by DNRME)
- *Local Government Act 2009* 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

Queensland has a total of 174 registered water service providers of which 86 are potable water and sewerage service providers and 88 are non-potable water service providers.³⁴ This includes many entities that are not traditional utilities.

In approximate terms, 30 per cent of Queensland's urban drinking water connections are serviced by Queensland Urban Utilities, another 30 percent are serviced by Unitywater and Gold Coast City. The other two providers in SEQ (Logan and Redland City Councils) take SEQ to 70 per cent of the connections in the state. The remaining 15 providers covered in this report take the total coverage of NPR reporting to 95 per cent of the state. The remaining 5 per cent of connections are served by 58 small retail service providers which are covered by the Queensland Government's performance monitoring framework using a subset of NPR indicators.

F6.5 Performance reporting

The regulatory framework for water service providers in Queensland in the *Water Supply (Safety and Reliability) Act 2008* was amended in May 2014 to focus on outcomes rather than process.

³⁴ Data is supplied by the the Department of Energy and Water Supply, current as at 1 January 2018 www.DNRME.qld.gov.au/__data/assets/excel_doc/0011/88967/service-provider-register.xlsx

The regulatory approach aligns with the NPR framework and uses mandatory reporting on key performance indicators and public and comparative performance reporting. Service providers are now 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 indications. It receives annual performance reports, undertakes data validation, administers compliance with the Water Supply (Safety and Reliability) Act 2008, and incident or quarterly reporting requirements under this Act, including managing the systems that store information.

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 to NPR 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 publishes an annual comparative report on water industry performance state-wide 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 is also made publicly available as part of the open data requirements.

DNRME administers the NPR 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) of Victoria, (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 *Water Act 1989*. 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 41 of the *Water Industry Act 1994*, 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 DEWLP, 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 2003* 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 framework³⁵. 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 re-use 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.³⁶

The ESC is responsible for price regulation and setting service standards for water services in Victoria under Part 1A of the *Water Industry Act 1994*, 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
- 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, and Yarra Valley Water. The three retailers (City West Water, South East Water, and Yarra Valley Water) 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.

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,³⁷ and Westernport Water).

³⁵ 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.

³⁶ Details of the environmental regulatory framework and how it applies to water businesses are available from www.epa.vic.gov.au/water/EPA/controls.asp

³⁷ Whilst Western Water provides its own bulk and retail services, it also draws on Melbourne Water's bulk water services.

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
- 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 1989*.

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 1994* 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 1989*, 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.

Price submissions (previously called water plans) are generally required every five years.³⁸ 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.

³⁸ Melbourne Water and Goulburn–Murray Water's price determinations for the 3-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 will cover a 5-year period for Melbourne Water and a 4-year period for Goulburn Murray Water.

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 (<https://www.esc.vic.gov.au/project/water/2033-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
- 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 is 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).

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 departments of Health and Environment Regulation as well as 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 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 2012*, 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) 2013 prescribes the customer service standards applicable to water and sewerage licensees.

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.

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 Act 1911*. 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 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 of Water and Environmental Regulation regulates the environmental impacts of water service providers through the *Environmental Protection Act 1986*. 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, oversees the land use planning implications of the operations of the water service providers, according to requirements of the *Planning and Development Act 2005*.

The ERA does not have water price-setting powers but was previously requested by the WA Government to undertake an independent review of pricing for the Water Corporation, Aqwest, and Busselton Water. The ERA's reports on its reviews of water pricing have included recommendations to the WA Government on the pricing of water supply and sewerage services supplied by these service providers. The final decision on pricing, however, rests with the WA Minister for Water.

The *Water Services Act 2012* 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. They include the Water Corporation, Aqwest, Busselton Water and the City of Kalgoorlie—Boulder.

The Water Corporation is a statutory State-owned corporation 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 km². It has regional offices in Perth, Bunbury, Albany, Karratha, Geraldton, Northam, and Kalgoorlie.

Bunbury Water Corporation is a Government trading enterprise operating under the *WA Water Corporations Act 1995*, trading as Aqwest. The Aqwest licence permits the supply of potable and non-potable water to the regional centre of Bunbury, approximately 190 km south of Perth.

Busselton Water Corporation is a Government trading enterprise operating under the *Water Corporations Act 1995*, 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. Busselton Water also supplies bulk water to the Water Corporation in Dunsborough.

The State-owned corporations (Aqwest, 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, 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, Hamersley Iron, Moama Lifestyle Villages, the Rottne Island Authority, Robe River Mining Company, Peel Water, WA Sewage, and four small regional local governments.³⁹

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 produces the annual 'Water, sewerage and irrigation performance report', which presents performance data provided by licensed urban service providers, including those that report under the Urban NPR, with more than 1,000 connected properties, and two of WA's largest rural water service providers. 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.

³⁹ Between April and May 2017, the WA Minister for Water exempted 16 small regional local government sewerage and non-potable water suppliers from being licensed. The exemption is for a period of five years.

