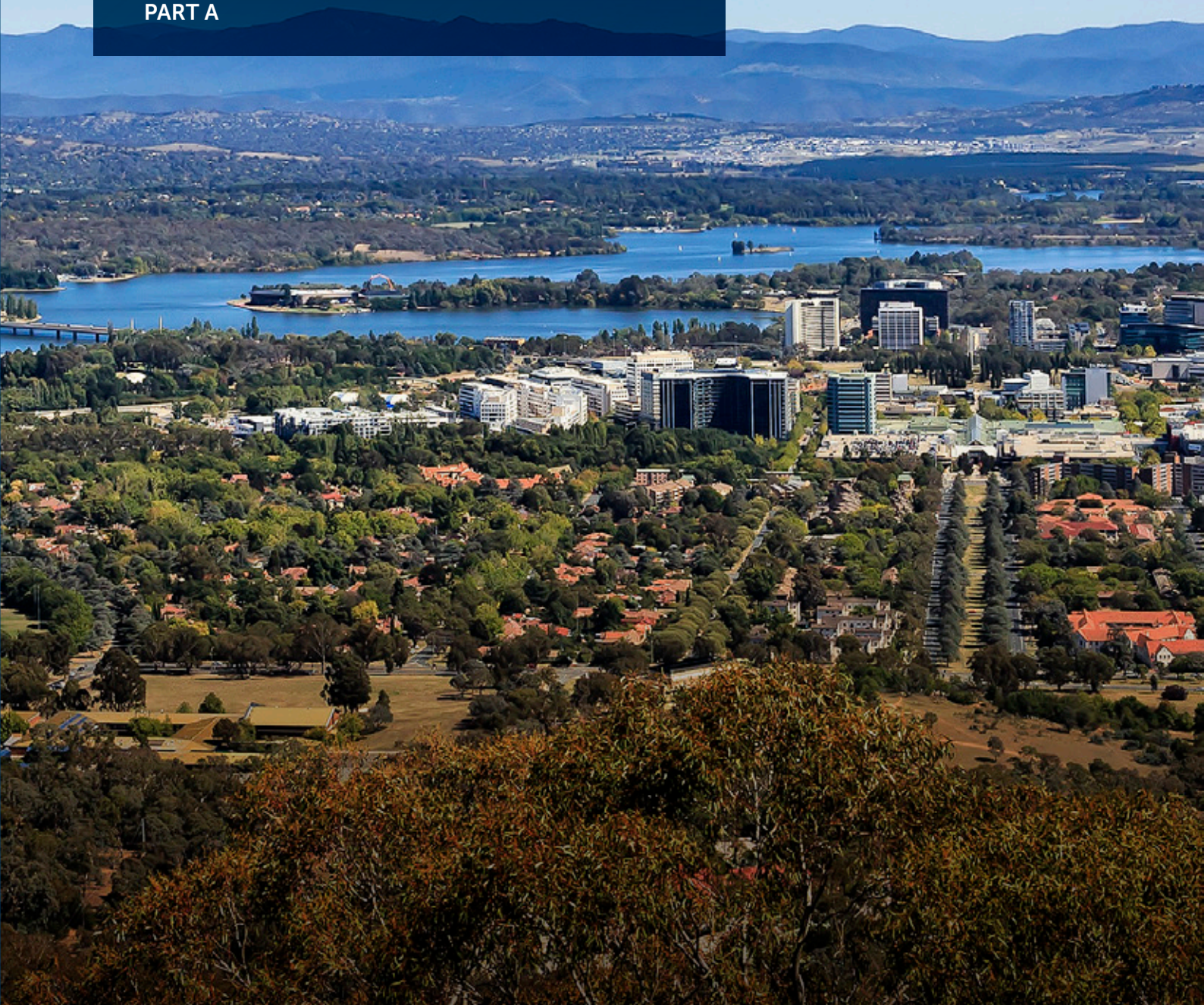
Australian Government
Bureau of Meteorology

National performance report 2015–16: **urban water utilities**

PART A



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Tables, graphs, and performance narratives are produced by the Bureau of Meteorology.

The Bureau and the Roundtable Group of States and Territories for urban water reporting would like to acknowledge the passing of Sam Samra of the Department of Primary Industries (NSW) in August 2016. Sam was an original member of the Roundtable Group of States and Territories and was instrumental in developing the National Framework for Reporting on Performance of Urban Water Utilities. He was well known and widely respected for his expertise and enthusiasm in water and wastewater services and made a substantial contribution to the water industry through his distinguished career of more than 50 years. He leaves behind a professional legacy of sound management and performance reporting of water and wastewater systems that will continue to contribute to better health and improved quality of life for residents of urban and regional New South Wales. His contribution at both State and national levels and his advice and expertise was invaluable. Sam will be greatly missed.

Disclaimer

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

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National performance report 2015–16: **urban water utilities**

PART A

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NSW Government
Department of Primary Industries
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Queensland Government

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Government of South Australia

WATER SERVICES ASSOCIATION OF AUSTRALIA

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Explanatory notes

Utilities

Within the tables and charts of this report, utilities that form part of a city council, shire council, regional council, or similar local government entity are reported under only the town or city name (e.g. 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:

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

Utility types

Nine of the reporting utilities are 'single-service' utilities, five of which provide water services only and four of which provide sewerage services only. Utilities that provide water-only services are denoted by '(W)' after its name; those that provide sewerage-only services are denoted by '(S)'.

Note also that Goldenfields Water has two businesses: a bulk business, Goldenfields (B), and a water reticulation business, Goldenfields (R).

Bulk water agencies operate in a number of jurisdictions across Australia. These agencies are wholesalers of water and wastewater services and do not have a direct relationship with retail customers. For example, Melbourne Water supplies bulk water and wastewater services to the eight retail utilities within the Victorian region (City West Water, South East Water, Yarra Valley Water, Western Water, Gippsland Water, Barwon Water, South Gippsland Water, and Westernport Water).

Utility groups

For the purpose of this report, the 79 contributing utilities are grouped according to number of connected properties (the 7 bulk water suppliers are grouped separately). There are four size groups, as follows:

- 100,000+ connected-properties group (100,000+ size group)
- 50,000–100,000 connected-properties group (50,000–100,000 size group)
- 20,000–50,000 connected-properties group (20,000–50,000 size group)
- 10,000–20,000 connected-properties group (10,000–20,000 size group).

Reporting years

In the context of this report:

- The terms '2015–16' and 'reporting year' refer to the 2015–16 reporting year.
- References to years are according to reporting years (1 July – 30 June) and not by calendar year.

Tables

In the context of the tables in this report, certain data have the following meaning:

0 = result was 0

blank = result was not supplied, was not available, or results were not applicable

It should be noted that historical values for all financial indicators have been adjusted using consumer price index (CPI) data to facilitate comparison in real terms.

Other common abbreviations

NPR	=	national performance report
Urban NPR	=	National performance report: urban water utilities
2016 Urban NPR	=	*2015–16 National performance report: urban water utilities*
2015 Urban NPR	=	*2014–15 National performance report: urban water utilities*
Bureau	=	Bureau of Meteorology

Interpreting the 'Overview of results' tables

Figure EN1 demonstrates 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		Change in median from previous year %
	High	Low	Increase	Decrease	Previous year	Current year	
100,000+ connected properties	249	140	10	1	158	162	3
	WC (Perth)	Logan					
50,000–100,000 connected properties	454	130	9	1	164	181	10
	P&W (Darwin)	Toowoomba					
20,000–50,000 connected properties	479	143	17	1	175	201	15
	Lower Murray Water	MidCoast Water					
10,000–20,000 connected properties	450	80	19	5	174	179	3
5 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 size group.
2. These columns show the number of utilities that reported an increase and those that reported a decrease from the previous year result for each size group. Where a utility did not report in both years it is not included in this column.
3. The median value is the middle number in the range of results. For example, if there were five utilities reporting for this indicator and their results were 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 have been divided by the number of properties (per property), the summary tables presents the sum (or total) of the results. Where a utility did not report in both years it is not included in this column.
4. This column shows the percentage change between the current and previous years and has been rounded to the nearest integer.
5. 'Multiple utilities' means that more than one utility recorded this value.

Figure EN1 Example and explanation of an 'Overview of results' table

Interpreting the box-and-whisker plots

In order to show trends in the annual distribution of key indicators the report utilises box-and-whisker plots. Figure EN2 demonstrates how to interpret these figures.

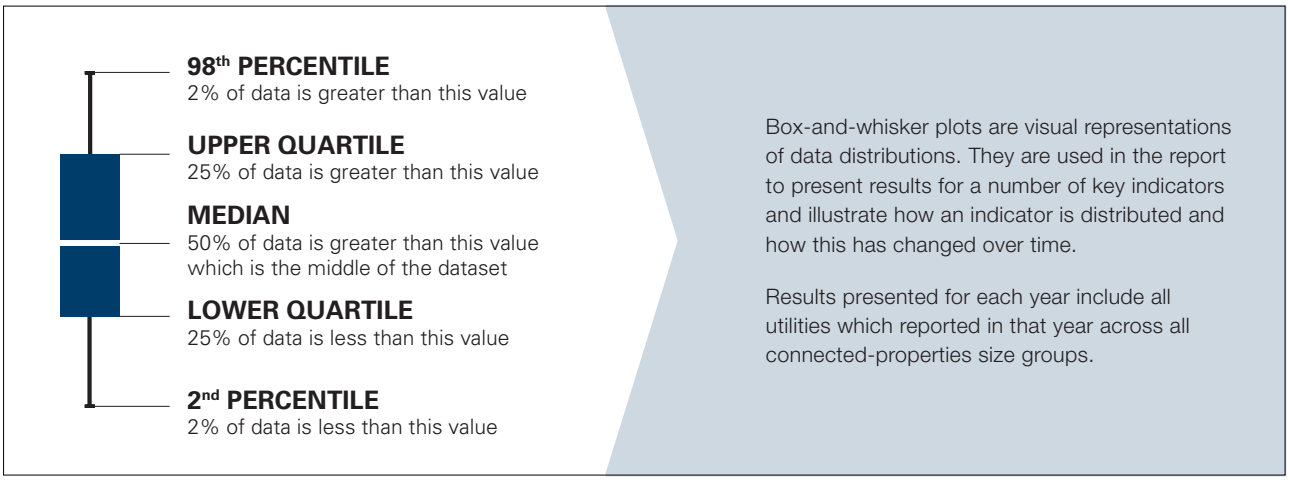

Figure EN2 Example and explanation of a box-and-whisker plot

Notes on commentary

When interpreting the data and commentary in this report, the following matters should be considered:

- The indicator codes in the titles of each section, chart, and table are specific to each indicator and can be cross-referenced with the *National Performance Framework: 2015–16 urban water performance report indicators and definitions handbook*.
- The 2016 Urban NPR presents analysis based on median values. The median is the preferred metric for the Urban NPR dataset because in many cases there are outlying results that can affect the average. Using the average in these cases 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. In cases where average results are presented in addition to the median, they should be interpreted in conjunction with the data itself.
- Individual performance indicators in this report should not be interpreted in isolation. A low ranking for a particular indicator does not necessarily mean that the utility is performing well or badly because a number of factors can influence performance. 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' has often been omitted to improve the flow of the commentary. 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'. It is important to remember that it is not the absolute number of water main breaks that is being referenced, but rather the number of breaks per 100 km of water main.
- Single-service utilities are included in the 'Overview of results' tables only where comparisons can still be made on a like-for-like basis with utilities that provide both water and sewerage services. Otherwise, they have been excluded from calculations of the median values and high/low results. 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.
- Charts and tables are presented in order of reported results, that is, from the utility with the highest result for the indicator to the utility with the lowest.

- Financial time-series information is given in real 2015–16 dollars; that is, the impact of inflation has been removed to ensure that years can be compared on a like-for-like basis. CPI figures can be found at Appendix E (CPI Indexation).
- The '% change' column (the last column in most tables) is calculated from 2014–15 and 2015–16 and figures have been rounded (usually) to the nearest integer.
- For indicators P3 and P6 ('Typical residential bill'), the adjective 'typical' is used in this report rather than 'average' because the average is affected by vacant lots that pay no usage charges and by pensioners, who generally receive a pensioner concession.
- The 2016 Urban NPR provides summary tables covering all utility groups. Commentary is limited to a discussion of the 100,000+ utility size group only.

Executive summary

The National performance report 2015–16: urban water utilities (2016 Urban NPR) compares the performance of 86 water utilities providing urban water services to over 20 million people across Australia. It is the eleventh in the series of national performance reports and the third to be produced by the Bureau of Meteorology.

This Part A of the report provides an overview of the key drivers of water performance in 2015–16, including rainfall, temperature, utility size, and water source availability, and provides a context for urban water performance. The report's commentary and analysis includes key indicators covering water resources, pricing, finance, customer service, assets, environment and health.

Contrasting rainfall patterns following the breakdown of the 2015–16 El Niño.

In 2015–16 Australia experienced one of the stronger El Niño events of the last century, which contributed to rainfall deficiencies across southern and eastern Australia. Northwest Western Australia, the Top End, and Victoria recorded rainfall conditions very much below average with some areas within these regions recording their lowest rainfall on record.

Climate conditions started shifting in early 2016 with increased rainfall in southern Australia, particularly in South Australia. Extreme rainfall impacted northern and eastern Tasmania, removing short-term deficiencies in these areas. May and June recorded record-breaking rainfall across all States and Territories, heralding the end of the El Niño event (Bureau 2016).

Median residential water use remains steady

The 2015–16 median residential water use has remained steady when compared with the previous three years (2012–13 to 2014–15). During this time maximum temperatures across much of Australia were above-average. There has been a moderate increase in usage by the three larger utility size groups that has been offset by a significant decrease in the 10,000–20,000 utilities.

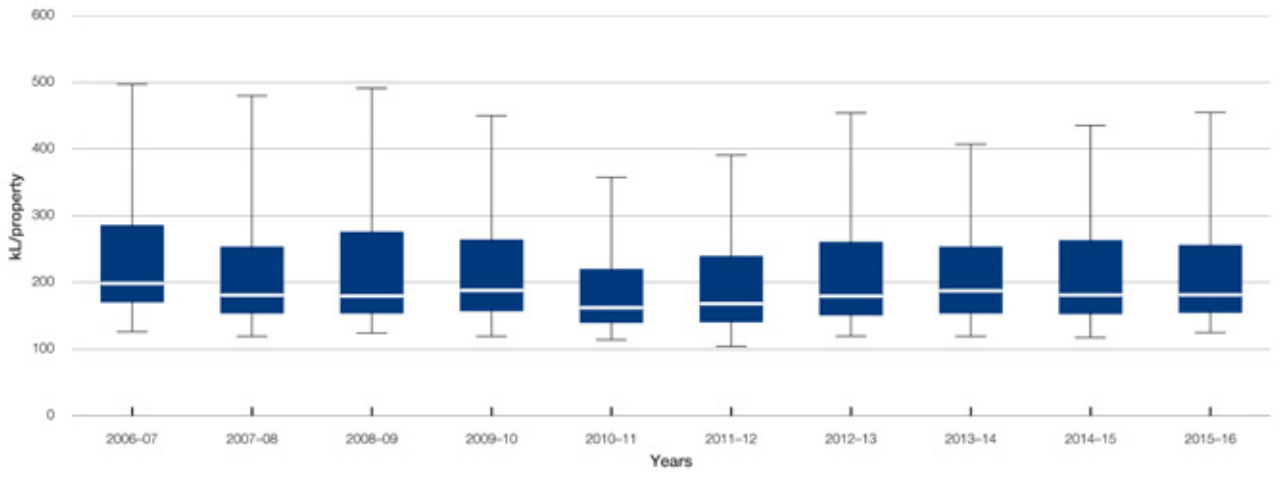

Figure ES1 W12—Average annual residential water supplied (kL/property), 2006–07 to 2015–16

Increased supply of recycled water by medium to large utilities

Nationally, the volume of recycled water supplied by utilities remained steady, decreasing by 2 per cent in 2015–16, after a 2 per cent increase reported in 2014–15.

The medium to large utilities (50,000–100,000 size group) have continued to increase their use of recycled water, up 7 per cent in 2015–16.

Typical residential bill growth has slowed in recent years

In real terms, increases in the national median typical residential bill for water and sewerage have slowed in recent years (Figure ES2). The national median typical residential bill for water and sewerage rose by 4 per cent in 2015–16, increasing to $1,386 in 2015–16 from $1,334 in 2014–15.

The 10,000–20,000 and 20,000–50,000 size groups reported a 7 per cent and 5 per cent increase in the median typical bill respectively.

Figure ES2 highlights the long-term trend for the typical residential bill and is based on all utilities reporting within each year. There is an increasing trend in the median typical residential bill over this period, with increases above CPI.

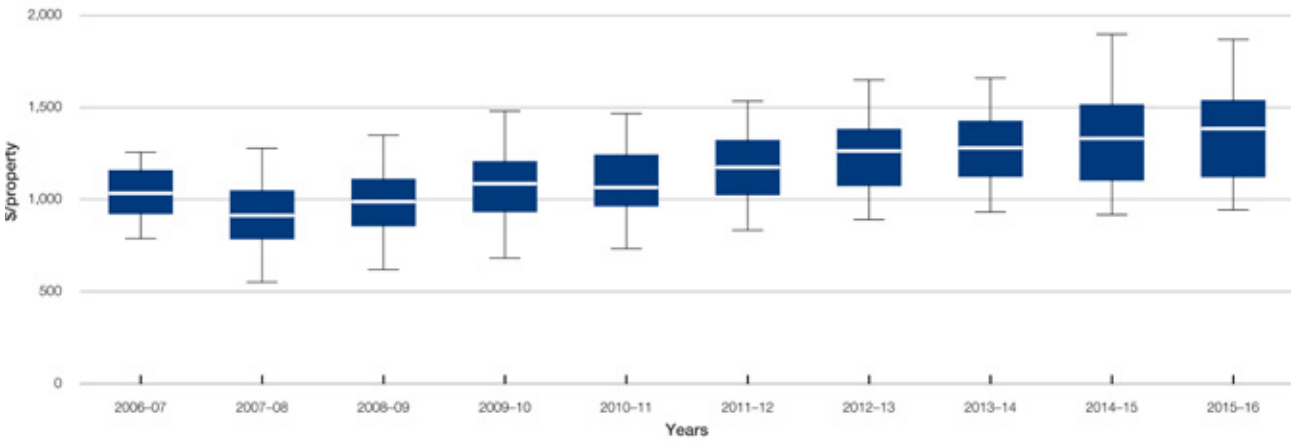

Figure ES2 P8—Typical residential bill: water and sewerage ($), 2006–07 to 2015–16*

* P8 was introduced for the first time in the 2006–07 reporting year.

Total capital expenditure remains consistent in recent years

In real terms, total capital expenditure on water supply and sewerage services by utilities has remained steady over the last three years, with utilities reporting only a $9.2 million increase from 2013–14 to 2015–16.

Figure ES3 shows the total capital expenditure for water supply and sewerage services over the period 2007–08 to 2015–16. While capital expenditure was highly variable in the period 2007–08 to 2010–11, there has been a clear downward trend with capital expenditure becoming more consistent in recent years.

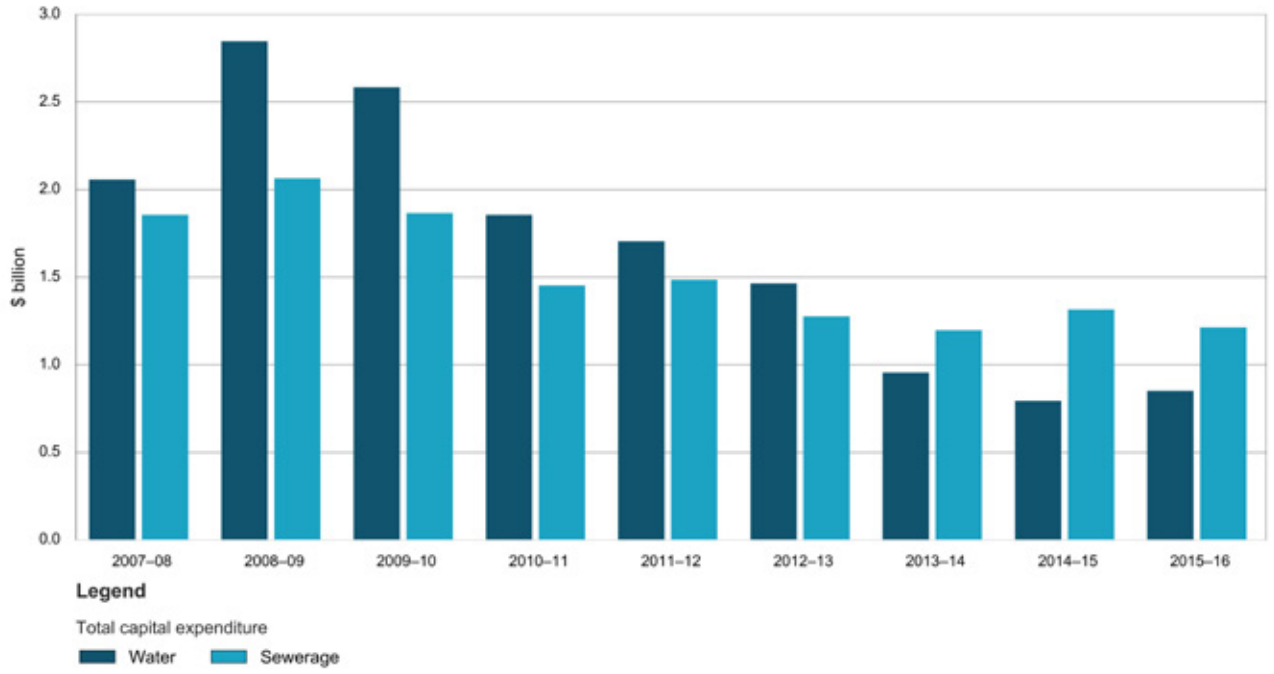

Figure ES3 F16—Total capital expenditure: water and sewerage ($ billion), 2007–08 to 2015–16*

* Total is for utilities that reported for all nine years.

Long-term combined operating costs increase over time

The national median combined operating costs, on a dollar per property basis, has shown a steady increase over time even though the year-to-year values fluctuate. In 2015–16 it was $920 per property, up from $896 in 2014–15. This is demonstrated in Figure ES4.

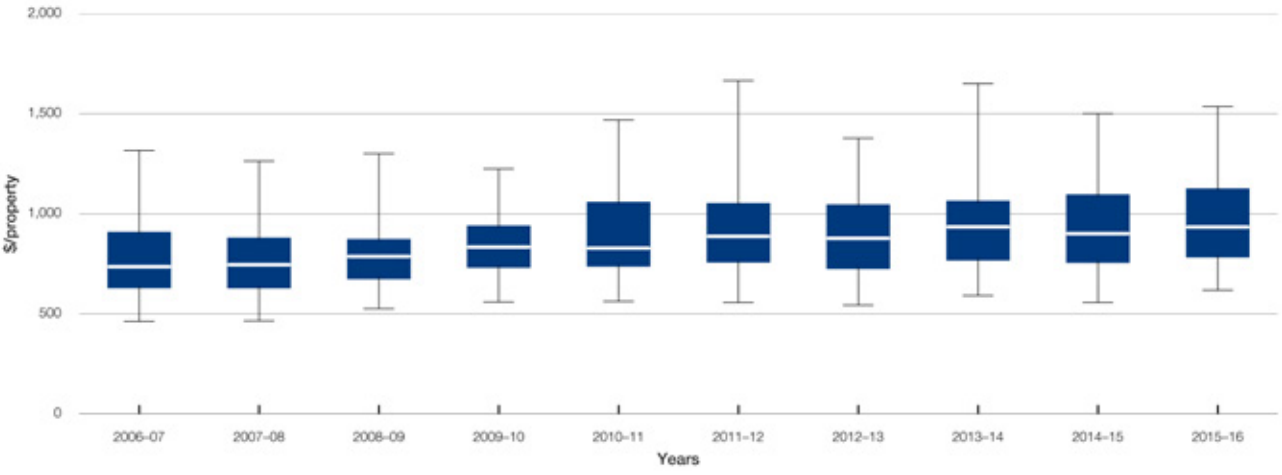

Figure ES4 F13—Combined operating costs: water and sewerage ($/property), 2006–07 to 2015–16

Water quality compliance remains strong

Water supply quality compliance, measured as the percentage of the population serviced by the utility for which microbiological compliance was achieved, remained strong across Australia in 2015–16. Compliance is assessed against the *Australian drinking water guidelines 2011* (Australian National Health and Medical Research Council) or licence conditions imposed on the utility. In the 2015–16 reporting year, the median percentage of population where microbiological compliance was achieved was close to 100 per cent.

1 Introduction

1.1 Context and overview

The National performance report 2015–16: urban water utilities (2016 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 (NWI clauses 75–76).

The 2016 Urban NPR compares the performance of 86 water utilities providing urban water services to over 20 million people across all of Australia. It is the eleventh in the series of national performance reports and is produced by the Bureau of Meteorology, 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 size groups. The utilities are grouped according to their number of connections (see 'Common abbreviations and explanatory notes').

The commentary and analysis contained in this report is not intended to be a comprehensive explanation of every reported indicator. It has been prepared to explain some of the more apparent trends or differences between years and utilities. Much of the information is sourced from publicly available documents, such as annual reports, regulatory decisions, and the utilities' websites.

1.2 Reporting

The 86 urban water service providers that have contributed data for the 2016 Urban NPR are listed in Appendix C. A summary of utility type by jurisdiction is shown in Table 1.1.

The 2016 Urban NPR includes changes to utilities in New South Wales due to the mergers of councils. This resulted in Gosford City Council, Wyong Shire Council, Dubbo City Council, and Queanbeyan City Council being removed from the 2016 Urban NPR and being replaced with the three new amalgamated water utilities: Central Coast Council, Dubbo Regional Council, and Queanbeyan–Palerang Regional Council.

The 86 urban water service providers included in this report are comprised of 79 water utilities and councils (collectively referred to as utilities) and 7 bulk water suppliers. Of the 79 utilities, 70 provide both reticulated water supply and sewerage services. The remaining utilities provide only water supply or sewerage services. In summary the breakdown is:

- water supply and sewerage: 70 utilities
- water supply only: 5 utilities
- sewerage only: 4 utilities
- bulk water: 7 suppliers.

Table 1.1 Utilities reporting in the 2016 Urban NPR by size group and jurisdiction

Jurisdiction	Bulk utility	100,000+	50,000–100,000	20,000–50,000	10,000–20,000	Total
Australian Capital Territory	0	1	0	0	0	1
New South Wales	4	3	0	12	12	31
Northern Territory	0	0	1	0	1	2
Queensland	2	4	3	7	6	22
South Australia	0	1	0	0	0	1
Tasmania	0	1	0	0	0	1
Victoria	1	4	5	5	2	17
Western Australia	0	1	0	1	9	11
Total	**7**	**15**	**9**	**25**	**30**	**86**

1.3 Locations of utilities

The administrative boundaries of all utilities reporting data for the 2016 Urban NPR are shown in Figure 1.1. Further details about the utilities are available from their respective websites.

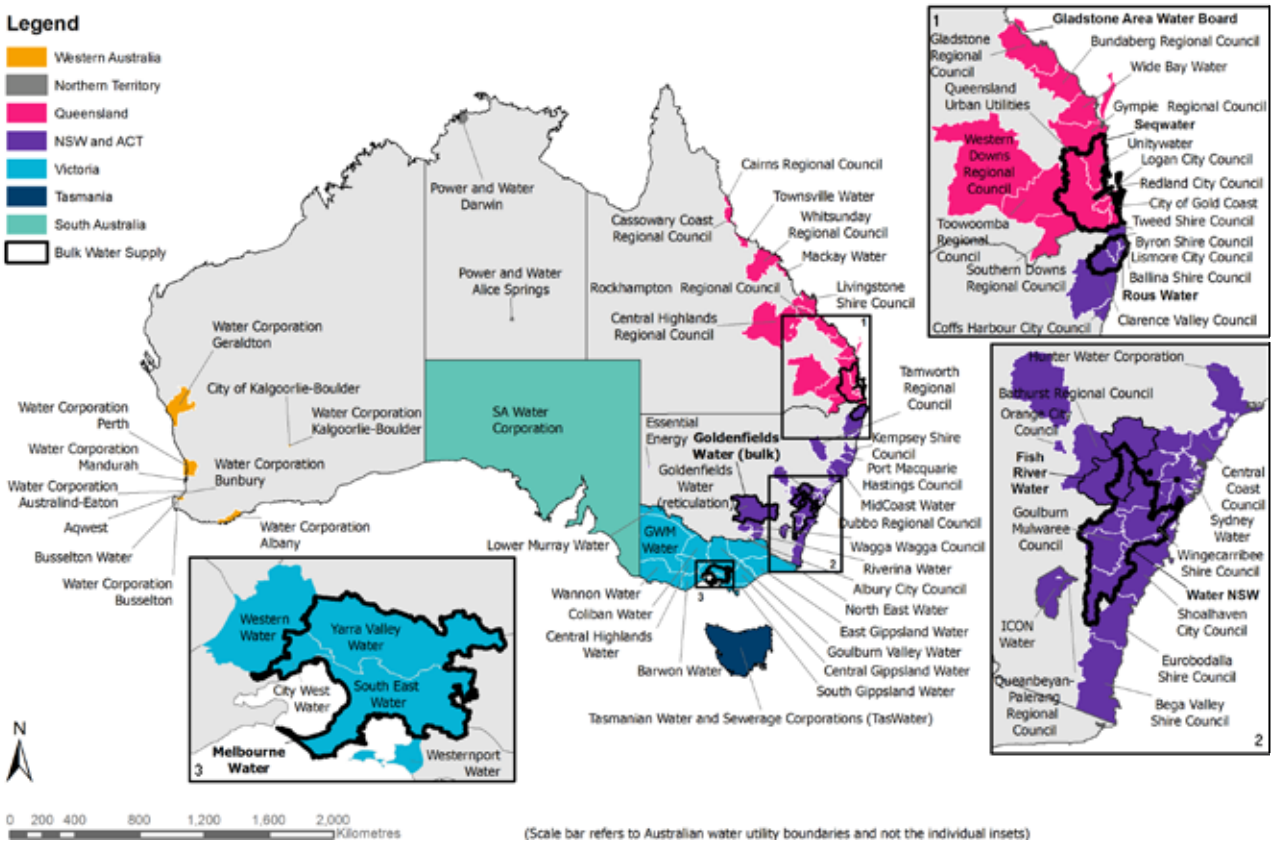

Figure 1.1 Organisational boundaries of utilities reporting to the 2016 Urban NPR

1.4 Key drivers

This section discusses some of the key drivers of the water utility performance presented in the 2016 Urban NPR. Rainfall, temperature, utility size, and sources of water are discussed. Many other factors that also affect 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, the security of the system, and the availability of climate–independent water sources (such as desalination or recycled water), the utility may need to impose water restrictions in order 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 golf courses (indicators W12 and W26 relate to residential water supplied and recycled water). Changes in water consumption affect the revenue collected by water 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. This 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. This is especially the case during heavy rainfall.
- Extreme wet or dry conditions can cause expansion and shrinking of reactive clay soils in some parts of Australia, resulting in ground movements that can cause an increase in water or sewer main breaks (A8, A14). This is especially the case when conditions fluctuate rapidly from wet to dry or vice versa. In periods of more even rainfall, the soils maintain more even moisture levels, resulting in less ground movement.

Figure 1.2 (p.12) shows how rainfall has varied from the long-term average across Australia over the past eight years: white shows ‘average’; blue shows ‘above average’; and red shows ‘below average’ rainfall.

Winter 2015

Rainfall was below average across the country during winter 2015, with an area-average rainfall of 53.6 mm for the country. All States except for New South Wales recorded below-average rainfall. The highest area-average rainfall in the season was recorded in Tasmania (369.0 mm). The Northern Territory experienced the driest winter, with area-average rainfall of 13.6 mm. This was also the highest departure from the average (–26 per cent) relative to the long-term average (1961–1990).

The southwestern part of the country recorded very-much-below-average winter rainfall, as did southeastern South Australia, all of Victoria except Gippsland, most of Tasmania, and along the east coast between Sydney and southeast Queensland. Southwest Western Australia, southeast South Australia, and western Victoria continued a long run of drier-than-average months, recording below-average rainfall in each month of winter.

Away from the southwest, southern Western Australia reported very-much-above-average rainfall, as did much of New South Wales inland of the Great Dividing Range and adjacent to part of South Australia, coastal southeast New South Wales, and far East Gippsland in Victoria.

Although seasonally dry, moderate rainfall totals for winter were reported for the eastern Top End, Barkly district of the Northern Territory, and parts of the North Tropical Coast of Queensland and Cape York Peninsula.

Spring 2015

Rainfall was below average across the country during spring 2015, with an area-average rainfall of 51.2 mm for the country. The State averages for Tasmania and Victoria were particularly low with departures from average relative to the long-term average (1961–1990) of –59 per cent and –47 per cent respectively.

Spring rainfall was below to very-much-below average for the South West Land Division and South Coastal districts of Western Australia, western and southeastern South Australia, all of Victoria except Gippsland, all of Tasmania, parts of southeastern and western New South Wales, large parts of Queensland, the south of the Northern Territory, and the Top End. Rainfall was in the lowest 10 per cent of historical observations (decile 1—very-much-below average) for west of the South West Land Division (Western Australia), southeast South Australia, most of Victoria except along the northern border extending to South Gippsland, areas of the Top End, and a part of the southwestern Alice Springs district. A number of sites in Victoria and Tasmania received their lowest spring rainfall on record.

Above-average rainfall was recorded for much of the northern half of Western Australia, extending just into the central western Northern Territory, some small pockets of the east coast between southeast Queensland and the Mid North Coast of New South Wales, and also for some very small areas of Queensland, New South Wales, and southeast Western Australia.

Summer 2015–16

There was close to average rainfall across the country during summer 2015–16, with an area-average rainfall of 203.3 mm for the country. All States except for South Australia and the Northern Territory recorded below-average rainfall. The highest area-average rainfall in the season was recorded in the Northern Territory (366.5 mm). This was also the highest departure from the average (+16 per cent) relative to the long-term average (1961–1990) for the States and Territories. South Australia experienced the driest summer, with area-average rainfall of 66.2 mm, a +6 per cent departure from the long-term average.

The southwestern part of the country recorded very-much-above-average summer rainfall, as did parts of southeastern interior Western Australia, the central eastern part of Northern Territory, and the northeastern regions of South Australia.

January rainfall resulted in above-average rainfall for the season for the Hunter District of New South Wales and parts of north and east Tasmania which experienced extreme rainfall in the last days of the month.

The driest regions, where very much below average to below average rainfall was recorded over the summer were the central region of the northern Pastoral Districts of South Australia, central areas of the Upper Western District of New South Wales, part of tropical Queensland, and the Top End.

Autumn 2016

There was close to average rainfall across the country during autumn 2016, with an area-average rainfall of 121.2 mm for the country, although there was considerable variation across regions. The highest area-average rainfall in the season was recorded in Tasmania (405.9 mm), a +19 per cent departure from the average relative to the long term (1961–1990) average. South Australia was the driest region for the season, with area-average rainfall of 95.1 mm, continuing on from the same relative position in the summer.

Rainfall was above average in South Australia, Tasmania, and Western Australia, while Queensland, New South Wales, Victoria and the Northern Territory were drier than normal.

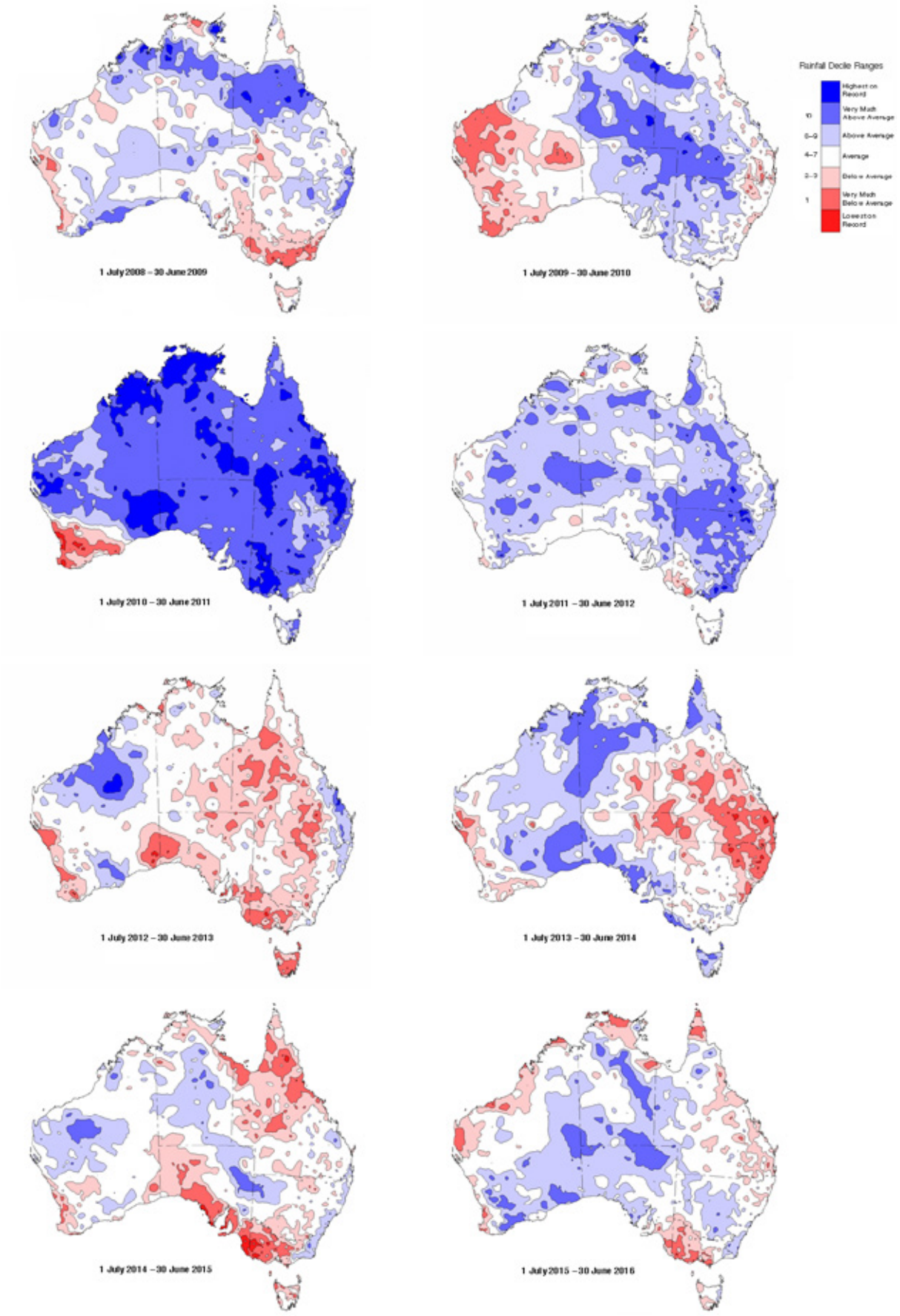

Figure 1.2 Australian 12-month rainfall deciles, 2008–09 to 2015–16. Decile 1 means the lowest 10 per cent of records, decile 2 the next lowest 10 per cent, and so on, up to decile 10, the highest 10 per cent of records.

1.4.2 Temperature

There are many relationships between temperature and the performance of utilities. These include:

- *The relationship between demand and temperature in particular residential and non-residential outdoor demand*. Increased temperature, in particular prolonged periods above long-term averages, can result in increased potable and recycled water supply to residents, councils, and golf courses (indicators W12, W26 and W27 relate to residential water supplied and recycled water). 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).
- *The relationship between hot weather and an increased risk of bushfires*. This risk can result in the deployment of resources to protect water supply catchments and mitigate the impacts of a bushfire should one occur. Such deployments can affect the operating expenditure of a utility (F11, F12, F13), in particular if responding to an actual bushfire event. In addition, temporary water restrictions that ensure the availability of supply to meet firefighting requirements can be implemented during extreme fire weather. Such restrictions can impact on the volume of water supplied by a utility and in turn affect its operating cost and revenue. Should a catchment be burnt, this can impact on water supply due to water quality issues that may require the storage to be taken off-line for some time.
- *That extended periods of heat or cold can impact on the quality of water sources and supplies and therefore affect decisions about which water sources are to be used (W1–W7) and the level of the treatment required*. For example, a heatwave contributes to the decline in dissolved oxygen levels within a waterbody and can trigger the need to supply water from an alternative source or increase the cost of treatment, in turn affecting the operating costs of utilities (F11, F12, F13).
- *The relationship between temperature and the quality of treated water*. In particular, biological processes are sensitive to extremes of heat or cold as well as rapid fluctuations in temperature. Such events can have important consequences for the quality of water supplied (H indicators) and the operational costs of a utility (F11, F12, F13).
- *Extended hot conditions give rise to dry soil conditions*. Consequently, many plant species will seek out moisture, and their roots can enter the sewer system causing blockages and/or breaks (A14, A15) as well as increasing water main breaks (A8).

Winter 2015

Winter 2015 was the equal eighth warmest on record for Australia. For Western Australia, maximum average temperatures were the second highest behind the record set in 1996.

Each State and Territory recorded a positive temperature anomaly, that is, an increase in temperature from the long-term average (1961–1990), except for Victoria and Tasmania. Tasmania recorded its tenth coolest winter on record and the coolest since 1995, reflecting cooler than average days for much of the southeast.

Spring 2015

Spring 2015 was the second warmest on record with every State and Territory recording average temperatures that ranked in the top eight warmest springs on record.

For Western Australia and Victoria, average temperatures for spring were the warmest on record while Tasmania recorded its second warmest spring. A number of stations in the southeastern States and Western Australia observed record-high average temperatures for the season.

Summer 2015–16

Summer was very warm for much of Australia, with very-much-above average temperatures across much of coastal northern Australia, throughout inland western Queensland and New South Wales, almost all of Victoria, all of Tasmania and much of southern and eastern South Australia.

Each State and Territory recorded a positive temperature anomaly from the long-term average (1961–1990).

Autumn 2016

Autumn 2016 was Australia's warmest on record. All States and the Northern Territory recorded average temperatures that ranked in the top five warmest autumns on record, with records set for Queensland, New South Wales, Victoria, and the Northern Territory. Average temperatures were highest on record for almost all of the eastern mainland States, as well as northern and central parts of the Northern Territory, northwest Western Australia, and southern Tasmania. In total, around half the country experienced its warmest autumn on record.

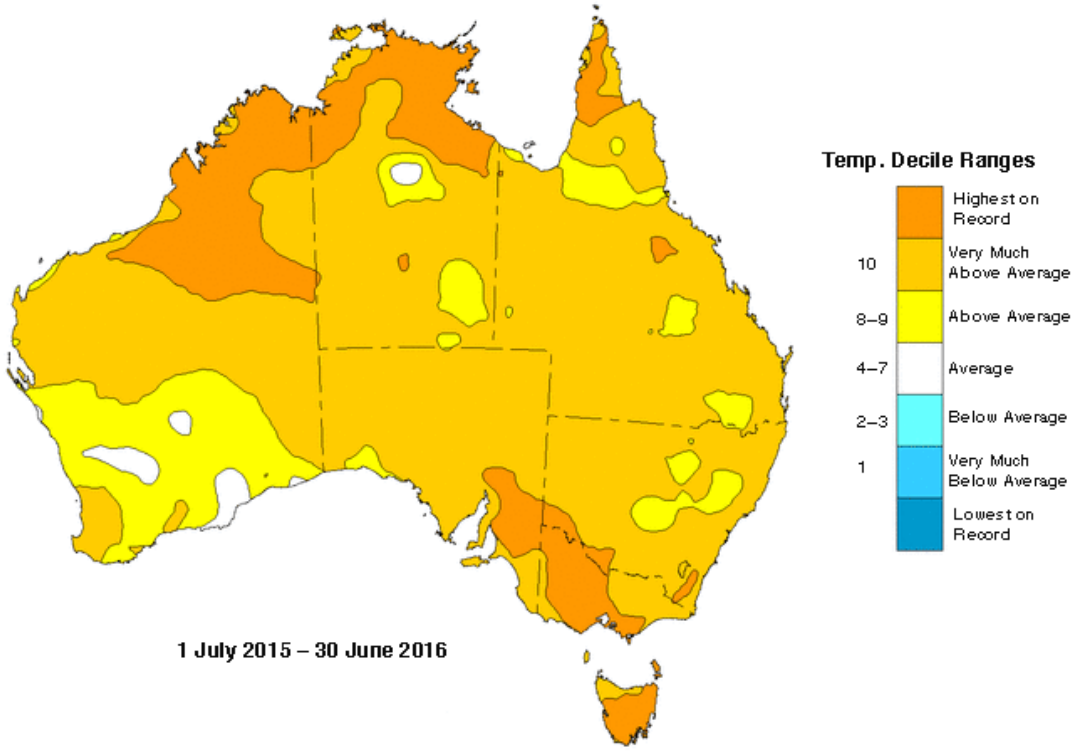

Figure 1.3 Australian 12-month maximum temperature deciles for 2015–16. Decile 1 means the lowest 10 per cent of records, decile 2 the next lowest 10 per cent, and so on, up to decile 10, the highest 10 per cent of records.

Figure 1.3 shows the annual maximum temperature deciles for 2015–16, indicating largely above-average to very-much-above-average temperatures across the majority of the country, with highest-on-record maximum temperatures decile observed in the southeast and northwest regions.

2016 was Australia's fourth warmest year on record. This is consistent with general trends of warming over recent years, with seven of Australia's ten warmest years on record having occurred in the twelve years since 2005. Only one cooler-than-average year has occurred in the past decade (2011) and the 11-year average temperature for 2006–2016 was the second highest on record at 0.56 °C above average.

A number of heatwaves and warm spells, important because of their impacts on water use, were experienced across Australia, in 2015–16. Most notable were an early season heatwave in October which affected nearly all of southern Australia, extreme December heat across much of southeast Australia, and a prolonged heatwave affecting much of the country during late February and early March. The latter part of this heatwave contributed to Australia's warmest March and warmest autumn on record.

1.5 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 (for example, larger utilities are subject to price regulation while many smaller utilities are not).

1.6 Sources of water

The sources of water used by a utility and the geographical relationship between the source and the urban centre it supplies are two important drivers of performance. The combination and interaction of these drivers serve to create widely varying engineering, operational, 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 affect 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 sources (predominantly driven by water quality and climatic variability) 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 suppliers 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 1.4a and 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 has been directly substituted for potable supply; that is, had the recycled water not been available potable water would have been used to meet the demand. Because of the observed issues in interpreting this definition the total volume of recycled water supplied (W26) is preferred and will replace W4 in future Urban NPR reporting. By way of comparison, in this reporting year the national total volume against Indicator W4 was 139,063 ML while the total volume against Indicator W26 was 194,478 ML, the bulk of which was for agricultural irrigation.

The charts show the following:

- Water sourced from surface water (W1), from rivers, streams, and dams, is the dominant water source in all States and Territories except Western Australia, where most of the water supplied is sourced from groundwater (W2).
- The importance of desalination (W3.1) as a reliable source of water continues to grow for Western Australia, which has shown an increase to 138,645 ML since 2014–15 due to the constraints on traditional water sources. This represents 41% of Western Australia's total water source. South Australia, which started using desalination water in 2011–12, has not been as reliant on it in 2015–16, reporting only 7,774 ML (3% of total water sourced). This is because South Australia had an increase in the availability of surface water within the year which reduced its reliance on desalination.
- Desalination in other States remains minimal, with plants in New South Wales, Victoria and Queensland operating in maintenance or 'stand-by' modes.

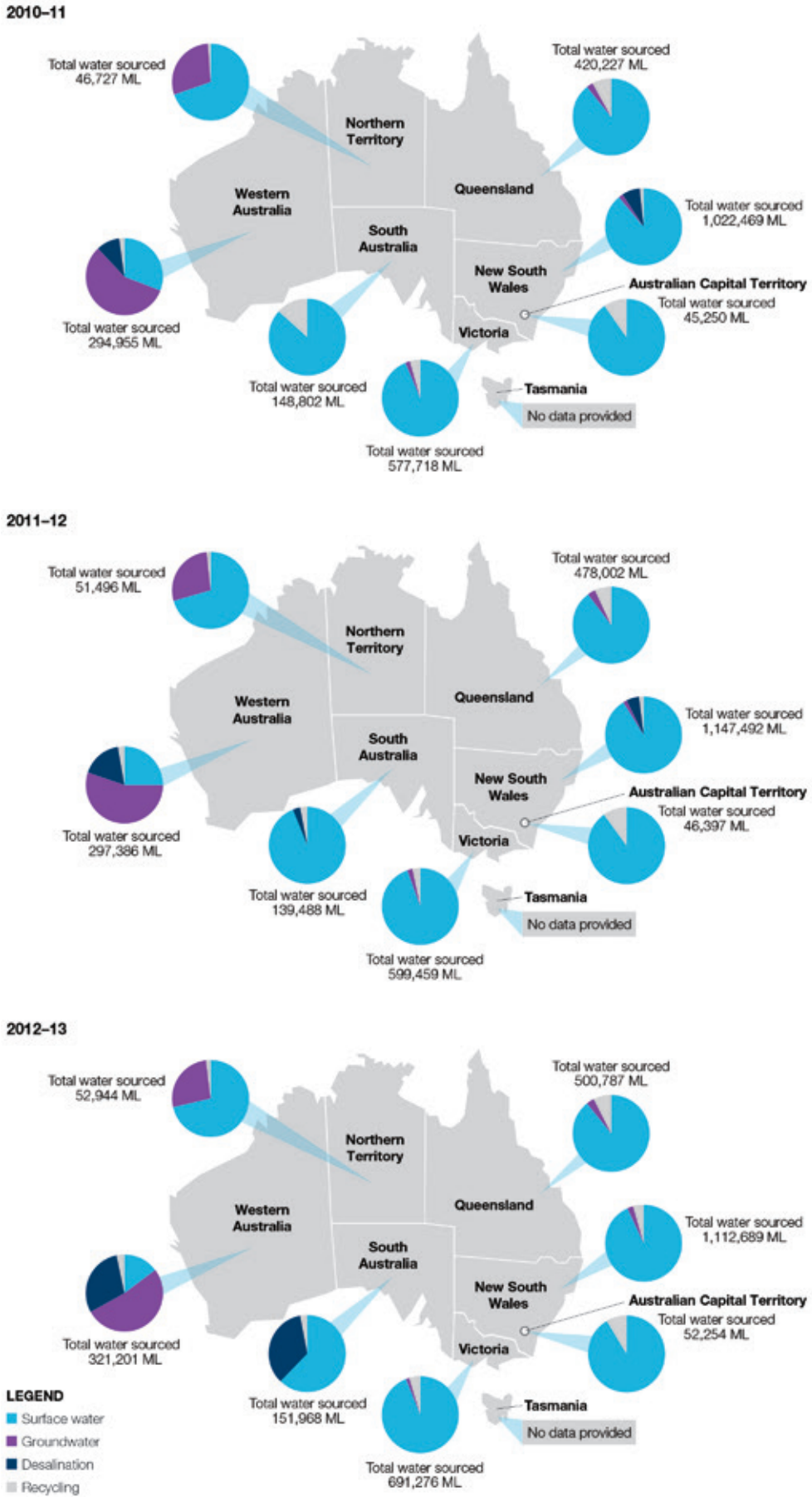

Figure 1.4a Water source breakdown (W1, W2, W3.1, W4) in each State and Territory, 2010–11 to 2012–13

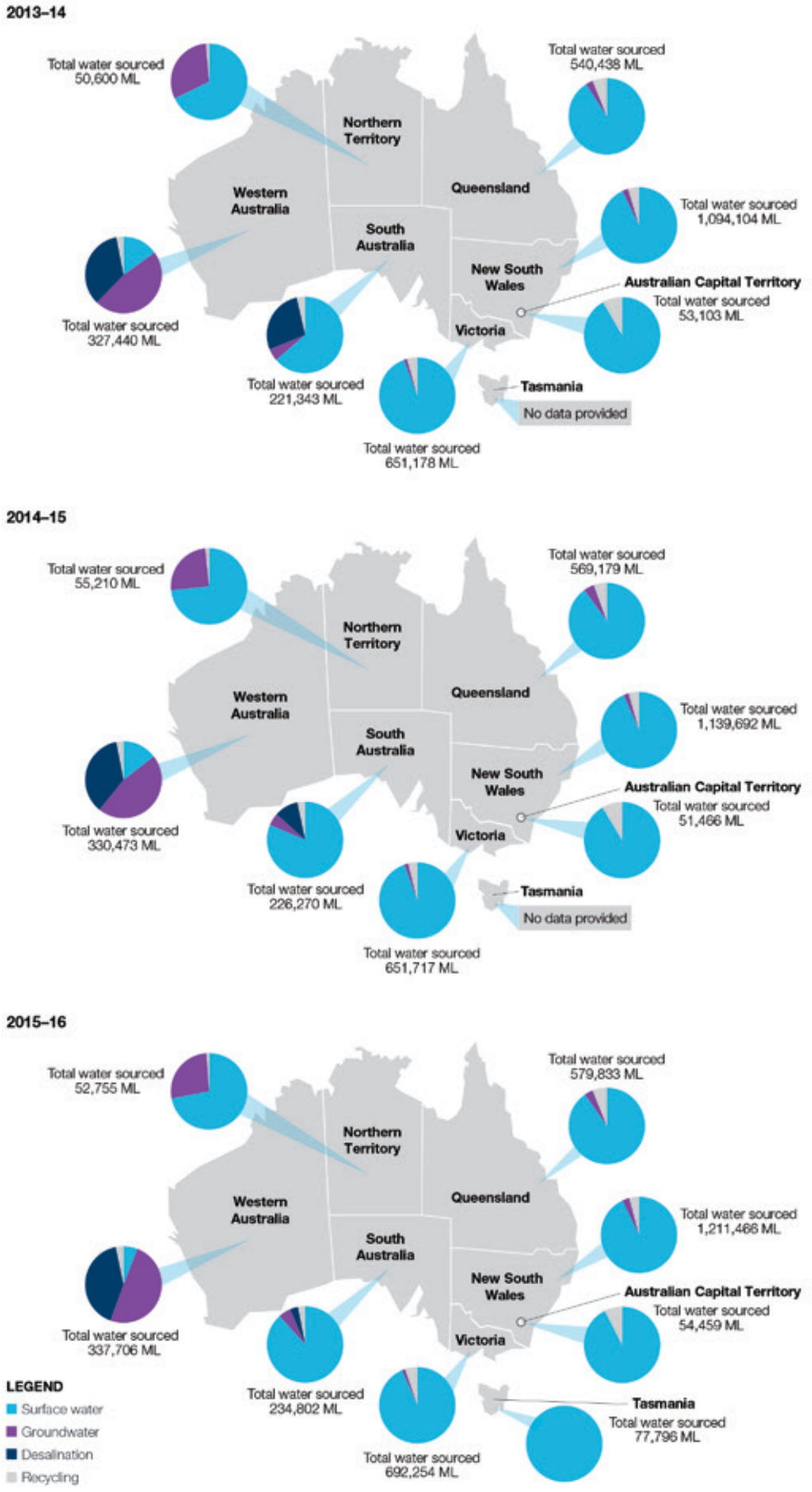

Figure 1.4b Water source breakdown (W1, W2, W3.1, W4) in each State and Territory, 2013–14 to 2015–16

2 Comparison of major urban centres

2.1 Background on major urban centres comparison data

This chapter provides comparative tables and figures about a selection of key indicators (water resources, pricing, environment, finance, and customer) for major urban centres, each of which generally corresponds to a capital city and its environs. The exception is South East Queensland, which includes Brisbane as well as Logan, Redlands, and the Gold Coast. The tables and figures are compiled using data supplied by the utilities detailed in Table 2.1. Any exceptions are indicated in the notes provided for each table.

Because utilities' structures vary, the figures in this chapter should be treated with some caution and be read in conjunction with the notes accompanying the tables. For example, to provide figures that represent Sydney, Melbourne, and South East Queensland, it is at times necessary to aggregate the numbers for both bulk and retail utilities servicing those areas. Notes on the methods used to derive figures are provided for each table.

It should be noted that historical values for all financial indicators have been adjusted using consumer price index (CPI) data to facilitate comparison in real terms.

Table 2.1 Data source for major urban centre capital city analysis

Major urban centre	Utility data
Perth	WC (Perth)
Adelaide	SA Water Corporation (Adelaide)
Canberra	Icon Water
South East Queensland	Seqwater (B), Queensland Urban Utilities, Unitywater, Gold Coast, Redland, and Logan
Sydney	Water NSW (B), Sydney Water
Melbourne	Melbourne Water (B), City West Water, South East Water, Yarra Valley Water
Hobart	No data—TasWater services this area; however performance data is available only on an aggregated basis for the entire State of Tasmania.
Darwin	P&W (Darwin)

2.2 Water Resources

2.2.1 W1, W2, W3.1, W4—Volume of water sources

The total volume of water sourced from surface water, groundwater, desalination, and recycled water in each city is shown in Table 2.2 and is represented by the indicators W1, W2, W3.1, and W4. There was an increase in the total volume of water sourced in all major urban centres for the 2015–16 period, with Darwin being the only exception, reporting a decrease of 5 per cent (Table 2.2).

The majority of major urban centres' surface water use increased in the 2015–16 year (2 per cent to 18 per cent) with two exceptions, Darwin (6 per cent decrease) and Perth (58 per cent decrease). The significant reduction in surface water use for Perth can be attributed to the reduced surface water inflows into Perth's water sources. This necessitated the need to take a higher proportion from groundwater and desalinated water (Table 2.2). This is in contrast to the Adelaide region, which reported a 66 per cent decrease in desalinated water supplemented by an 18 per cent increase in surface water.

The volume of recycled water sourced increased in 2015–16 in Sydney, Melbourne, South East Queensland, and Perth. Similar to previous reporting years, groundwater was only sourced in South East Queensland, Perth, and Darwin.

Table 2.2 Volume of water sourced from surface water, groundwater, desalinated sea water, and recycled water in each major urban centre

Major urban centre	Surface water (W1)		Groundwater (W2)		Desalination (W3.1)		Recycled water (W4)		Total	
	2014–15	2015–16	2014–15	2015–16	2014–15	2015–16	2014–15	2015–16	2014–15	2015–16
Sydney	516,041	534,642	0	0	0	0	38,280	38,465	554,321	573,107
Melbourne	401,899	432,886	0	0	0	0	13,059	16,717	414,958	449,603
South East Queensland	284,202	289,524	9,218	8 ,730	1,161	1,524	16,259	16,739	310,840	316,517
Perth	47,519	20,100	122,127	136,879	119,457	138,645	7,564	8,633	296,667	304,257
Adelaide	122,634	144,346	0	0	22,725	7,686	5,054	4,373	150,413	156,405
Canberra	47,114	50,403	0	0	0	0	4,352	4,056	51,466	54,459
Darwin	40,530	38,034	5,139	5,758	0	0	492	80	46,161	43,872

Table notes

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 from Melbourne 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, Redland, and Logan).

2.2.2 W12—Average annual residential water supplied

This indicator represents the average annual volume of residential water supplied to customers in each major urban centre. The average annual residential water supplied per property remained consistent with previous reporting years in each urban region. There were slight increases in Canberra (4 per cent) and Melbourne (3 per cent), whereas Darwin reported a 4 per cent decrease (Table 2.3). An increase of 11 per cent in the annual residential water supplied was reported in the Adelaide region.

Results discussed in Chapter 3 indicate that there is a greater number of utilities reporting an increase in W12 during the 2015–16 reporting year. This trend could be attributed to an increase in above average temperatures in the area during the reporting year.

For more details on average water supplied to customers by each urban utility in Australia, refer to Chapter 3.

Table 2.3 W12—Average annual residential water supplied (kL/property), 2011–12 to 2015–16

Major urban centre	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15 %
Adelaide	179	193	183	186	206	11
Canberra	180	199	203	188	195	4
Melbourne	142	152	150	149	154	3
Sydney	193	198	206	201	201	0
South East Queensland	146[a]	156[a]	164[a]	160	159	–1
Perth	250	249	254	244	240	–2
Darwin	471	454	407	409	405	–4
Hobart[b]						

Table notes

[a] Redland didn't report against this indicator between 2011–12 and 2013–14.

[b] No data available for Hobart—TasWater services this area: however, performance data is only available on an aggregated basis for the entire State of Tasmania.

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).

2.2.3 W26—Total recycled water supplied

This indicator represents the total volume of recycled water supplied to customers, aggregated for the major urban centres. There were increases in all regions with the exception of Darwin, Perth and Melbourne, where total recycled water supplied decreased by 83.7 per cent, 8.4 per cent and 4.2 per cent respectively. Increases in total recycled water supplied ranged from 0.6 per cent in Sydney to 7.8 per cent in South East Queensland. Darwin's decrease is due to operational issues at the water treatment plant.

For more detail on recycled water supplied to customers by each urban utility in Australia, refer to Chapter 3.

Table 2.4 W26—Total recycled water supplied (ML), 2011–12 to 2015–16

Major urban centre	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15 %
Sydney	45,929	46,951	46 943	43,075	43,342	0.6
Melbourne	38,100	29,734	27 890	36,428	34,892	–4.2
Adelaide	22,714	28,393	25,515	29,177	28,481	2.4
South East Queensland	11,432[a]	23,136[b]	23,082	18,774[c]	19,935	7.8
Perth	10,370	10,272	10,029	9,354	8,633	–8.4
Canberra	4,607	4,416	4,372	4,352	4,059	6.7
Darwin	376	499	347	492	80	–83.7
Hobart[d]						

Table notes

[a] Includes only Queensland Urban Utilities and UnityWater.

[b] Gold Coast, Logan and Seqwater were included.

[c] Redland was included for the first time. Seqwater is not reported in 2014–15; therefore the percentage change for South East Queensland does not provide a direct comparison between the 2014–15 and 2015–16 years.

[d] No data available—TasWater services this area; however, performance data is only available on an aggregated basis for the entire State of Tasmania.

Melbourne and South East Queensland figures for W26 are the aggregated figures for the bulk water suppliers and utilities.

2.3 Pricing

2.3.1 P8—Typical residential bill

This indicator reports the typical residential bill received by customers in each major urban centre, including water and sewerage services. Typical residential bills for water and sewerage are presented in Table 2.5.

Similar to previous reporting years, the typical residential bill was lowest in Melbourne and highest in Darwin. The change in water and sewerage bills for the major urban centres between the 2014–15 and the 2015–16 reporting period was minimal (ranging between –0.8 per cent and 2 per cent). The Melbourne region was the only exception where typical bills increased by 3.5 per cent.

For more detail on the typical bills charged by each urban utility in Australia, refer to Chapter 4.

Table 2.5 P8—Typical residential bill, P3 water and P6 sewerage combined ($), 2011–12 to 2015–16

Major urban centre	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15 %
Darwin	1,536	1,882	1,840	1,898	1,882	–0.8
South East Queensland	1,192[a]	1,291	1,319	1,394[b]	1,386	–0.5
Perth	1,221	1,277	1,327	1,354	1,370	1.1
Adelaide	1,243	1,443	1,299	1,343	1,370	2.0
Sydney	1,181	1,177	1,178	1,172	1,169	–0.3
Canberra	1,162	1,244	1,134	1,112	1,133	1.9
Melbourne	924	938	1,122	992	1,028	3.5
Hobart[c]						

Table notes

[a] Gold Coast and Logan did not report against the indicator for that specific year.

[b] Redland reported for the first time in 2014–15; therefore the percentage change for South East Queensland does not provide a direct comparison between 2014–15 and 2015–16 years.

[c] No data available for Hobart—TasWater services this area; however, performance data is only available on an aggregated basis for the entire State of Tasmania.

Melbourne and South East Queensland figures are the weighted average of the retail utilities (that is, P3/C2—Connected residential properties: water supply and P6/C6—Connected residential properties: sewerage).

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

2.4 Environment

2.4.1 E12—Total net greenhouse gas emissions

This indicator reports the contribution of the utilities' operations to greenhouse gas (GHG) emissions, aggregated here by major urban area. There were significant increases in total net GHG between reporting periods in all regions with the exception of South East Queensland and Canberra. The Sydney region reported the largest increase in total net GHG emissions from the 2014–15 reporting period to 2015–16 (72 per cent) but still remains the lowest emitter compared against the other major urban centres. This increase may be attributed in part to an increase in construction and demolition waste sent to landfill by Sydney Water Corporation contractors (Sydney Water 2016).

Total net GHG emissions also increased significantly in the Adelaide and Melbourne regions: 41 per cent and 35 per cent respectively.

For more detail on GHG emissions from each urban utility in Australia, refer to Chapter 8.

Table 2.6 E12—Total net greenhouse gas emissions (net tonnes CO_2 equivalents per 1,000 connected water properties), 2011–12 to 2015–16

Major urban centre	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15 %
Perth	647	663	731	738	817	11
Adelaide	328	422	258	299	421	41
Melbourne	239	253	229	215	291	35
Canberra	313	288	260	257	255	–1
Sydney	72	85	85	84	144	72
Darwin	208	219	205	165		
South East Queensland						
Hobart						

Table notes

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

Adelaide figures for the 2013–14 year based on data for the entire State of South Australia operated by SA Water Corporation. The 2014–15 year includes Adelaide-specific data.

No data was available for South East Queensland.

No data available for Hobart—TasWater services this area; however, performance data is only available on an aggregated basis for the entire State of Tasmania.

2.5 Finance

2.5.1 F13—Combined operating cost of water and sewerage

This indicator reports the combined operating cost of the utilities' water and sewerage operations, aggregated here by major urban centre (Table 2.7). There were minimal changes in the combined water and sewerage costs during the 2015–16 reporting period.

For more detail on operating cost of each urban utility in Australia, refer to Chapter 5.

Table 2.7 F13—Combined operating cost: water and sewerage ($/property), 2011–12 to 2015–16

Major urban centre	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15 %
Darwin	1,134	1,162	1,036		1,122	
South East Queensland[a]	925	1,014	1,098	1,109	1,084	–2
Melbourne	809	772	1,035	922	967	5
Canberra	851	821	763	774	917[c]	18[c]
Sydney[b]	666	696	686	673	689	2
Perth	552	587	604	587	597	2
Adelaide	503	640	608	560	576	4
Hobart[d]						

Table notes

[a] Gold Coast and Logan did not report against this indicator in 2011–12. Redland did not report against this indicator for 2011–12 and 2013–14.

[b] Sydney figures are for Sydney Water. Sydney Water's operating costs include the bulk water purchases, including those of Water NSW.

[c] Canberra figures for the 2015–16 year includes a water abstraction charge and a utilities network facility tax. If the combined operating cost per property excluded these charges, the costs would have been $704 per property, which would have resulted in a 8 per cent decrease since 2014–15.

[d] No data available for Hobart—TasWater services this area; however, performance data is only available on an aggregated basis for this entire State of Tasmania.

2.5.2 F16—Total capital expenditure for water and sewerage

This indicator reports the combined capital expenditure related to the utilities' water and sewerage operations, aggregated here by major urban centre. Total capital expenditure for water and sewerage has changed significantly between the 2014–15 and 2015–16 reporting periods in the Canberra and Perth regions. The increase of 69 per cent in the Canberra region reflects the expanding and renewing of water and sewerage networks (Icon 2015). Total capital expenditure decreased by 18 per cent in the Perth region between the reporting periods. There was minimal change between reporting years in the Sydney and South East Queensland regions (Table 2.8).

For more detail on the capital expenditure of each urban utility in Australia, refer to Chapter 5.

Table 2.8 F16—Total capital expenditure for water and sewerage ($000), 2011–12 to 2015–16

Major urban centre	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15 %
Melbourne	95,4428	74,5657	618,147	695,741	727,294	5
Sydney	80,2603	72,3323	637,967	650,669	664,003	2
South East Queensland[a]	100,2540	66,2319	524,774	494,463	485,865	–2
Perth	55,7408	51,1430	266,143	356,657	293,885	–18
Adelaide	54,6411	34,1353	190,388	154,102	182,661	19
Canberra	23,3861	14,5285	60,210	49,622	83,690	69
Darwin	58,840	65,657	25,953		48,549	
Hobart[b]						

Table notes

[a] Gold Coast and Logan did not report against this indicator in 2011–12. Redland did not report against this indicator during 2011–12 to 2013–14.

Melbourne, Sydney, and South East Queensland figures are the aggregate for the bulk water suppliers and the respective utilities.

[b] No data available for Hobart—TasWater services this area; however, performance data is only available on an aggregated basis for the entire State of Tasmania.

2.6 Customer

2.6.1 C13—Total water and sewerage complaints

This indicator reports the combined water and sewerage complaints received by the utilities, aggregated here by major urban centre. During the 2015–16 reporting period total, water and sewerage complaints increased in the South East Queensland, Melbourne and, most notably, Darwin (Table 2.9), which received a 67 per cent increase from 2014–15 due to complaints about water meter leaks and meter blockage issues. In contrast, complaints decreased in Canberra (11 per cent), Sydney (5 per cent), and Perth (2 per cent).

For more detail on customer complaints received by each urban utility in Australia, refer to Chapter 6.

Table 2.9 C13—Total water and sewerage complaints (per 1,000 properties)

Major urban centre	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15 %
Darwin	72.7	37.5	49.9	39.5	66	67
Melbourne	6.3	7.4	5.3	4.1	4.8	17
South East Queensland	4.0[a]	2.1[a]	6.6[b]	3.8[c]	4.3[c]	13
Canberra	5.0	4.8	4.0	4.3	3.8	–11
Sydney	3.5	3.9	3.2	2.7	2.6	–5
Adelaide	1.5	2.4			1.6	
Perth	9.5	0.6	1.0	0.8	0.8	–2
Hobart[d]						

Table notes

[a] 2011–12 and 2012–13 includes Queensland Urban Utilities.

[b] 2013–14 includes Queensland Urban Utilities, Gold Coast City Council, and Unity Water.

[c] 2014–15 and 2015–16 includes data from Queensland Urban Utilities, Gold Coast City Council, Unity Water and Redland.

[d] No data available for Hobart—TasWater services this area; however, performance data is only available on an aggregated basis for this entire State of Tasmania.

2.6.2 C15—Average duration of an unplanned interruption to water supply

This indicator reports the average duration of unplanned interruptions to water supply in a utility's operation, aggregated here by major urban centre. The average duration of unplanned interruptions to the supply of water to customers increased in the majority of major urban centres with the exception of Sydney, which reported a 7.5 per cent decrease. The largest increase was reported in South East Queensland (27.4 per cent) equating to a duration of 128 minutes of unplanned interruptions. Canberra and Perth reported similar increases in unplanned interruptions of 12.9 per cent and 12.4 per cent respectively.

Sydney was the only region to report a decrease in average duration; however, at 136 minutes, this is the second longest duration when compared with other major urban centres. Adelaide reported the longest duration at 189 minutes. The smallest increase in the duration of unplanned interruptions was reported in Melbourne, an increase of 6.4 per cent, equal to seven minutes (Table 2.10).

For more detail on interruptions to water supply reported by each urban utility in Australia, refer to Chapter 6.

Table 2.10 C15—Average duration of an unplanned interruption—water (minutes), 2011–12 to 2015–16

Major urban centre	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15 %
Adelaide	201	158	153	165	189	14.5
Sydney	155	153	151	147	136	–7.5
Canberra	119	148	104	120	135	12.9
South East Queensland	104[a]	99[a]	104[b]	100[b]	128[c]	27.4
Perth	118	130	117	96	108	12.4
Melbourne	102	103	99	99	106	6.4
Darwin	72			94		
Hobart[d]						

Table notes

[a] 2011–12 and 2012–13 includes only Queensland Urban Utilities.

[b] 2013–14 and 2014–15 includes Queensland Urban Utilities, Gold Coast Council and Logan City Council.

[c] 2015–16 includes Queensland Urban Utilities, Gold Coast Council, Unity Water, Logan City Council, and Redland City Council.

[d] No data available for Hobart—TasWater services this area; however, performance data is only available on an aggregated basis for this entire State of Tasmania.

3 Water resources

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

3.1.1 Introduction

This indicator, W12—Average annual residential water supplied, reports the average volume (kL/property) of metered and estimated non-metered potable and non-potable water supplied to residential properties during 2015–16. It is derived by dividing the total volume of residential water supplied (W8) by the number of connected residential water properties (C2).

This average volume is influenced by a number of factors, including climate, rainfall, water conservation measures (including water restrictions), the available water supply, housing density, and the price of water. Of these, rainfall is arguably the most influential factor affecting residential consumption. All things being equal, an increase in rainfall should reduce demand and a decrease in rainfall should increase demand. A decrease in rainfall that results in a significant decrease in runoff into storages can trigger demand-management measures such as water restrictions.

Average annual residential water supplied by all utilities reporting W12 in 2015–16 can be found in Table A1 in Appendix A.

3.1.2 Key findings

A summary of the reported average annual volume of residential water supplied, by utility size group, is presented in Table 3.1. Figure 3.1 shows a box-and-whisker plot of the average annual volume of residential water supplied for all utilities reporting W12 for a given reporting year, from 2006–07 to 2015–16.

In 2015–16, the median annual residential water supplied remained consistent with previous years, rising by only 1 per cent. Maximum temperatures across much of Australia were above-average. When assessing trends within the individual size groups, however, the three largest size groups had a higher number of utilities reporting increases in average annual residential water supplied compared to 2014–15. This is contrary to previous reporting years when the majority of utilities in each size group reported a decrease.

Table 3.1 W12—Overview of results: Average annual residential water supplied (kL/property)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	240	150	9	5	164	168	2
	WC (Perth)	City West Water					
50,000–100,000	405	145	5	4	192	210	9
	P&W (Darwin)	Toowoomba					
20,000–50,000	504	139	14	7	188	196	4
	Lower Murray Water	MidCoast Water					
10,000–20,000	520	77	13	14	225	186	–17
	Central Highlands	Westernport Water					
All size groups (national)	520	77	41	30	181	182	1
	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 for both 2014–15 and 2015–16 reporting years.

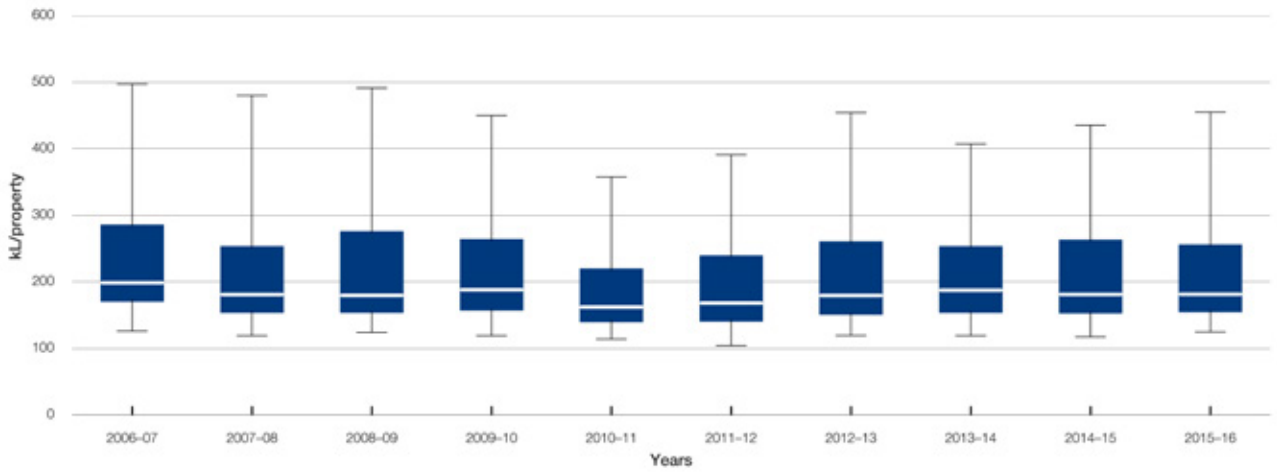

Figure 3.1 W12—Average annual residential water supplied (kL/property), 2006–07 to 2015–16

3.1.3 Results and analysis—100,000+ size group

A ranked breakdown of the average residential water supplied per annum for each utility in the 100,000+ size group from 2010–11 to 2015–16 is presented in Figure 3.2.

In 2015–16, 9 out of the 14 major utilities (100,000+ connected properties) reported an increase in the volume of water supplied from 2014–15 (Table 3.1), reversing the trend of 2014–15 where most in the group reported a decrease in volume supplied from 2013–14. The increases reported by most of the major utilities from 2014–15 were in the range of 1–11 per cent. There were notable increases reported by SA Water Corporation (11 per cent) and Barwon Water (9 per cent) from 2014–15 (Table A1 in Appendix A).

SA Water Corporation's increase can be attributed to higher temperatures recorded in 2015–16 compared to the previous year, with large parts of the utility's operational area recording very-much-above-average maximum temperatures for the year, with pockets of highest-on-record temperatures in the southeastern region of its operational area.

Barwon Water's increase can also be attributed to higher temperatures and lower rainfall, with highest-on-record maximum temperatures and very-much-below-average rainfall recorded in the operational area in 2015–16.

3.2 W26—Total recycled water supplied (ML)

3.2.1 Introduction

Total recycled water supplied is the sum of all treated sewage effluent that is used by either the utility or businesses supplied by the utility, or supplied through a third-pipe system for urban re-use.

The volume of recycled water supplied is affected by a number of factors, including the availability of potable water, the size of the utility, its proximity to potential customers (such as agricultural users, major industrial customers, and recreational facilities), fluctuations in sewage received and therefore effluent available for recycling, and government policy.

Total recycled water supplied by all utilities reporting W26 in 2015–16 can be found in Table A2 in Appendix A.

Figure 3.2 W12—Average annual residential water supplied for utilities with 100,000+ connected properties (kL/property), 2010–2011 to 2015–2016

3.2.2 Key findings

A summary of the total recycled water supplied, by utility size group, is presented in Table 3.2. The nationwide total across all size groups saw a 2 per cent decrease in the total volume of recycled water supplied in 2015–16 from 2014–15.

The 100,000+ size group reported no change in the total volume of recycled water supplied from 2014–15, while there was a notable 24 per cent decrease in total recycled water supplied in the 10,000–20,000 size group from 2014–15. The decrease in the 10,000–20,000 size group was largely influenced by changes in recycled water supply by Bathurst Regional Council and Gympie Regional Council (Table A2 in Appendix A).

The medium to large utilities (50,000–100,000) were the only size group to increase their total volume of recycled water supplied, up 7 per cent to 30,344 ML from the 2014–15 volume of 28,308 ML.

Table 3.2 W26—Overview of results: Total recycled water supplied (ML)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Total		Change in the total from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	43,342	895	7	6	129,539	129,031	0
	Sydney Water	Central Coast					
50,000–100,000	8,956	80	5	4	28,308	30,344	7
	Western Water	P&W (Darwin)					
20,000–50,000	5,679	100	10	11	45,038	44,742	–1
	Wagga Wagga (S)	Queanbeyan					
10,000–20,000	2,051	0	8	14	20,761	15,847	–24
	Orange	Bathurst					
All size groups (national)	43,342	0	30	35	223,646	219,964	–2
	Sydney Water	Bathurst					

Table note

The total recycled water supplied (ML) is calculated using data from all utilities that reported data for W26 in both the 2014–15 and 2015–16 reporting years.

3.2.3 Results and analysis—100,000+ size group

In the major utilities size group (100,000+ connected properties), there was little change between the total volume of recycled water supplied in 2015–16 and 2014–15.

Notable deviations from 2014–15 volumes for utilities in this group were increases in volumes supplied by City West Water and Gold Coast City Council, with a 1,734 per cent and 27 per cent increase respectively, and a 39 per cent decrease reported by Barwon Water (Table A2 in Appendix A).

The marked increase in volumes supplied by City West Water was due to a large increase in the volume of recycled water supplied to commercial, municipal, and industrial customers.

4 Pricing

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

4.1.1 Introduction

The typical residential bills presented in this chapter are the sum of fixed charges and volumetric-usage charges for water and also sewerage in some utilities that are billed to a residential customer. They are based on each utility's average annual volume of residential water supplied (W12). Prices, which are presented in real 2015–16 dollars, may be set by government or, in some jurisdictions, by a regulator, council, or utility.

While the size of a utility's customer base has some influence on bills, the geographical location and distribution of the customer base, the local topography, climate, available sources of water, and government policy and legislation all influence water bills.

The mix of fixed-and-usage charges and the level of water consumption also impacts on the typical residential bill. Therefore, when drawing comparisons between utilities, it is important to note that a change in the typical bill may be the result of both a change in average consumption and a change in the price of water.

Historically, residential water-bill pricing models have varied across the nation; however, with one exception, all utilities now have a water-supply pricing model based on a two-part structure, that is, a fixed component and a component based on volumetric usage. The exception is Townsville Water (Townsville Regional Council), where ratepayers have a choice between a flat charge and a tiered structure (Townsville City Council, 2016).

Unlike residential water-supply pricing, the majority of utilities have a fixed price model for sewerage services. The exceptions are the Melbourne Metropolitan retailers (Western Water, Yarra Valley Water, South East Water, and City West Water); Byron Shire Council; and Unitywater, which have both a fixed and volumetric component in their sewerage charges.

Typical residential bill data for all utilities reporting P8 in 2015–16 can be found in Table A3 in Appendix A. Historical values have been adjusted using consumer price index (CPI) data to facilitate comparison in real terms.

4.1.2 Key findings

A summary of the reported typical residential bill data, by utility size group, is presented in Table 4.1.

The national median typical residential bill for water and sewerage rose by 4 per cent in 2015–16, increasing to $1,386 in 2015–16 from $1,334 in 2014–15. In the 10,000–20,000 size group, 67 per cent of the utilities that reported in both years recorded an increase, as did 85 per cent in the 20,000–50,000 size group. In the 50,000–100,000 size group, the typical residential bill fell by 3 per cent.

Figure 4.1 shows a box-and-whisker plot of typical residential bill data for all utilities reporting the P8 indicator for a given reporting year from 2006–07 to 2015–16. The plot shows an increasing trend in the median typical residential bill over this period, with increases above CPI.

In each utility size group, Victorian utilities had the lowest typical residential bill (Table A3 in Appendix A). This is following the Victorian State Government's Fairer Water Bills Initiative introduced in July 2014, which was a major driver of bill decreases statewide. Through this initiative some Victorian utilities provided rebates and others passed on the savings through tariff reductions (Melbourne Water 2014).

Table 4.1 P8—Overview of results: Typical residential bill: water and sewerage ($)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	1,570	944	7	6	1,172	1,169	0
	Gold Coast	City West Water					
50,000–100,000	1,882	925	4	5	1,294	1,250	–3
	P&W (Darwin)	Goulburn Valley Water					
20,000–50,000	1,591	884	17	3	1,328	1,392	5
	MidCoast Water	North East Water					
10,000–20,000	1,970	970	16	7	1,400	1,497	7
	P&W (Alice Springs)	South Gippsland Water					
All size groups (national)	1,970	884	44	21	1,334	1,386	4
	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 2014–15 and 2015–16 reporting years.

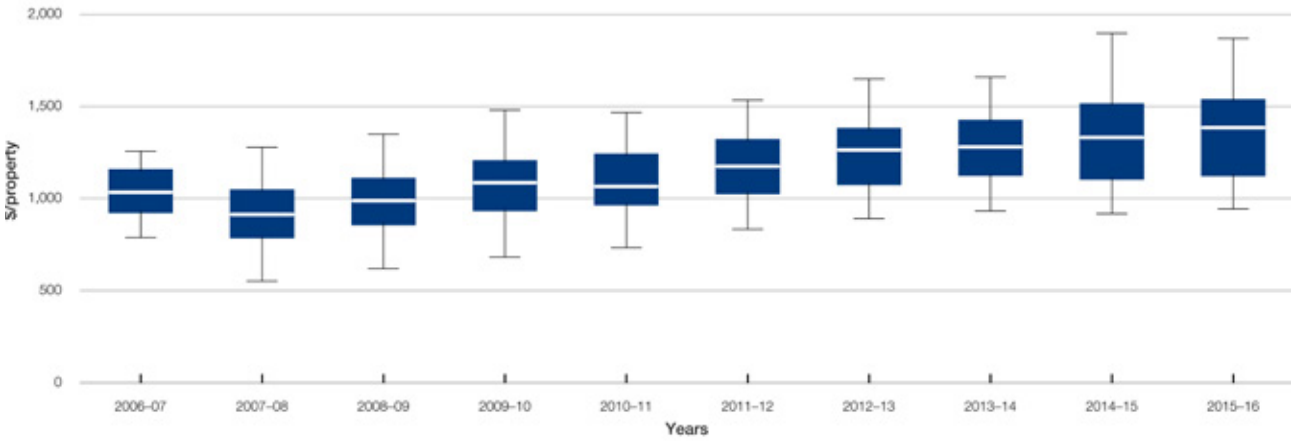

Figure 4.1 P8—Typical residential bill: water and sewerage ($), 2006–07 to 2015–16

4.1.3 Results and analysis—100,000+ size group

A ranked breakdown of the typical residential bill for this size group is presented in Figure 4.2. The figure highlights the component of water (P3) and sewerage (P6) cost for each utility in the size group from 2012–13 to 2015–16.

Although recording a nominal decrease in the median typical residential bill, the utilities in the 100,000+ size group recorded significant variation in the reported bill values. Within this group, Queensland's utilities remain amongst the most expensive with Logan City Council and Gold Coast City Council recording the highest typical residential bills (Table A3 in Appendix A). The decreases for Logan City Council (4 per cent), Gold Coast City Council (3 per cent), and Unitywater (1 per cent) can be attributed to the Queensland Government's bulk water

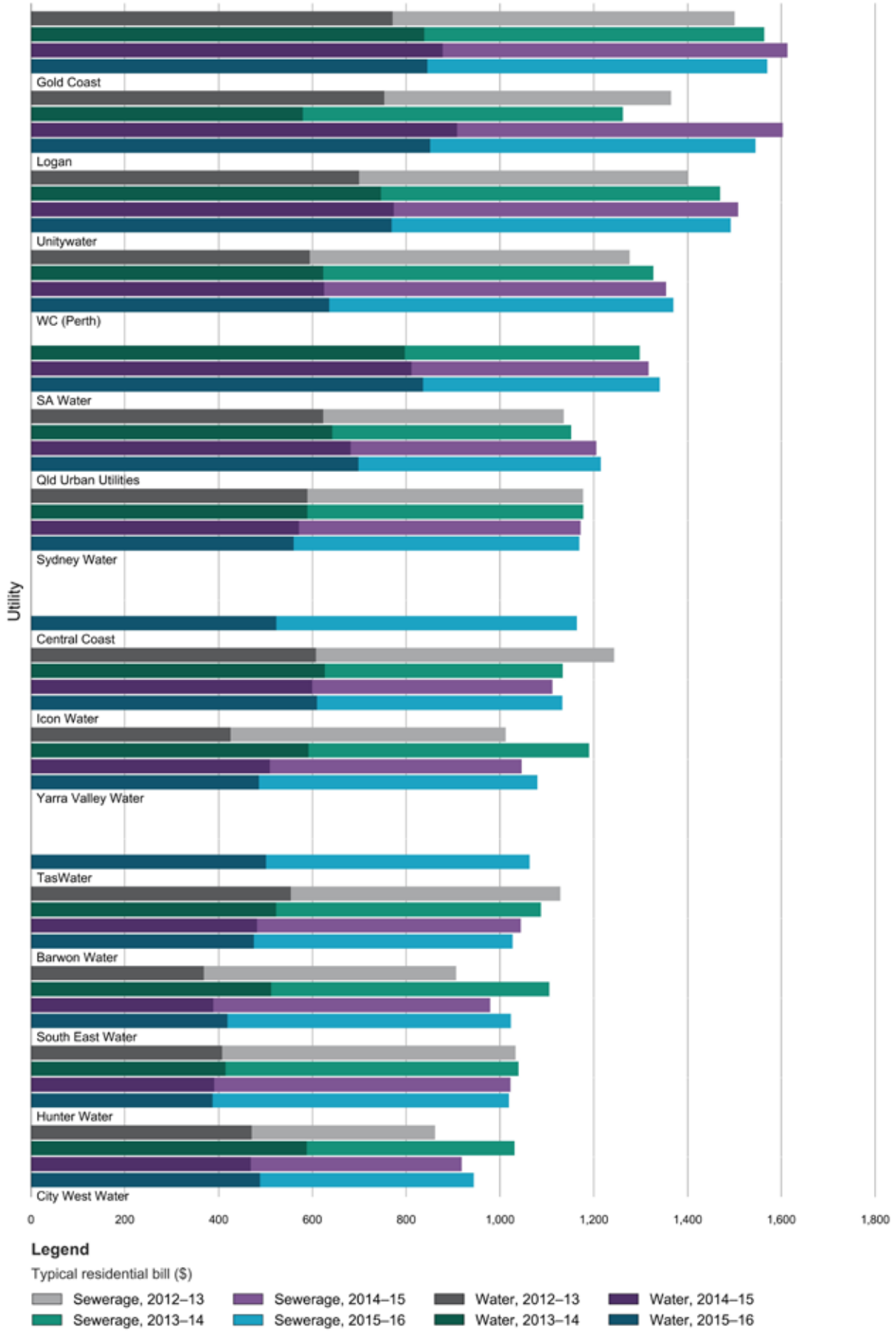

Figure 4.2 P8—Typical residential bill: water and sewerage, for utilities with 100,000+ connected properties ($), 2012–13 to 2015–16

prices announcement in June 2015. These utilities had bulk water prices above the forecast common price and received price decreases as a result (Queensland Government 2016).

Similarly, Queensland urban utilities had bulk water prices below the forecast common price resulting in a median increase in typical residential bills of 1 per cent.

Melbourne's three major retailers continued to have the lowest typical residential bills in the 100,000+ size group following the Victorian State Government's 2014 Fairer Water Bills Initiative (Melbourne Water 2014). This is despite South East Water, Yarra Valley Water, and City West Water reporting increases of 4 per cent, 3 per cent, and 3 per cent respectively.

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

4.2.1 Introduction

This indicator comprises the sum of P2 (Annual bill based on 200 kL: water) and P5 (Annual bill based on 200 kL: sewerage). It has many of the same drivers as P8 (Typical residential bill: water and sewerage). For these indicators, all utilities report the annual bill for a hypothetical residential customer using 200 kL/annum. The use of 200 kL as the basis for the bill in part normalises the reported data by correcting for differences in the volumes of residential water supplied to customers.

The P7 indicator aids comparisons between the utilities' annual bills (for the particular usage volume of 200 kL) and improves the transparency of price increases; however, the P8 indicator (Typical residential bill: water and sewerage) remains the best guide to determining the impact of pricing on a utility's customers because it is based on the typical bill paid by those customers.

Residential bill data based on a use of 200 kL/annum for all utilities reporting against the P7 indicator in 2015–16 can be found in Table A4 in Appendix A. Historical values have been adjusted using CPI data to facilitate comparison in real terms.

4.2.2 Key findings

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

In real terms, there was no change between the 2015–16 and 2014–15 median residential bills based on a usage of 200 kL/annum.

Table 4.2 P7—Overview of results: Annual bill based on 200 kL: water and sewerage ($)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	1,724	1,086	5	8	1,268	1,279	1
	Logan	TasWater					
50,000–100,000	1,498	826	2	7	1,325	1,308	–1
	Townsville	Goulburn Valley Water					
20,000–50,000	1,769	747	15	5	1,294	1,367	6
	MidCoast Water	Lower Murray Water					
10,000–20,000	1,879	1,019	18	6	1,413	1,464	4
	Bega Valley	Bathurst					
All size groups (national)	1,879	747	40	26	1,326	1,332	0
	Bega Valley	Lower Murray Water					

Table note

The 200 kL residential bill data for water and sewerage is calculated using data from all utilities that reported against the P2 and P5 indicators in both 2014–15 and 2015–16.

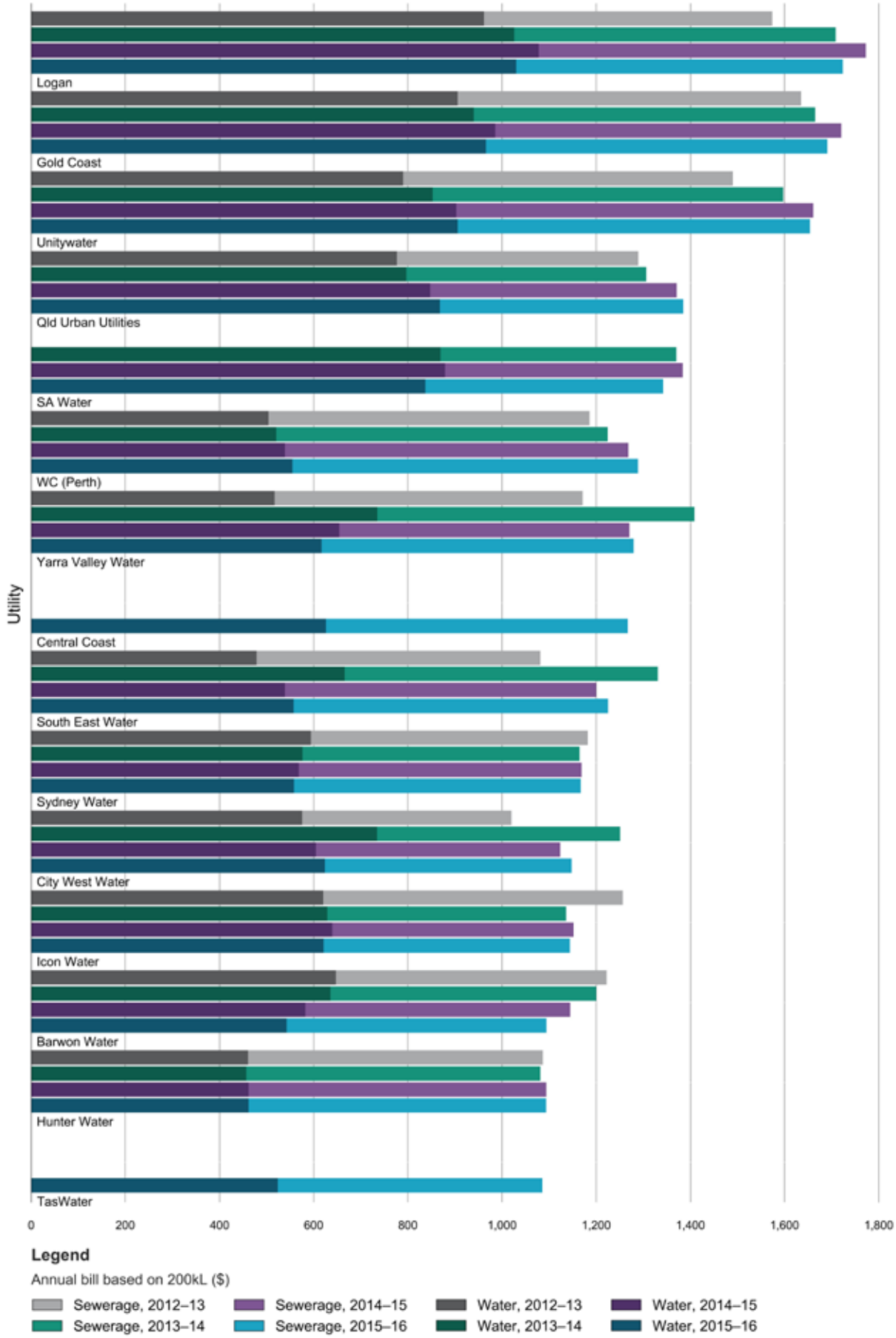

Figure 4.3 P7— Annual bill based on 200 kL: water and sewerage, for utilities with 100,000+ connected properties ($), 2012–13 to 2015–16

4.2.3 Results and analysis—100,000+ size group

A ranked breakdown of the typical residential bill for the supply of 200 kL of water per annum is presented in Figure 4.3. The figure highlights the component of water (P2) and sewerage (P5) cost for each utility in the size group from 2012–13 to 2015–16.

Taking the volume of residential water supplied into consideration, Queensland's major urban utilities (Logan City Council, Gold Coast City Council, Unitywater, and Queensland Urban Utilities) remain the most expensive in the group. These utilities reported that the bulk water charges, set by the Queensland Government, were responsible for as much as 60 per cent of their residential bills (Logan City Council 2012). As observed in section 4.1.3, decreases in annual bills for Logan City Council (3 per cent) and Gold Coast City Council (2 per cent) can be attributed to these utilities having bulk water prices above the forecast common price.

Barwon Water reported a decrease of 4 per cent in their annual bill, following the Essential Services Commission approval of a 1.6 per cent decrease per year, excluding CPI, as part of the utility's 2013–2018 water plan. A lower inflation rate experienced in 2015 and 2016 saw this saving passed on to customers.

5 Finance

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

5.1.1 Introduction

This section presents total capital expenditure in real dollar terms. It provides the total level of capital investment by each utility and an indication of the size of the utility and its capital responsibilities.

It is difficult to compare utilities for total capital expenditure because the figures are not normalised. Further analysis for individual utilities is given in section 5.2, which indicates the level of investment by each utility relative to its customer base.

A number of factors influence capital expenditure, many of which also affect operating expenditure (section 5.3). In addition, capital expenditure programmes are influenced by the age of the current infrastructure and the stage of the each asset's lifecycle. An individual utility's capital expenditure will be irregular over time, as many projects are occasional and long lasting and can take several years to complete.

Total capital expenditure for water and sewerage for all utilities reporting against the F16 indicator in 2015–16 can be found in Table A7 in Appendix A. Historical values have been adjusted using consumer price index (CPI) data to facilitate comparison in real terms.

5.1.2 Key findings

A summary of the data for total capital expenditure for water and sewerage, by utility size group, is presented in Table 5.1. In real terms, total capital expenditure increased by 1 per cent ($41 million) from 2014–15 but when compared against the previous three years (2013–14 to 2015–16), capital expenditure has remained steady, recording an increase of $9.2 million. Total capital expenditure for the 2013–14, 2014–15, and 2015–16 was $3.111 billion, $3.079 billion, and $3.120 billion respectively.

Figure 5.1 summarises total capital expenditure from 2007–08 to 2015–16 for utilities reporting in all nine years. Expenditure is broken down by expenditure on water (F14) and sewerage (F15).

Table 5.1 F16—Overview of results: Total capital expenditure: water and sewerage ($ million)

Size group (connected properties)	Range ($ million)		Number of utilities with increase/decrease from 2014–15		Total ($ million)		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	648.2	46.0	11	3	2,359	2,461	4
	Sydney Water	Logan					
50,000–100,000	52.0	9.0	3	5	245	230	–6
	Townsville	Central Highlands Water					
20,000–50,000	21.7	5.5	11	9	280	266	–5
	Shoalhaven	Coffs Harbour					
10,000–20,000	14.4	0.9	9	13	194	163	–16
	Essential Energy	Central Highlands					
All size groups (national)	648.2	0.9	34	30	3,079	3,120	1
	Sydney Water	Central Highlands					

Table note

Total capital expenditure: water and sewerage is calculated using data from all utilities that reported against F14 and F15 in both 2014–15 and 2015–16.

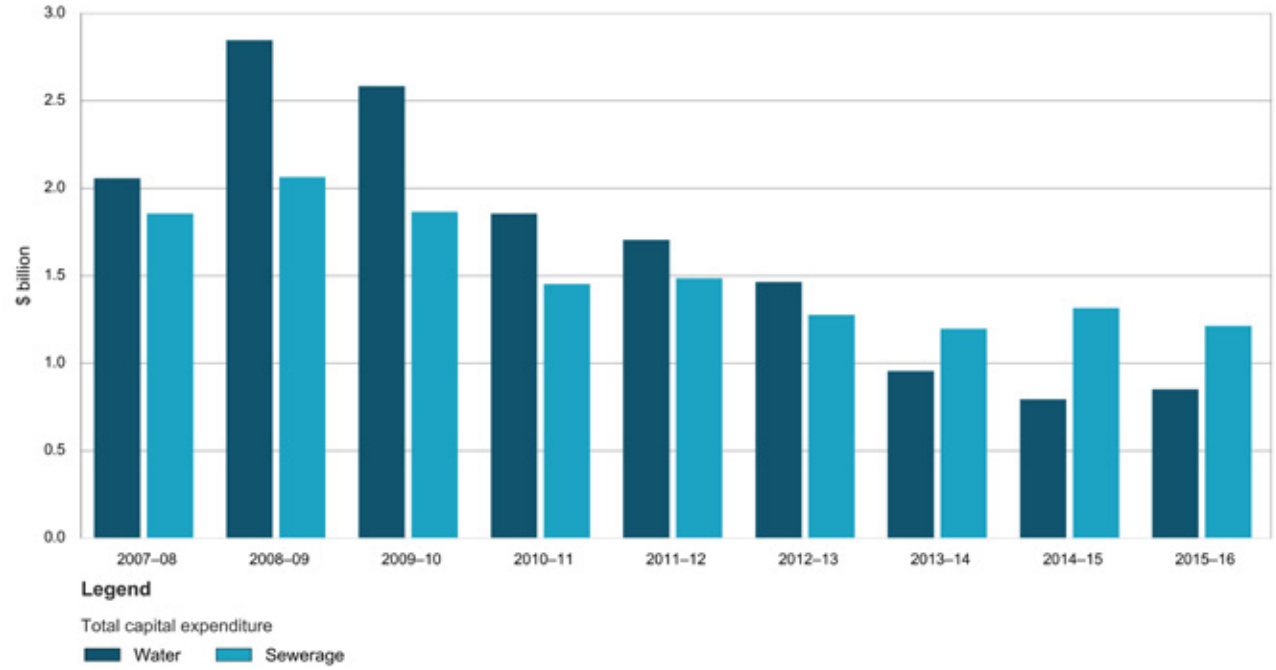

Figure 5.1 F14—Summary of results: Total capital expenditure: water ($ billion) and F15—Total capital expenditure: sewerage ($ billion), 2008–09 to 2015–16*

* Total is for utilities that reported in all nine years and excludes bulk water utilities.

5.1.3 Results and analysis—100,000+ size group

With the exception of Water Corporation—Perth, South East Water, and Logan City Council, all other utilities in the 100,000+ size group reported increases in capital expenditure across their water and sewerage operations. Both Logan City Council and South East Water reported significant decreases of 39 and 36 per cent respectively while Water Corporation—Perth reported a moderate decrease of 18 per cent (Tables A7).

Icon Water reported an increase of 69 per cent in capital expenditure from 2014–15, heavily influenced by an increase in expansion and renewal of water and sewerage supply networks (Icon 2015). This followed an 18 per cent decrease in capital expenditure between 2013–14 and 2014–15.

Yarra Valley Water and Gold Coast City Council reported an increase in total capital expenditure of 49 per cent and 42 per cent respectively. This was likely due to an increase in capital expenditure on the sewerage networks for both utilities.

Logan City Council recorded the highest percentage decrease in total capital expenditure of 39 per cent. This was due to decreases in capital expenditure for both water (6 per cent) and sewerage (54 per cent).

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

5.2.1 Introduction

This indicator reports the utilities' capital expenditure on a per property basis. It provides an indication of the level of investment undertaken by each utility relative to its customer base.

Total capital expenditure for water and sewerage, on a per connected property basis, for all utilities reporting against the F28 and F29 indicators in 2015–16 can be found in tables A8–A9 in Appendix A. Historical values have been adjusted using CPI data to facilitate comparison in real terms.

5.2.2 Key findings

A summary of the data for water supply and sewage capital expenditure on a per-property basis, by utility size group, is presented in tables 5.2–5.3.

In 2015–16, the national median per property capital expenditure on water services increased by 16 per cent (Table 5.2). This result reflects the increases reported by 37 utilities in the reporting year.

In 2015–16, the national median per property capital expenditure on sewerage services remained consistent with 2014–15, increasing by only 1 per cent (Table 5.3) despite the 11 per cent increase in capital expenditure per property in the 100,000+ size group. The 20,000–50,000 and 10,000–20,000 size groups both reported a decrease in capital expenditure of 3 per cent and 7 per cent respectively.

Table 5.2 F28—Overview of results: Capital expenditure: water ($/property)

Size group (connected properties)	Range ($000)		Number of utilities with increase/decrease from 2014–15		Median		Change in the total from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	347 TasWater	44 South East Water	8	6	142	126	–11
50,000–100,000	617 P&W (Darwin)	53 Cairns	4	4	196	178	–9
20,000–50,000	1,104 Riverina Water (W)	12 Redland City	13	8	148	184	24
10,000–20,000	1,218 Essential Energy	34 Central Highlands	12	14	248	252	2
All size groups (national)	1,218 Essential Energy	12 Redland City	37	32	166	192	16

Table note

Median capital expenditure: water ($/property) is calculated using data from all utilities that reported against F28 in both 2014–15 and 2015–16.

Table 5.3 F29—Overview of results: Capital expenditure: sewerage ($/property)

Size group (connected properties)	Range ($000)		Number of utilities with increase/decrease from 2014–15		Median		Change in the total from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	328 TasWater	50 City West Water	9	5	209	232	11
50,000–100,000	618 Toowoomba	1 Central Highlands Water	3	5	252	251	0
20,000–50,000	1,024 Clarence Valley	53 Lower Murray Water	10	11	208	201	–3
10,000–20,000	1,390 WC (Busselton) (S)	10 Kal–Boulder (S)	12	13	273	255	–7
All size groups (national)	1,390 WC (Busselton) (S)	1 Central Highlands Water	34	34	220	222	1

Table note

Median capital expenditure: sewerage ($/property) is calculated using data from all utilities that reported against F29 in both 2014–15 and 2015–16.

5.2.3 Results and analysis—100,000+ size group

A ranked breakdown of capital expenditure on a connected-property basis is presented in Figure 5.2. The figure highlights the component of water and sewerage expenditure (F28 and F29 respectively) for each utility in the 100,000+ size group from 2012–13 to 2015–16.

Gold Coast City Council and Icon Water recorded significant capital expenditure for sewerage from 2014–15 when compared to other utilities. Sewerage capital expenditure increased by 80 and 78 per cent respectively.

Yarra Valley Water had a significant capital expenditure increase for both water and sewerage from 2014–15 when compared with other utilities. Its water capital expenditure increased by 16 per cent and sewerage capital expenditure by 64 per cent.

Icon Water reported the highest increase in total water and sewerage capital expenditure per property (64 per cent). This was due to an increase in the supply networks and water and sewerage mains renewal programs initiated in this period (Icon 2015).

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

5.3.1 Introduction

These indicators report the operating costs (for operation, maintenance, and administration) of each water utility in relation to the number of properties serviced. Operating costs are influenced by many factors, including:

- utility size
- government policy
- climate and rainfall
- the distance and way that water is transported (including whether it is required to be piped)
- the sources of water (including whether it is purchased from a bulk utility and also whether it is sourced from dams or alternative sources, such as desalination plants)
- input costs (for example, those of fuel, chemicals, and labour)
- the level of water and sewage treatment required
- capital procurement strategies, such as public–private partnerships and build–own–operate–transfer (BOOT) schemes.

Operating expenditure per property has been increasing in recent years, particularly for larger utilities; however, because economies of scale are possible, operating expenditure per property can fall as the size of the utility increases.

Combined operating costs on a per connected property basis for all utilities providing both water and sewerage services can be found in Table A6 in Appendix A.

5.3.2 Key findings

A summary of the data for combined operating cost on a per property basis (by utility size group) is presented in Table 5.4. 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 2015–16.

The national 2015–16 median operating cost (on a per property basis for utilities delivering both water and sewerage services) was $920 (Table 5.4). This figure represents an increase of 3 per cent from 2014–15.

All size groups recorded increases in their median costs. Nationally, 30 utilities across all size groups reported increases in their operating expenditure per property, while 34 recorded decreases.

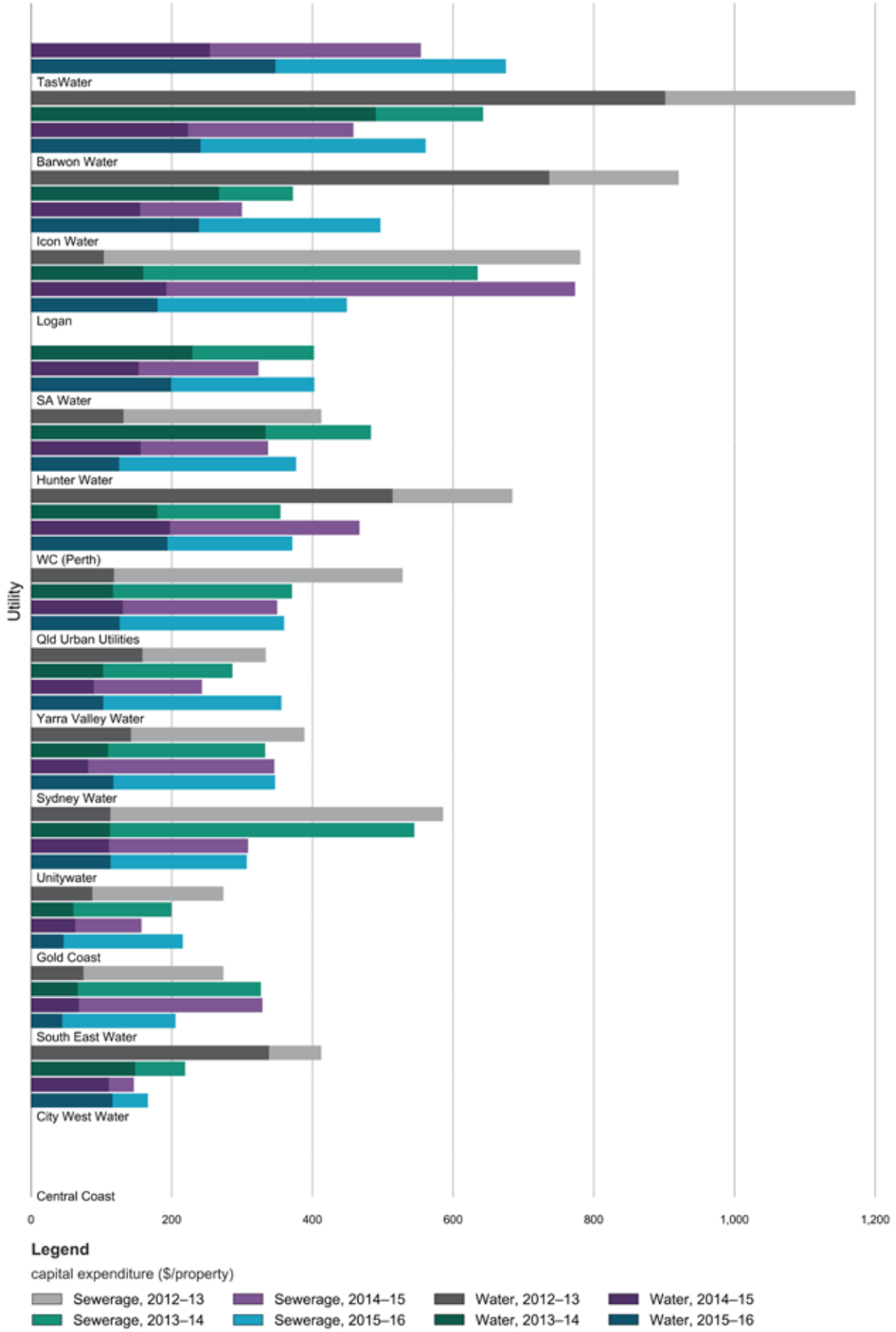

Figure 5.2 F28—Capital expenditure: water ($/property) and F29—Capital expenditure: sewerage ($/property), 2012–13 to 2015–16, for utilities with 100,000+ connected properties

Table 5.4 F13—Overview of results: Combined operating cost: water and sewerage ($/property)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	1,147	584	8	6	873	922	6
	Qld Urban Utilities	Hunter Water					
50,000–100,000	1,168	649	4	4	797	834	5
	Gippsland Water	Cairns					
20,000–50,000	1,420	655	8	12	868	878	1
	Gladstone RC	WC (Mandurah)					
10,000–20,000	1,787	641	10	12	1,024	1,033	1
	P&W (Alice)	WC (Geraldton)					
All size groups (national)	1,787	584	30	34	896	920	3
	P&W (Alice)	Hunter Water					

Table note

The combined operating cost: water and sewerage ($/property) is calculated using F11, F12, and F13 data from utilities that reported in both 2014–15 and 2015–16.

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

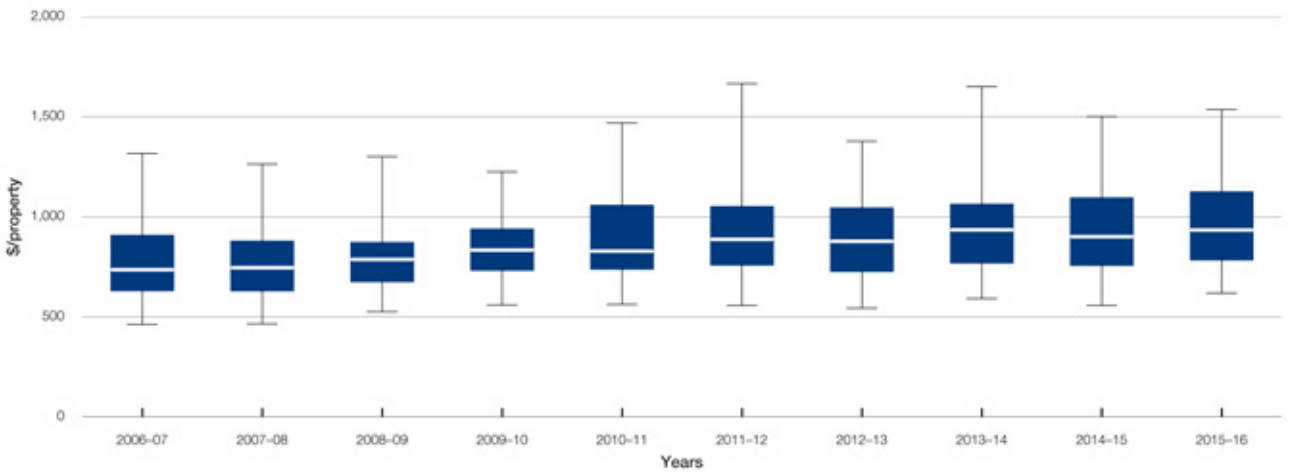

Figure 5.3 F13—Summary of results: Combined operating cost: water and sewerage ($/property)

5.3.3 Results and analysis—100,000+ size 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 100,000+ size group from 2012–13 to 2015–16.

With a median operating cost of $922 per property for the utilities that reported in both 2014–15 and 2015–16, the 100,000+ size group reported an average increase of 6 per cent from 2014–15. Additionally, the water component of operating costs was higher than the sewerage component for all utilities except Hunter Water Corporation and Tasmanian Water and Sewerage Corporation.

All utilities reported increases in combined operating costs in 2014–15 except for Hunter Water Corporation, Logan City Council, Gold Coast City Council, and Barwon Water, which reported decreases of 7 per cent, 4 per cent, 3 per cent, and 2 per cent respectively.

5.4 F8—Revenue from community service obligations (%)

5.4.1 Introduction

Revenue from community service obligations (CSOs) represents payments to a utility by the State or Territory government following a government direction to undertake activities that the utility would not perform on a solely commercial basis. In the water sector, CSOs may be provided to:

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

Revenue from CSOs data for all utilities reporting F8 in 2015–16 can be found in Table A5 in Appendix A.

5.4.2 Key findings

A summary of the data for revenue from CSOs, by utility size group, is presented in Table 5.5.

In 2015–16, 20 utilities reported increases and 43 reported decreases in revenue received from CSOs. This resulted in a 7 per cent decrease in the national median between 2014–15 and 2015–16.

Table 5.5 F8—Overview of results: Revenue from community service obligations (%)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	9.1	0	0	13	4.6	4.4	–4
	SA Water	Gold Coast					
50,000–100,000	5.6	0	2	4	4.3	4	–7
	Goulburn Valley Water	Central Highlands Water					
20,000–50,000	6.6	0	9	12	1.3	1.1	–15
	GWMWater	Gladstone RC					
10,000–20,000	62.2	0	8	16	1.2	1.2	0
	WC (Kal–Boulder) (W)	Multiple utilities					
All size groups (national)	62.2	0	19	45	1.5	1.4	–7
	WC (Kal–Boulder) (W)	Multiple utilities					

Table note

Median percentage of revenue from CSOs is calculated for all utilities that reported data for F8 in both 2014–15 and 2015–16.

5.4.3 Results and analysis—100,000+ size group

There were no utilities reporting an increase in the percentage of revenue from CSOs in the 2015–16 period.

The median percentage revenue from CSOs decreased with 11 utilities reporting decreases in percentage of revenue from 2014–15. Icon Water reported the highest decrease, with its percentage decreasing from 3.7 per cent in 2014–15 to 3.2 per cent in 2015–16.

SA Water Corporation and Water Corporation—Perth continued to have the highest proportions of revenue from CSOs with 9.1 per cent and 6.2 per cent respectively. For these utilities, CSO payments were used to subsidise non-profitable water services, including providing water services in country areas at metropolitan water prices (SA Water Corporation 2016 and Water Corporation of WA 2006).

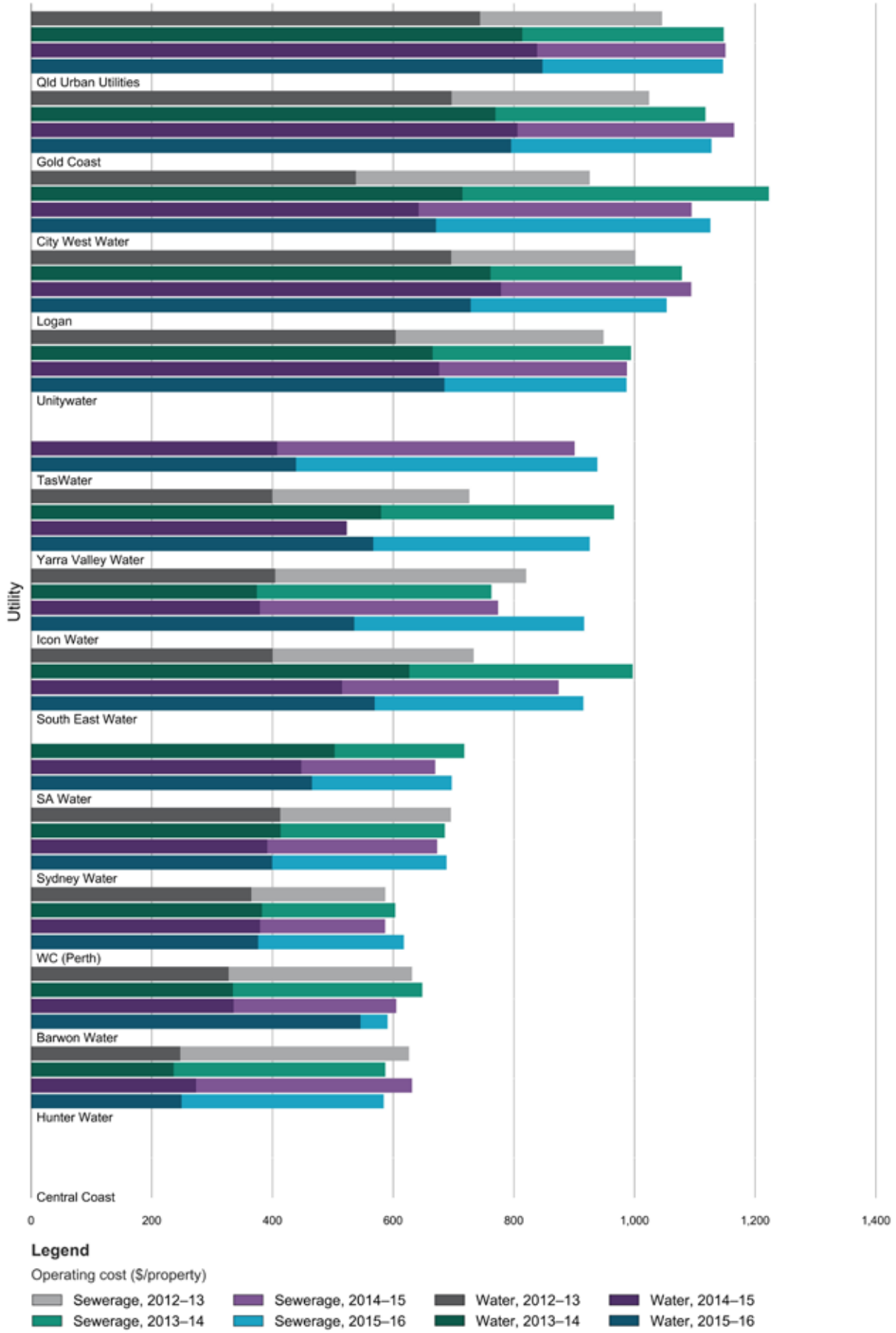

Figure 5.4 F13—Combined operating cost: water and sewerage ($/property) for utilities with 100,000+ connected properties, 2012–13 to 2015–16

6 Customer

6.1 C15—Average duration of an unplanned interruption: water (minutes)

6.1.1 Introduction

This indicator reports the average time (in minutes) that a customer is without a water supply due to an unforeseen interruption that requires attention by the utility. It also includes instances in which scheduled (planned) interruptions exceed the time limit originally notified by the utility. It is in part an indicator of customer service and the condition of the water network and also of how effectively the network is managed.

The average duration is influenced by the scale of the event that causes the interruption, the location of the interruption (its proximity to the utility's repair crews and, for example, the depth or location of a pipe that has burst), the utility's response policy for outlying areas, and the number of maintenance and repair staff at the utility's disposal. A single event affecting a small number of properties for a long duration can have a material effect on this indicator, particularly for smaller utilities, and hence there are often relatively large variations from year to year.

Average duration of an unplanned interruption (water supply) data for all utilities reporting C15 in 2015–16 can be found in Table A14 in Appendix A.

6.1.2 Key findings

A summary of the data for the average duration of an unplanned interruption, by utility size group, is presented in Table 6.1.

In 2015–16, 26 utilities reported increases, whereas 26 utilities reported decreases. The median value for all utilities did not change between the 2014–15 and 2015–16 reporting years (Table 6.1).

Table 6.1 C15—Overview of results: Average duration of an unplanned interruption: water (minutes)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	198	81.3	7	6	132.4	134	1
	Central Coast	South East Water					
50,000–100,000	118.4	63.9	3	4	89	92.8	4
	Coliban Water	Townsville					
20,000–50,000	206	23.9	9	6	95.1	106.7	12
	Riverina Water (W)	Redland City					
10,000–20,000	375	26	7	10	120	120	0
	Cassowary Coast	Livingstone					
All size groups (national)	375	23.9	26	26	112	112	0
	Cassowary Coast	Redland City					

Table note

Median average duration of an unplanned interruption: water (minutes) is calculated for all utilities that reported data for C15 in both 2014–15 and 2015–16.

6.1.3 Results and analysis—100,000+ size group

A ranked breakdown of the average duration of an unplanned interruption for this size group from 2010–11 to 2015–16 is presented in Figure 6.1.

In 2015–16, seven utilities in the 100,000+ size group reported increases while six reported decreases from 2014–15. The median for the size group remained consistent with 2014–15 at 134 minutes (an increase of only 1 per cent).

Central Coast Council reported the highest result with 198 minutes of unplanned interruption to their customers' water supply. SA Water Corporation again reported a high result, which at 185.7 minutes was 14 per cent higher than in the 2014–15 year. This result can be explained by new safety measures introduced in August 2015 to mitigate identified safety hazards in the repair of cast iron mains. Cast iron pipes are used extensively in South Australia and are more likely to fail from pressure issues. Previously, these pipes were repaired under pressure; however, new work, health, and safety (WHS) measures require the water supply to be shut down and the area excavated before the pipe can be repaired. This process increases the number of shutdowns and is more time consuming than the previous practice. Cast iron mains are no longer laid in South Australia but it is predicted that future failures will predominantly concern cast iron pipes and therefore the duration of repairs may not be reduced.

South East Water had the lowest duration of 81 minutes, a decrease of 9 per cent from 2014–15 due to a lower number of water main bursts requiring excavation and repairs within close proximity to other infrastructure (South East Water 2016).

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

6.2.1 Introduction

This indicator reports the total number of complaints received by a water utility per 1,000 properties. A complaint can be a written or verbal expression of dissatisfaction about an action or proposed action or a failure to act by the water utility, its employees, or contractors. Complaints from different customers arising from the same cause are recorded as separate complaints. The number of complaints is an indicator of the level of customer service and customer satisfaction and is a common performance indicator in many industries.

Total water and sewerage complaints (per 1,000 properties) data for all utilities reporting against this indicator in 2015–16 can be found in Table A12 in Appendix A.

6.2.2 Key findings

A summary of the data for total water and sewerage complaints, by utility size group, is presented in Table 6.2.

In 2015–16, the median number of complaints increased by 1 (from 4 to 5) from that of 2014–15, equating to five complaints per 1,000 properties. Total water and sewerage complaints (per 1,000 properties) increased across all size groups, with the 20,000–50,000 size group reporting the largest increase of 29 per cent, equating to 4.9 complaints per 1,000 properties (Table 6.2).

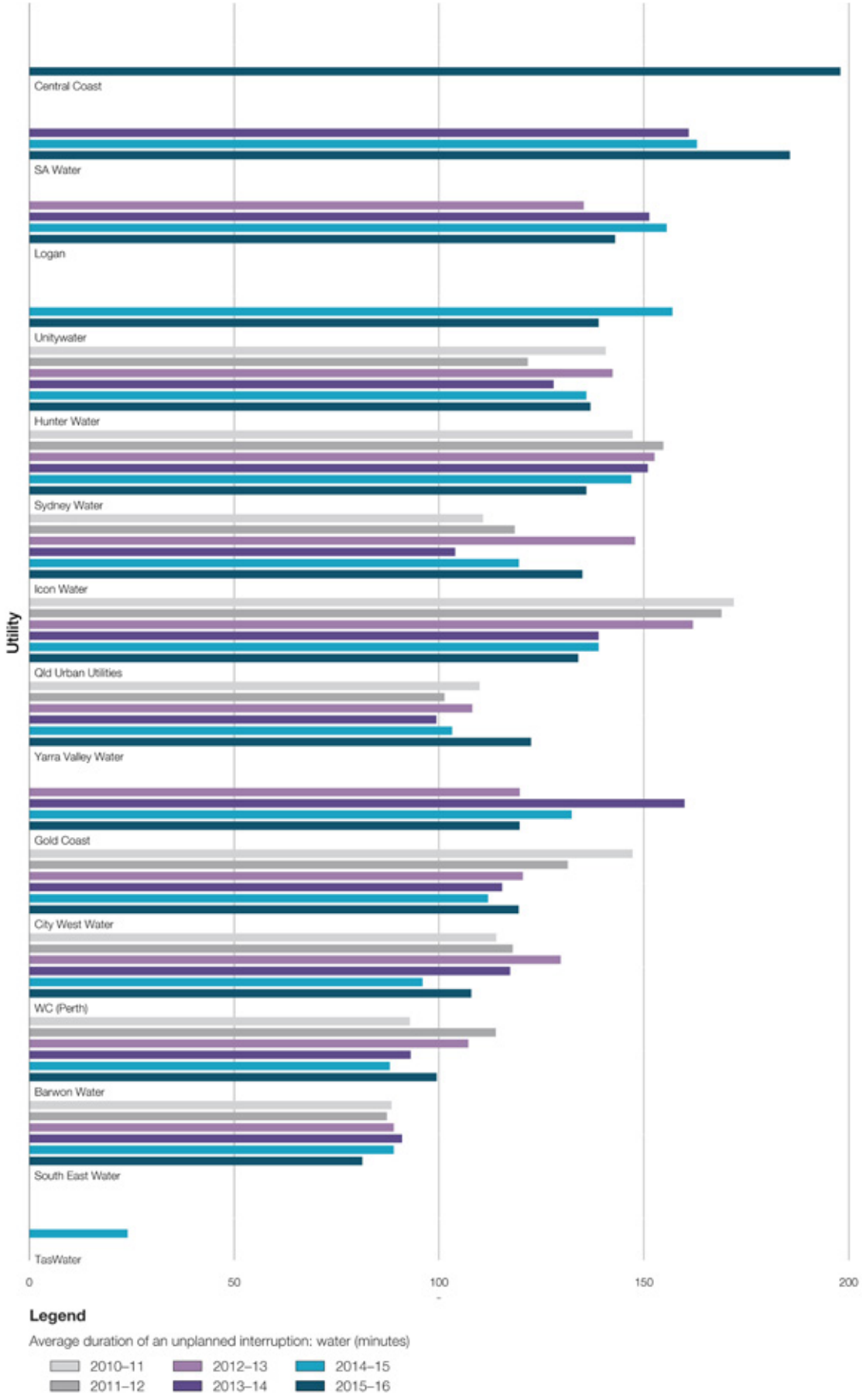

Figure 6.1 C15—Average duration of unplanned interruption: water (minutes), for utilities with 100,000+ connected properties, 2010–11 to 2015–16

Table 6.2 C13—Overview of results: Total complaints: water and sewerage (per 1,000 properties)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	6.3	0.8	6	6	3.9	4.1	5
	Gold Coast	WC (Perth)					
50,000–100,000	66	0.7	6	3	4.3	5.5	28
	P&W (Darwin)	Townsville					
20,000–50,000	54.5	0	9	8	3.8	4.9	29
	Tamworth	Gladstone RC					
10,000–20,000	184.2	0.3	11	11	5	6	20
	Central Highlands	Lismore					
All size groups (national)	184.2	0	32	28	4	5	25
	Central Highlands	Gladstone RC					

Table note

Median total complaints: water and sewerage (per 1,000 properties) is calculated for all utilities that reported data for C13 in both 2014–15 and 2015–16.

6.2.3 Results and analysis–100,000+ size group

A ranked breakdown of the total water and sewerage complaints from 2010–11 to 2015–16 is presented in Figure 6.2.

In the 100,000 size group, six utilities reported increases in the number of complaints and six reported decreases in 2015–16 compared with 2014–15. Unity Water reported the largest decrease in complaints amongst the utilities at 40 per cent in 2015–16 compared with 2014–15. Water Corporation—Perth reported the lowest number of compaints per 1,000 properties since 2012–13, as shown in Table A12 in Appendix A. In 2015–16, this utility again reported the lowest number of complaints (0.8 per 1,000), and Gold Coast City Council reported the highest (6.3 per 1,000). This result is still comparatively low, equating to only 6 complaints per 1,000 properties.

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

6.3.1 Introduction

Where utilities use interactive voice response systems, this indicator measures the number of calls answered within 30 seconds after the 'operator' option has been selected. It gives an indication of the efficiency of the utility's customer service centre and is affected by the ratio of customer service staff to customers, particularly when severe events such as storms or floods result in a large increase in customer calls.

A summary of the data for the percentage of calls answered by an operator within 30 seconds, by utility size group, is presented in Table 6.3.

Data on the percentage of calls answered by an operator within 30 seconds for all utilities reporting C14 in 2015–16 can be found in Table A13 in Appendix A.

6.3.2 Key findings

In 2015–16, 20 utilities recorded a decrease in the percentage of calls answered by an operator within 30 seconds while 10 utilities recorded an increase from the previous year; overall, there was a minor change of 1 per cent in the median percentage of calls answered within 30 seconds between 2014–15 and 2015–16 (Table 6.3).

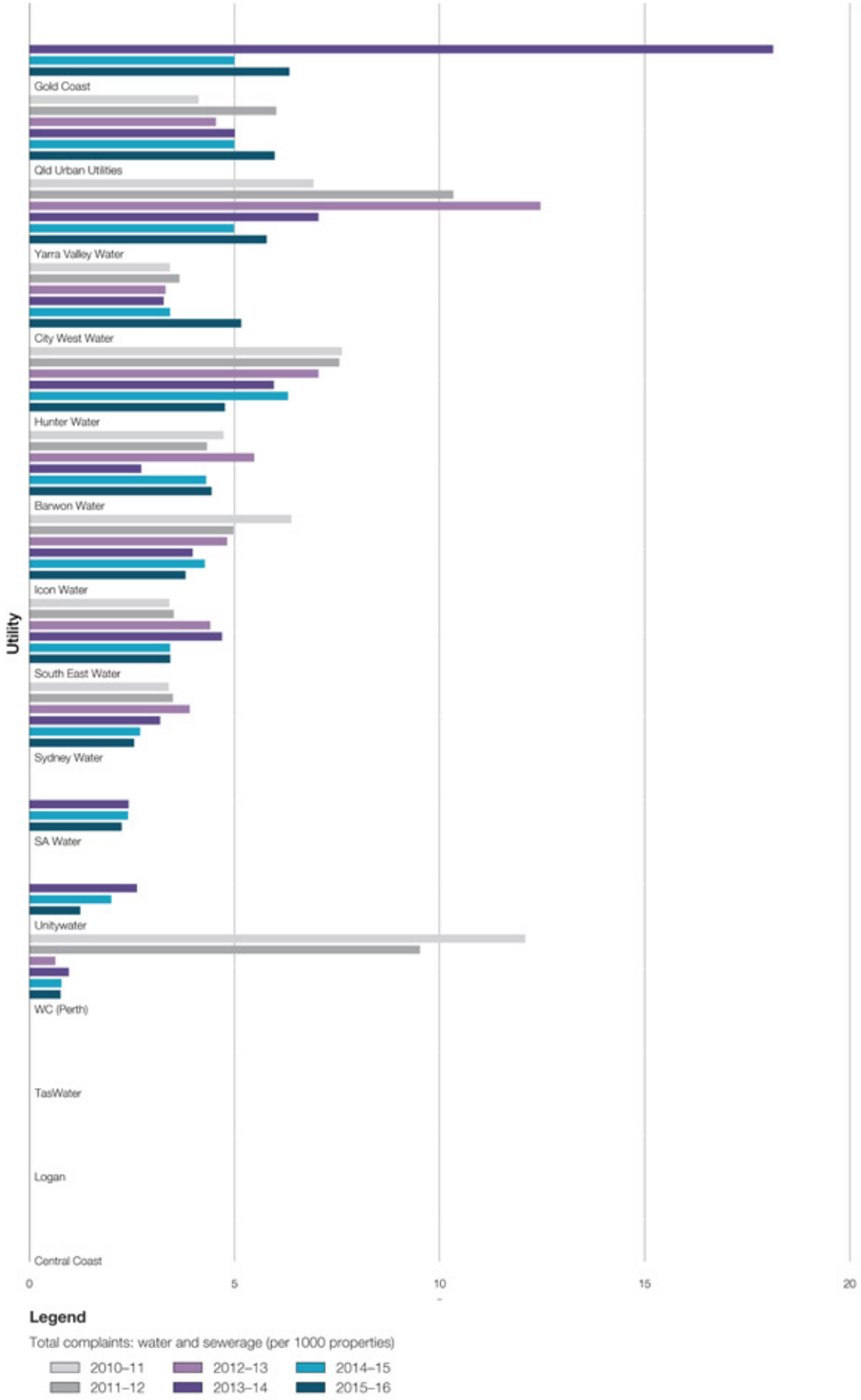

Figure 6.2 C13—Total complaints: water and sewerage (per 1,000 properties), for utilities with 100,000+ connected properties, 2010–11 to 2015–16

Table 6.3 C14—Overview of results: Percentage of calls answered by an operator within 30 seconds (%)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	88.5	46.9	3	8	79.5	78.6	–1
	TasWater	Yarra Valley Water					
50,000–100,000	97.2	88.2	1	4	92	88.8	–3
	Goulburn Valley Water	Central Highlands Water					
20,000–50,000	100	49	5	3	94	98	4
	Wagga Wagga (S)	Tweed					
10,000–20,000	100	42	1	5	88.8	77.5	–13
	Kal–Boulder (S)	Kempsey					
All size groups (national)	100	0	10	20	86.4	87.2	1
	Multiple utilities	Melbourne Water					

Table note

Median percentage of calls answered by an operator within 30 seconds (%) is calculated for all utilities that reported data for C14 in both 2014–15 and 2015–16.

6.3.3 Results and analysis—100,000+ size group

A ranked breakdown of the percentage of calls answered by an operator within 30 seconds from 2010–11 to 2015–16 is presented in Figure 6.3.

In the 100,000+ size group, there was little change in the percentage of calls answered by an operator within 30 seconds between the 2014–15 and 2015–16 reporting years. The median decreased by 1 per cent, with the highest percentage of calls answered reported by Tasmanian Water and Sewerage Corporation (88.5 per cent) and the lowest by Yarra Valley Water (46.9 per cent) (Table 6.3).

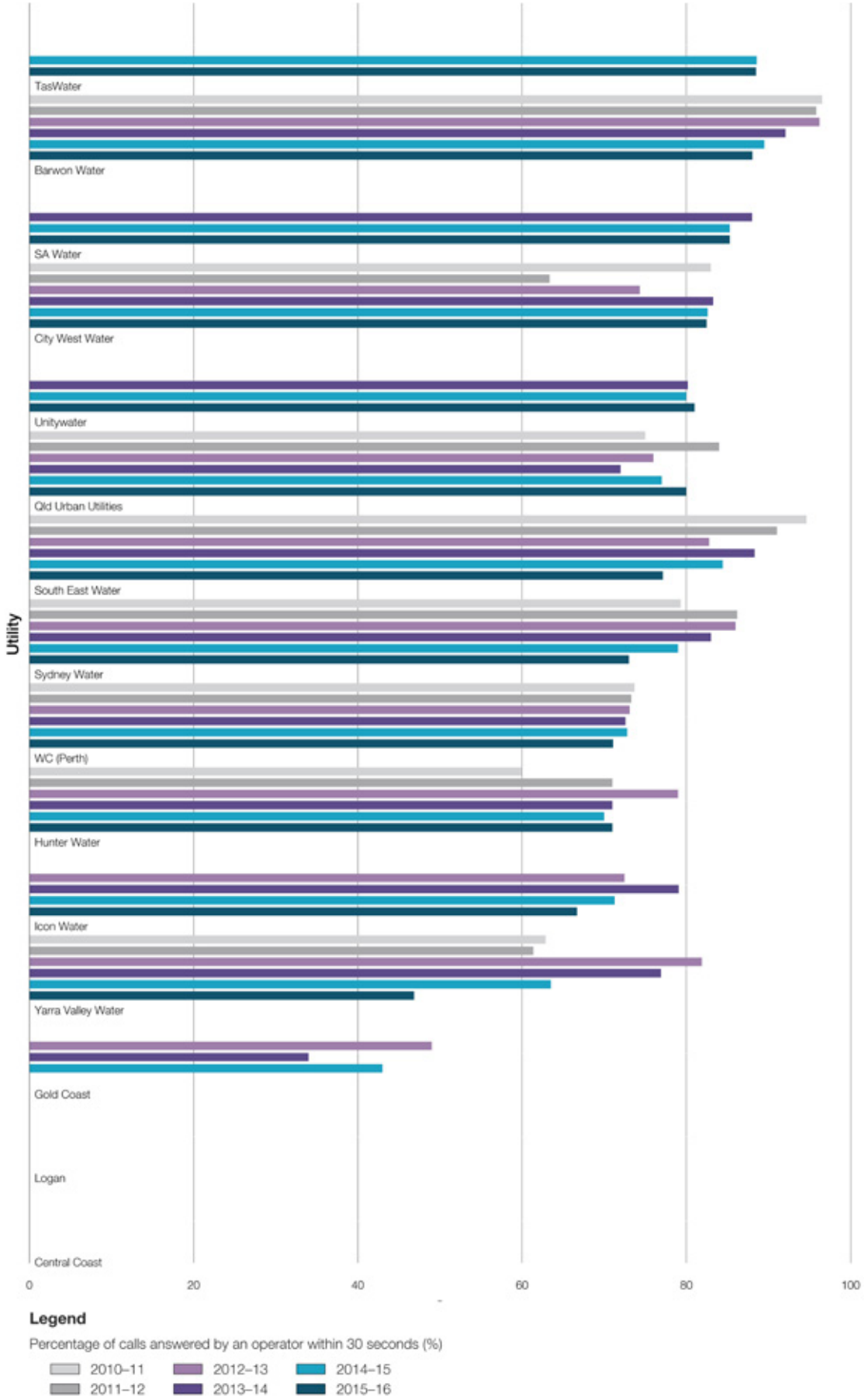

Figure 6.3 C14—Percentage of calls answered by an operator within 30 seconds, for utilities with 100,000+ connected properties, 2010–11 to 2015–16

7 Asset

7.1 A8—Water main breaks (no. per 100 km of water main)

7.1.1 Introduction

This indicator reports the total number of breaks, bursts, and leaks in all distribution system mains (including both potable and non-potable water mains), but excludes breaks associated with headworks and transfer mains. It provides a partial indication of the customer service provided and the condition of the network.

The number of main breaks is influenced by various factors, including soil type, rainfall, and pipe material, as well as the age and condition of the network.

Water main breaks per 100 km of water main, for all utilities reporting against this indicator in 2015–16, can be found in Table A16 in Appendix A.

7.1.2 Key findings

A summary of the reported water main breaks per 100 km of water mains, by utility size group, is presented in Table 7.1. Figure 7.1 is a box-and-whisker plot of water main breaks data for all utilities reporting A8 for a given reporting year from 2006–07 to 2015–16.

There is a large range of water main breaks per 100 km with GWMWater experiencing 55.5 breaks per 100 km of water mains (highest no. of breaks) down to MidCoast Water with only 1.7 breaks per 100 km of water mains. The national median was 12.8 water main breaks per 100 km of water mains in 2015–16, down slightly from 2014–15 (13 breaks per 100 km of water mains).

Table 7.1 A8—Overview of results: Water main breaks (no. per 100 km of water main)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	48.5	3.7	8	5	26	25.7	–1
	Yarra Valley Water	Unitywater					
50,000–100,000	31.6	12.4	3	6	21.1	18.8	–11
	Townsville	Cairns					
20,000–50,000	55.5	1.7	10	11	9.2	8.7	–5
	GWMWater	MidCoast Water					
10,000–20,000	40.9	3.2	11	16	12.4	12	–3
	South Gippsland Water	Livingstone					
All size groups (national)	55.5	1.7	32	38	13	12.8	–2
	GWMWater	MidCoast Water					

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) that reported data against A8 in both 2014–15 and 2015–16.

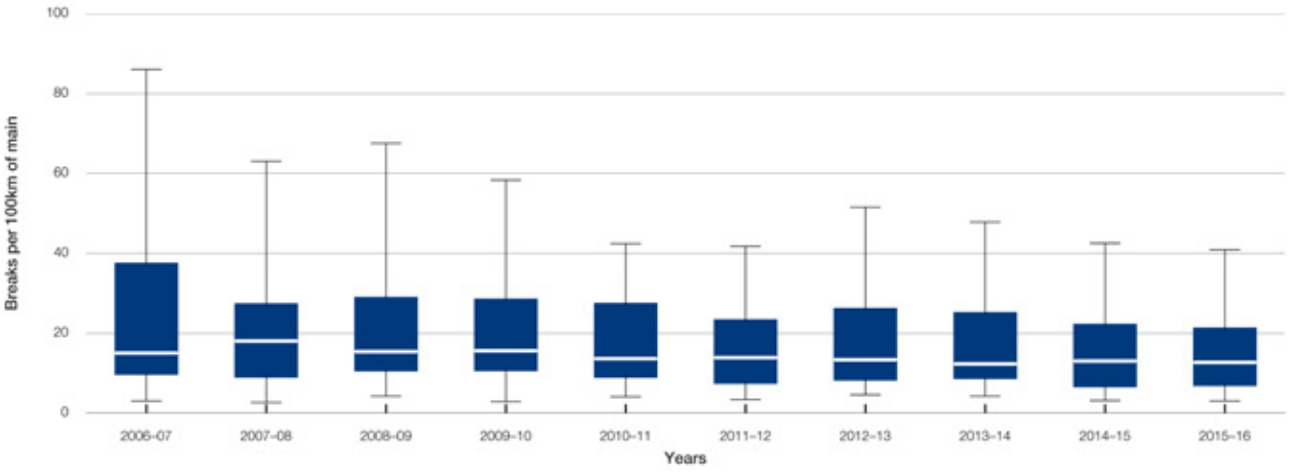

Figure 7.1 A8—Summary of results: Water main breaks (no. per 100 km of water main), 2006–07 to 2015–16

7.1.3 Results and analysis–100,000+ size group

A ranked breakdown of the water main breaks per 100 km of water main for each utility in this size group from 2010–11 to 2015–16 is presented in Figure 7.2.

In 2015–16, the median water main breaks per 100 km of water main remained almost consistent with 2014–15, decreasing by only 1 per cent. Logan City Council and Water Corporation—Perth reported the largest decrease with 28 per cent and 20 per cent respectively (Table A16 in Appendix A).

The Victorian utilities all saw increases in water main breaks. Yarra Valley Water (23 per cent) and Barwon Water (16 per cent) reported the largest increases across all utilities with Yarra Valley Water recording the highest at 48.5 breaks per 100 km of water mains. This result follows a change in climate experienced by these utilities in the 2014–15 period of dry, hot conditions and below-average rainfall (Figures 1.2 and 1.3).

7.2 A14—Sewerage mains breaks and chokes (no. per 100 km of sewer main) and A15—Property connection sewer breaks and chokes (no. per 1,000 properties)

7.2.1 Introduction

Indicator A14 reports the number of breaks and chokes per 100 km of sewerage main while 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, which is important because water utilities have sewer networks with various configurations. For example, some have a very long property connection (from the customer's sanitary drain to the middle of a road), while others have a very short or no property connection (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 own[1] or maintain the property connections and therefore do not report on them (in accordance with the definition of the indicator). Other utilities are responsible for only a portion of property sewer connections and so only report results on those for which they are responsible.

The performance of a sewerage system is influenced by such factors as soil type, pipe material, and sewerage configuration, as well as age, tree root intrusion, the management of trade waste, the volume of sewage inflows, and rainfall. The results are a partial indicator of the condition of the network and level of customer service. It should be noted, for the above reasons, care should be taken in comparing the performance of utilities against each other using these indicators.

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

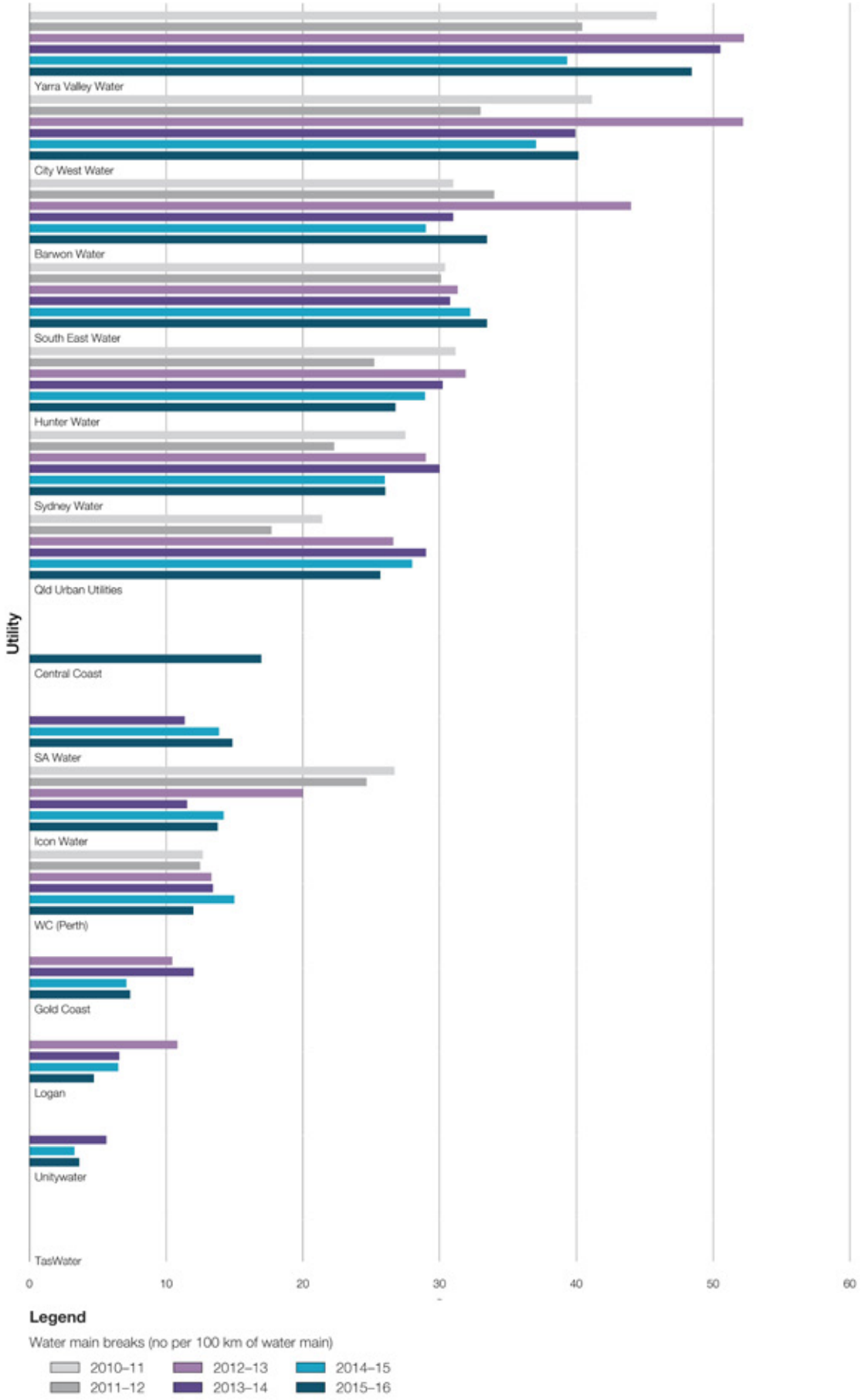

Figure 7.2 A8—Water main breaks (no. per 100 km of water main), for utilities with 100,000+ connected properties, 2010–11 to 2015–16

Sewerage mains breaks and chokes for all utilities reporting against A14 in 2015–16 can be found in Appendix A.

Property connection sewer breaks and chokes for all utilities reporting A15 in 2015–16 can be found in Table A19 in Appendix A.

7.2.2 Key findings

A summary of the sewerage mains breaks and chokes, by utility size group, is presented in Table 7.2.

A summary of the property connection sewer breaks and chokes, by utility size group, is presented in Table 7.3.

In 2015–16 there was a 27 per cent increase in the national median from 2014–15, equating to 18.2 sewerage main breaks and chokes per 100 km of sewer mains (Table 7.2). There was only a slight increase in the property connection sewer breaks and chokes per 1,000 properties (Table 7.3). Three of the four size groups reported increases in sewerage mains breaks and chokes while only one of the four size groups reported an increase in property connection sewer breaks and chokes.

Table 7.2 A14—Overview of results: Sewerage mains breaks and chokes (no. per 100 km of sewer main)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	58.4	7.2	8	5	30.1	25.2	–16
	Sydney Water	Gold Coast					
50,000–100,000	64.8	3.9	6	3	10.1	14.1	40
	Toowoomba	Townsville					
20,000–50,000	97	1	14	4	9.1	11.4	25
	Coffs Harbour	Tweed					
10,000–20,000	162	1.3	15	9	12.8	16.4	28
	Bathurst	Cassowary Coast					
All size groups (national)	162	1	43	21	14.3	18.2	27
	Bathurst	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) that reported data against A14 in both 2014–15 and 2015–16.

Table 7.3 A15—Overview of results: Property connection sewer breaks and chokes (no. per 1,000 properties)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	32	0.2	6	5	4.2	4.2	0
	SA Water	Sydney Water					
50,000–100,000	5.6	0.6	5	3	3.1	3.7	19
	Western Water	Toowoomba					
20,000–50,000	31.4	0.1	8	7	1.7	1.5	–12
	GWMWater	Shoalhaven					
10,000–20,000	44	0	10	9	4.5	3.1	–31
	Essential Energy	City of Kal-Boulder					
All size groups (national)	44	0	29	24	2.7	3.1	15
	Essential Energy	City of Kal-Boulder					

Table note

The median connected-property sewer breaks and chokes (per 1,000 properties) is calculated using data from all utilities (dual and single service providers) that reported data against A15 in both 2014–15 and 2015–16.

7.2.3 Results and analysis—100,000+ size group

A ranked breakdown of the sewerage mains breaks and chokes per annum for each utility from 2010–11 to 2015–16 is presented in Figure 7.3.

A ranked breakdown of the connected-property sewer breaks and chokes per annum for each utility from 2010–11 to 2015–16 is presented in Figure 7.4.

Hunter Water Corporation, Queensland Urban Utilities, and Unitywater all reported a decrease in sewerage mains breaks and chokes per 100 km sewer main (Table A14 in Appendix A) and breaks and chokes per 1,000 properties (Table A15 in Appendix A) from 2014–15. This is consistent with these utilities experiencing consistent above-average temperatures and average rainfall in 2014–15 and 2015–16. This consistency can result in less ground movement and fewer sewerage main breaks (section 1.4—Key drivers).

Gold Coast City Council reported an 85 per cent increase in breaks and chokes per 100 km of sewer main (Table A14 in Appendix A) compared with 2014–15. This is consistent with a change in rain patterns from above average in 2014–15 to below average in 2015–16. Temperatures also remained very much above average in 2015–16, resulting in dry soil conditions which can contribute to an increase in breaks and chokes (section 1.4–Key drivers).

Increases in sewerage mains breaks and chokes per 100 km sewer main (Table A14 in Appendix A) and breaks and chokes per 1,000 properties (Table A15 in Appendix A) from 2014–15 were reported for all the Victorian utilities. This is consistent with the dry, hot climate conditions experienced by these utilities in the 2015–16 period (temperatures were the highest on record) and below-average rainfall (Figures 1.2 and 1.3).

SA Water Corporation has consistently reported the highest level of sewer breaks and chokes for the previous three reporting years with 30 (2013–14), 29 (2014–15), and 32 (2015–16) per 1,000 connections (Table A19 in Appendix A). The majority of SA Water Corporation's blockages occur in the Adelaide foothills and are attributed to tree root intrusion. There are generally influenced by: vitrified clay pipes which were historically used; pipe depth; a high number of trees lining the streets where pipes are laid; and seasonal factors, such as rainfall and soil moisture.

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

7.3.1 Introduction

'Real' losses are leakages and overflows from potable water mains, service reservoirs, and service connections before the customer meter. This indicator does not include metering errors and unauthorised consumption (which are referred to as 'apparent' losses). It also excludes unbilled authorised consumption, which may include water used for fire-fighting. Performance on this indicator can be influenced by the condition of mains and other infrastructure and also by 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. Therefore, the real losses reported are not likely to be as accurate as for some of the other indicators (e.g. water main breaks), and that should be considered when comparing utilities.

Real losses for all utilities reporting against A10 in 2015–16 can be found in Table A17 in Appendix A.

7.3.2 Key findings

A summary of real losses, by utility size group, is presented in Table 7.4.

Figure 7.5 shows a box-and-whisker plot of real losses for all utilities reporting against A10 for a given reporting year from 2006–07 to 2015–16.

In 2015–16, the national median across all size groups remained consistent since 2011–12 at around 76 L/service connection/day (Table 7.4). Although most utilities reported values clustering around this median, several utilities had real loss values in the upper end of the dataset, extending the upper range of the distribution (Figure 7.5).

Cassowary Coast Regional Council reported the highest real losses among the utilities at 390 L/service connection/day, and Bundaberg Regional Council reported the highest increase since 2014–15 of 604 per cent (Table A17 in Appendix A).

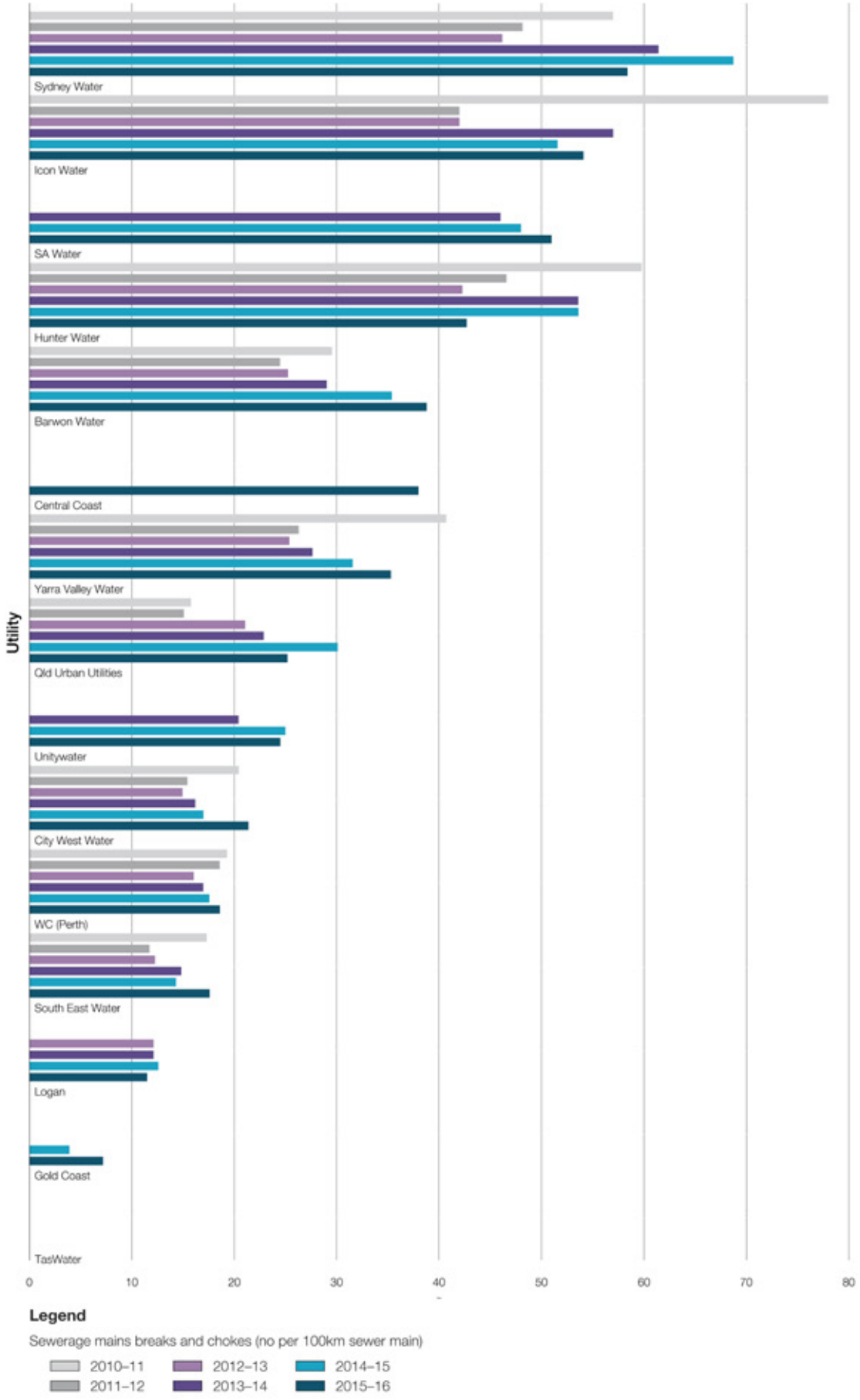

Figure 7.3 A14—Sewerage mains breaks and chokes (no. per 100 km of sewer main), for utilities with 100,000+ connected properties 2010–11 to 2015–16

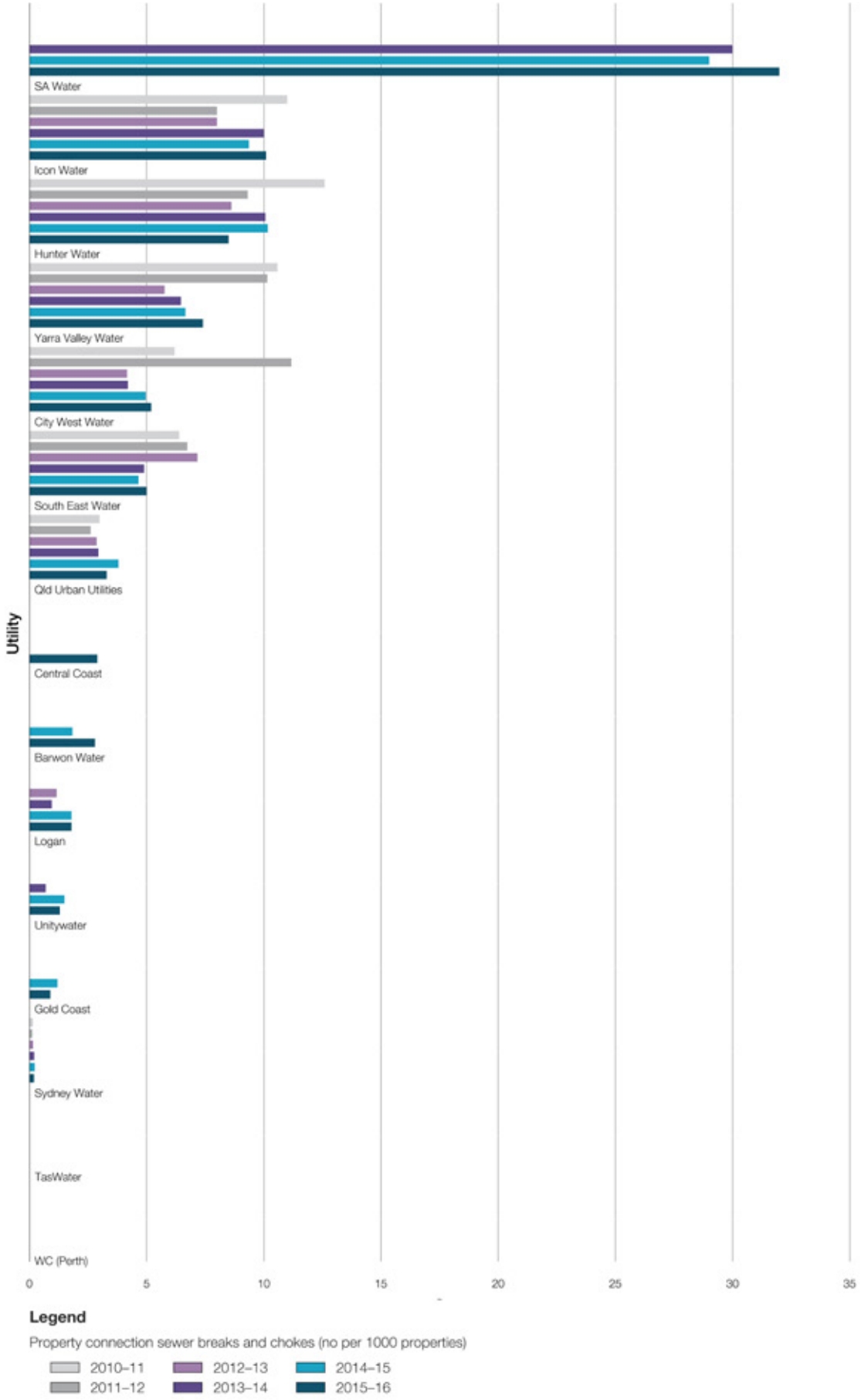

Figure 7.4 A15—Property-connection sewer breaks and chokes (no. per 1,000 properties), for utilities with 100,000+ connected properties, 2010–11 to 2015–16

Table 7.4 A10—Overview of results: Real losses (L/service connection/day)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	104	31	8	5	70	71	1
	Hunter Water	Central Coast					
50,000–100,000	276	27	3	4	71.5	73	2
	Townsville	Cairns					
20,000–50,000	354	17	9	9	70	74	6
	Bundaberg	Redland City					
10,000–20,000	390	0	9	11	100.2	95.5	–5
	Cassowary Coast	Livingstone					
All size groups (national)	390	0	29	29	77	76	–1
	Cassowary Coast	Livingstone					

Table note

The median real losses (L/service connection/day) are calculated using data from all utilities (dual and single service providers) that reported data against A10 in both 2014–15 and 2015–16.

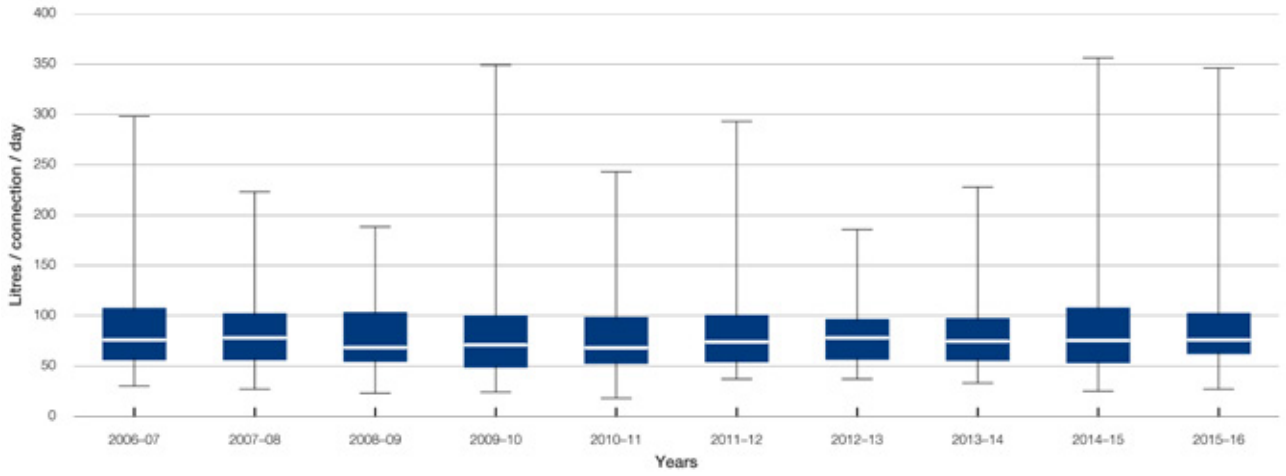

Figure 7.5 A10—Summary of results: Real losses (L/service connection/day), for utilities with 100,000+ connected properties, 2006–07 to 2015–16

7.3.3 Results and analysis—100,000+ size group

Figure 7.6 presents a ranked breakdown of the real losses per annum for each utility from 2010–11 to 2015–16.

Barwon Water reported an increase of 88 per cent since 2014–15 (Table A17 in Appendix A). This is consistent with the increase in water main breaks per 100 km of water main also reported in 2015–16 by the utility after reporting a decrease in water main breaks each year since 2013–14 (Table A16 in Appendix A). Logan City Council and SA Water Corporation reported decreases in real losses with 15 per cent and 9 per cent respectively from 2014–15 (Table A17 in Appendix A).

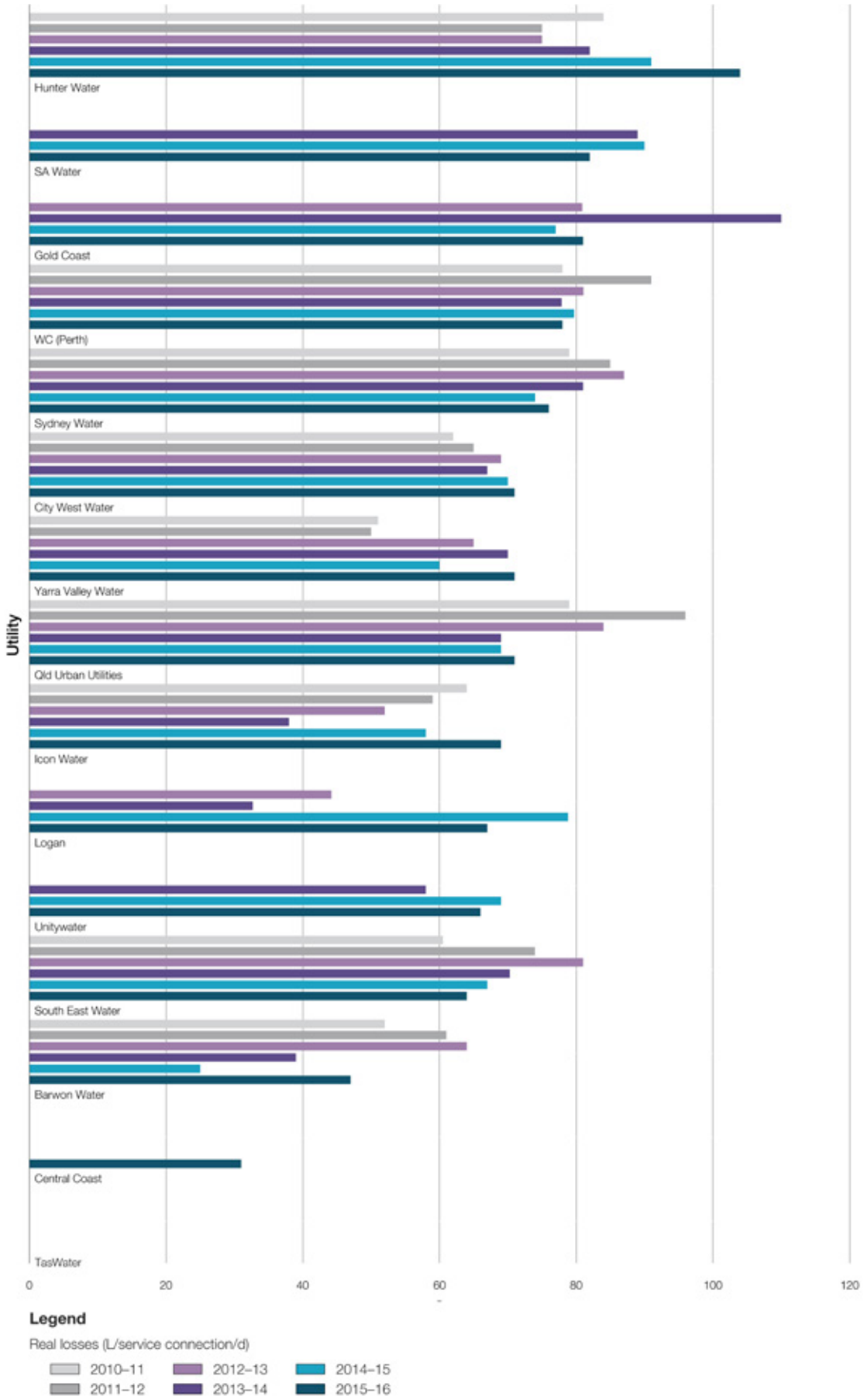

Figure 7.6 A10—Real losses (L/service connection/day), for utilities with 100,000+ connected properties, 2010–11 to 2015–16

8 Environment

8.1 E12—Total net greenhouse gas emissions (net tonnes CO_2 equivalent per 1,000 properties)

8.1.1 Introduction

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

- direct emission factors (Scope 1), which calculate the quantity of carbon dioxide equivalent (CO_2 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. It should be undertaken with caution because of the number of variables affecting emissions. Those variables include: the source of water; gravity versus pumped networks; geographical conditions (which influence the need for pumping); the number of large-volume customers and the extent of industry within the customer base; the prevailing greenhouse policy in the jurisdiction; and the method of calculation.

Total net GHG emissions by all utilities reporting Indicator E12 in 2015–16 can be found in Table A15 in Appendix A.

8.1.2 Key findings

A summary of the total net GHG emissions, by utility size group, is presented in Table 7.1.

Nationwide, across all utility size groups, there was no change in the median emissions in 2015–16 since 2014–15 (Table 7.1).

Table 8.1 E12—Overview of results: Total net greenhouse gas emissions (net tonnes CO_2 equivalent per 1,000 properties), 2014–15 to 2015–16

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	817	32	6	4	210	186	–11
	WC (Perth)	City West Water					
50,000–100,000	897	154	4	2	565	650	15
	Gippsland Water	P&W (Darwin)					
20,000–50,000	885	177	9	6	416	453	9
	North East Water	Clarence Valley					
10,000–20,000	1,629	138	10	11	390	389	0
	WC (Kal–Boulder) (W)	Aqwest–Bunbury (W)					
All size groups (national)	1,629	32	29	23	390	389	0
	WC (Kal–Boulder) (W)	City West Water					

Table note

The median total net GHG emissions is calculated using data from all utilities supplying both water and sewerage services that reported data for E12 for both 2014–15 and 2015–16.

8.1.3 Results and analysis—100,000+ size group

In 2015–16, the major utilities (100,000+ size group) reported an 11 per cent decrease in median net GHG emissions (as tonnes of CO_2 equivalent) per 1,000 properties from 2014–15 (Table 7.1). This follows a 15 per cent decrease reported between 2013–14 and 2014–15 (2015 Urban NPR).

The notable changes from 2014–15 included an 18 per cent reduction in emissions by Hunter Water Corporation and significant increases by Sydney Water Corporation, SA Water Corporation and City West Water with 71 per cent, 26 per cent and 19 per cent increases respectively (Table A15 in Appendix A).

The increase at Sydney Water Corporation may be attributed, in part, to increases in construction and demolition waste sent to landfill by their contractors (Sydney Water 2016).

The increase at SA Water Corporation was mainly due to major pumping of water across long distances, the main contributor of emissions for the utility (SA Water Corporation 2016).

It should be noted that while the majority of GHG emissions generated by Hunter Water are due to wastewater assets, Veolia Water Australia have operational control because they are responsible for reporting fugitive emissions from wastewater treatment plants and power consumption of water and wastewater treatment plants (Hunter Water 2016. The 18 per cent reduction reported by Hunter Water Corporation reflects a full year with this arrangement in place, compared with 9 months in 2014–15.

City West Water's increase in emissions in 2015–16 compared with 2014–15 was due to the operation of the energy-intensive Altona Salt Reduction Plant from July 2015 (City West Water 2016).

9 Health

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

9.1.1 Introduction

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* or licence conditions imposed on the utility by the regulator. Typically, utilities record very high (often 100 per cent) compliance, but occasionally there are unforeseen events that result in lower compliance. The cause of non-compliance is not always traceable.

The percentage of the population for which microbiological compliance was achieved for all utilities reporting against H3 in 2015–16 can be found in Table A20 in Appendix A.

9.1.2 Key findings

A summary of the percentage of population for which microbiological compliance was achieved, by utility size group, is presented in Table 8.1.

In 2015–16, nationwide and across all size groups, most utilities achieved 100 per cent microbiological compliance (Table 8.1), with Tasmanian Water and Sewerage Corporation (99.2 per cent) and Central Gippsland Water (88.6 per cent) being the only exceptions. Central Gippsland Water reported two *Escherichia coli (E. coli)* detections in the Sale locality between 16–17 February 2016 which were treated with an extensive flushing program. Subsequent investigations determined the sample point was in close proximity to connected redundant pipework which may have led to the contamination of the initial sample. The pipework was subsequently removed and the sample point relocated (Gippsland Water 2016).

Table 9.1 H3—Overview of results: Percentage of population for which microbiological compliance was achieved (%)

Size group (connected properties)	Range		Number of utilities with increase/decrease from 2014–15		Median		Change in the median from 2014–15
	High	Low	Increase	Decrease	2014–15	2015–16	%
100,000+	100	99.2	1	0	100	100	0
	Multiple utilities	TasWater					
50,000–100,000	100	88.6	0	1	100	100	0
	Multiple utilities	Gippsland Water					
20,000–50,000	100	100	0	0	100	100	0
	Multiple utilities	Multiple utilities					
10,000–20,000	100	100	0	0	100	100	0
	Multiple utilities	Multiple utilities					
All size groups (national)	100	88.6	1	1	100	100	0
	Multiple utilities	Gippsland 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 that reported data against H3 for both 2014–15 and 2015–16.

9.1.3 Results and analysis—100,000+ size group

Tasmanian Water and Sewerage Corporation has identified remoteness, open catchments and ageing reticulation networks as contributing to its less than 100 per cent compliance. Permanent boil water alerts have been applied to 17 drinking water supply systems in Tasmania due to the utility not being able to adequately treat the systems to ensure they are clear of bacteria. The utility has identified further investment is required to minimise the need to apply boil water alerts, particularly during periods of high rainfall (TasWater 2016).

As part of its strategy to improve water quality, Tasmanian Water and Sewerage Corporation continued to progress major water quality projects with a commitment to spend $330 million between 2015–16 and 2017–18 on projects and programmes focusing on the upgrade and development of infrastructure (TasWater 2016).

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Appendix A Individual utility size group tables

- Tables A1 to A20 present a summary of key indicators by utility size group for the period 2011–12 to 2015–16.
- Utilities are sorted in descending order based on their 2015–16 value within each size group.
- Unlike the summary tables contained within the body of this report, median and average values presented at the end of each size group are based on all retail utllities reporting within the year.

Table A1 W12—Average annual residential water supplied, by utility size group (kL/property), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
WC (Perth)	250	249	254	244	240	–2
Sydney Water	193	198	206	201	201	0
SA Water			178	180	200	11
Icon Water	180	199	203	188	195	4
TasWater				172	176	2
Barwon Water	152	160	151	156	170	9
Gold Coast		162	187	173	170	–2
Hunter Water	163	176	181	168	166	–1
Unitywater	158	163	164	159	157	–1
Yarra Valley Water	144	156	153	150	156	4
Qld Urban Utilities	139	154	156	155	156	1
Central Coast					155	
South East Water	139	148	149	149	154	3
Logan		140	157	157	151	–4
City West Water	143	150	145	148	150	1
Median	**155**	**161**	**164**	**164**	**166**	
Average	**166**	**171**	**176**	**171**	**173**	
50,000–100,000 size group						
P&W (Darwin)	471	454	407	409	405	–1
Townsville	362	383	404	435	369	–15
Goulburn Valley Water	234	276	266	265	287	8
Cairns	245	258	243	263	244	–7
Coliban Water	165	194	190	192	210	9
Western Water	169	181	182	178	193	8
Gippsland Water	163	176	171	164	170	4
Central Highlands Water	138	150	150	149	163	9
Toowoomba	101	130	144	146	145	–1
Median	**169**	**194**	**190**	**192**	**210**	
Average	**228**	**245**	**240**	**245**	**243**	
20,000–50,000 size group						
Lower Murray Water	391	479	450	475	504	6
Fitzroy River Water	288	311	348	317	363	15
Riverina Water (W)	256	347	324	311	333	7
Dubbo					322	
GWMWater	208	236	226	237	254	7
Tamworth	204	261	287	188	251	34
Gladstone				245	243	–1
Bundaberg				230	236	3

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
WC (Mandurah)	239	239	241	238	234	–2
Albury	203	255	232	205	223	9
North East Water	179	216	206	197	214	9
Mackay	231	216	216	214	196	–8
Wide Bay Water	170	186	197	181	181	0
Coffs Harbour	156	161	169	167	167	0
Redland City				168	166	–1
Tweed	163	177	184	178	165	–7
Queanbeyan					163	
Port Macquarie Hastings	144	157	157	151	158	5
Clarence Valley	139	148	161	147	158	7
Wannon Water	148	152	140	144	153	6
Shoalhaven	130	149	148	143	150	5
East Gippsland Water	138	158	151	140	146	4
MidCoast Water	131	143	150	142	139	–2
Median	**175**	**201**	**202**	**188**	**196**	
Average	**195**	**222**	**222**	**210**	**223**	
10,000–20,000 size group						
Central Highlands				632	520	–18
P&W (Alice Springs)	470	490	466	382	455	19
WC (Australind/Eaton)	334	338	337	329	315	–4
WC (Geraldton)	343	327	321	306	306	0
WC (Kal–Boulder) (W)	310	335	306	320	295	–8
Livingstone				260	294	13
Cassowary Coast				298	293	–2
Whitsunday				281	292	4
Busselton (W)	280	272	287	284	288	1
Goldenfields Water (R)	199	265	287	275	280	2
Aqwest–Bunbury (W)	255	254	267	265	261	–2
Bathurst	180	260	227	225	235	4
Essential Energy	237	285	281	257	233	–9
Wingecarribee	157	186	200	178	186	4
Gympie			215	300	182	–39
WC (Albany)	188	179	188	188	178	–5
Orange		180	174	170	173	2
Byron	168	176	181	180	169	–6
Ballina	166	177	194	181	168	–7
Goulburn Mulwaree	138	150	165	139	162	17
Lismore	143	145	155	155	155	0
Kempsey	143	156	157	155	149	–4
Southern Downs				210	145	–31
Bega Valley	130	139	134	137	135	–1
South Gippsland Water	114	119	118	117	125	7
Eurobodalla	104	116	119	114	117	3
Westernport Water	72	80	80	80	77	–4
Western Downs				176		
Median	**174**	**180**	**197**	**218**	**186**	
Average	**207**	**220**	**221**	**236**	**229**	

Table A2 W26—Total recycled water supplied, by utility size group (ML), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Sydney Water	45,929	46,951	46,943	43,075	43,342	1
SA Water			28,048	31,666	31,181	–2
Gold Coast		7,307	8,931	7,269	9,241	27
Qld Urban Utilities	10,104	9,961	9,760	9,322	8,828	–5
WC (Perth)	10,370	10,272	10,029	9,354	8,633	–8
Barwon Water	3,483	4,790	5,008	10,157	6,187	–39
Hunter Water	4,664		4,895	4,600	5,373	17
Icon Water	4,607	4,416	4,372	4,352	4,053	–7
South East Water	2,277	3,091	2,967	3,891	3,968	2
Yarra Valley Water	2,318	2,687	3,134	3,817	3,905	2
City West Water	1,216	1,140	138	140	2,567	1,734
Unitywater	1,328	1,713	1,737	1,215	969	–20
Central Coast					895	
Logan		2,000	1,372	681	784	15
TasWater			5,239	4,814		
Median	**4,045**	**4,416**	**4,952**	**4,707**	**4,713**	
Average	**8,630**	**8,575**	**9,470**	**9,597**	**8,979**	
50,000–100,000 size group						
Western Water	4,814	4,880	5,701	5,747	8,956	56
Goulburn Valley Water	6,824	7,344	6,594	7,687	7,194	–6
Coliban Water	3,893	3,346	2,658	3,198	3,444	8
Toowoomba	1,338	1,213	1,683	2,864	2,773	–3
Cairns	3,065	2,101	2,300	2,212	2,278	3
Central Highlands Water	1,628	1,971	1,683	1,530	2,055	34
Gippsland Water	1,128	1,651	1,104	1,701	1,958	15
Townsville	2,806	3,166	2,740	2,877	1,606	–44
P&W (Darwin)	376	499	347	492	80	–84
Median	**2,806**	**2,101**	**2,300**	**2,864**	**2,278**	
Average	**2,875**	**2,908**	**2,757**	**3,145**	**3,372**	
20,000–50,000 size group						
Wagga Wagga (S)	5,971	5,543	5,523	5,620	5,679	1
Mackay	4,409	8,314	4,412	5,076	4,967	–2
Wide Bay Water	2,624	4,064	4,794	3,830	4,933	29
Tamworth	3,656	3,595	4,128	4,278	4,071	–5
Gladstone				3,521	3,572	1
East Gippsland Water	2,469	2,959	2,902	2,754	3,172	15
Lower Murray Water	2,456	2,491	3,202	3,855	2,791	–28
Dubbo					2,599	
North East Water	1,959	2,203	1,895	2,561	2,590	1
Albury	5,287	2,733	2,468	2,398	2,503	4
GWMWater	2,291	2,366	2,302	2,233	2,108	–6
Wannon Water	1,248	1,490	1,251	1,979	1,725	–13
Shoalhaven	744	1,992	2,352	1,705	1,551	–9
Coffs Harbour	489	801	1,436	1,013	1,113	10
MidCoast Water	282	848	1,439	1,327	944	–29
Bundaberg				642	758	18
Tweed	386	431	604	551	695	26

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Fitzroy River Water	2,175	1,807	681	696	682	–2
Clarence Valley	109	128	176	195	385	97
Port Macquarie Hastings	294	242	363	386	340	–12
Redland City				287	113	–61
Queanbeyan					100	
WC (Mandurah)	119	104	119	131	50	–62
Riverina Water (W)	0					
Median	**1,959**	**2,098**	**2,098**	**1,979**	**1,725**	
Average	**1,946**	**2,339**	**2,225**	**2,145**	**2,063**	
10,000–20,000 size group						
WC (Albany)	1,929	2,051	2,114	2,009	2,131	6
Orange	2,218	1,681	2,947	2,826	2,051	–27
Central Highlands					1,753	
Goulburn Mulwaree	1,540	1,567	1,593	1,806	1,730	–4
Southern Downs				1,545	1,538	0
WC (Australind/Eaton)	1,257	1,350	1,378	1,433	1,469	3
Kal–Boulder (S)	1,817	1,793	1,410	1,607	1,449	–10
P&W (Alice Springs)	707	1,034	835	910	1,121	23
Essential Energy	416	629	709	776	669	–14
Whitsunday				727	667	–8
Ballina	164	132	273	517	500	–3
Bega Valley	485	680	626	446	401	–10
Byron	511	596	478	444	367	–17
Westernport Water	129	238	273	261	295	13
Wingecarribee	35	98	124	163	232	42
WC (Busselton) (S)		261	245	230	225	–2
South Gippsland Water	87	168	108	146	221	51
WC (Geraldton)	223	235	237	227	216	–5
Eurobodalla	86	189	216	243	195	–20
Gympie			1,243	549	160	–71
WC (Bunbury) (S)	111	110	148	102	109	7
Kempsey	0	10	110	77	96	25
Lismore	0	0	34	5	5	0
Bathurst		4,788	3,942	3,712	0	–100
Livingstone				458		
Western Downs				1,025		
Cassowary Coast						
Aqwest–Bunbury (W)						
WC (Kal–Boulder) (W)						
Busselton (W)						
Goldenfields Water (R)	0	0				
Median	**223**	**261**	**478**	**517**	**384**	
Average	**617**	**839**	**907**	**890**	**719**	

Table A3 P8—Typical residential bill, by utility size group ($), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Gold Coast		1,500	1,564	1,613	1,570	–3
Logan		1,365	1,262	1,603	1,545	–4
Unitywater	1,384	1,400	1,470	1,508	1,492	–1
WC (Perth)	1,221	1,277	1,327	1,354	1,370	1
SA Water			1,298	1,317	1,341	2
Qld Urban Utilities	1,097	1,136	1,152	1,206	1,215	1
Sydney Water	1,181	1,177	1,178	1,172	1,169	0
Central Coast					1,164	
Icon Water	1,162	1,244	1,134	1,112	1,133	2
Yarra Valley Water	986	1,012	1,190	1,046	1,080	3
TasWater					1,063	
Barwon Water	1,030	1,129	1,087	1,044	1,027	–2
South East Water	898	907	1,105	979	1,023	4
Hunter Water	958	1,033	1,040	1,023	1,019	0
City West Water	858	862	1,031	918	944	3
Median	**1,064**	**1,157**	**1,178**	**1,172**	**1,164**	
Average	**1,078**	**1,170**	**1,218**	**1,223**	**1,210**	
50,000–100,000 size group						
P&W (Darwin)	1,535	1,882	1,840	1,898	1,882	–1
Townsville	1,428	1,464	1,519	1,508	1,498	–1
Coliban Water	1,046	1,127	1,272	1,301	1,344	3
Toowoomba		1,218	1,344	1,330	1,328	0
Gippsland Water	1,283	1,335	1,281	1,256	1,250	0
Cairns	1,239	1,271	1,270	1,294	1,238	–4
Central Highlands Water	1,186	1,238	1,256	1,202	1,226	2
Western Water	1,036	1,035	1,058	977	1,038	6
Goulburn Valley Water	822	915	896	903	925	2
Median	**1,213**	**1,238**	**1,272**	**1,294**	**1,250**	
Average	**1,197**	**1,276**	**1,304**	**1,297**	**1,303**	
20,000–50,000 size group						
MidCoast Water	1,478	1,538	1,531	1,556	1,591	2
Dubbo					1,578	
Gladstone				1,319	1,574	19
Clarence Valley	1,170	1,279	1,375	1,421	1,556	10
WC (Mandurah)	1,290	1,340	1,375	1,425	1,526	7
Wide Bay Water	1,397	1,447	1,503	1,508	1,524	1
Bundaberg				1,718	1,474	–14
Redland City				1,409	1,471	4
Queanbeyan					1,434	
Mackay	1,382	1,434	1,553	1,477	1,426	–3
Wide Bay Water	2,624	4,061	4,794	3,830	4,933	29
Tamworth	1,295	1,378	1,419	1,291	1,396	8
Coffs Harbour	1,320	1,371	1,394	1,407	1,396	–1
Port Macquarie Hastings	1,200	1,264	1,293	1,322	1,388	5
Tweed	1,114	1,207	1,283	1,334	1,386	4
GWMWater	1,187	1,282	1,301	1,335	1,360	2
Fitzroy River Water	1,031	1,064	1,140	1,151	1,199	4
East Gippsland Water	1,101	1,202	1,150	1,117	1,132	1

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Wannon Water	1,130	1,233	1,175	1,116	1,124	1
Albury	750	892	938	1,007	1,121	11
Shoalhaven	994	1,048	1,063	1,074	1,100	2
Lower Murray Water	834	881	899	934	959	3
North East Water	870	976	940	855	884	3
Median	**1,170**	**1,264**	**1,293**	**1,328**	**1,396**	
Average	**1,150**	**1,226**	**1,255**	**1,289**	**1,345**	
10,000–20,000 size group						
P&W (Alice Springs)	1,541	1,949	1,951	1,937	1,970	2
Central Highlands				2,051	1,869	–9
Byron	1,527	1,617	1,660	1,690	1,705	1
Bega Valley	1,586	1,650	1,651	1,673	1,704	2
WC (Geraldton)	1,444	1,510	1,555	1,594	1,689	6
WC (Australind/Eaton)	1,508	1,584	1,629	1,681	1,686	0
Whitsunday				1,615	1,606	–1
Cassowary Coast				1,535	1,586	3
Eurobodalla	1,350	1,407	1,521	1,554	1,581	2
Lismore	1,260	1,299	1,386	1,458	1,543	6
Livingstone				1,565	1,531	–2
WC (Albany)	1,263	1,285	1,344	1,400	1,497	7
Southern Downs				1,363	1,457	7
Kempsey	1,231	1,272	1,343	1,390	1,444	4
Goulburn Mulwaree	1,312	1,349	1,420	1,367	1,412	3
Ballina	1,152	1,221	1,323	1,381	1,409	2
Wingecarribee	1,052	1,168	1,222	1,219	1,245	2
Essential Energy	1,145	1,291	1,258	1,284	1,240	–3
Gympie			1,198	1,387	1,220	–12
Orange	860	905	933	1,001	1,083	8
Westernport Water	1,070	1,103	1,097	1,087	1,080	–1
Bathurst	851	1,002	989	1,015	1,079	6
South Gippsland Water	1,037	1,063	1,023	970	970	0
Western Downs				1,097		
Median	**1,260**	**1,291**	**1,344**	**1,395**	**1,497**	
Average	**1,246**	**1,334**	**1,361**	**1,430**	**1,461**	

Table A4 P7—Annual bill based on 200 kL, by utility size group ($), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Logan		1,574	1,709	1,772	1,724	–3
Gold Coast		1,635	1,665	1,721	1,691	–2
Unitywater	1,463	1,490	1,597	1,661	1,654	0
Qld Urban Utilities	1,260	1,290	1,306	1,371	1,385	1
SA Water			1,370	1,384	1,342	–3
WC (Perth)	1,138	1,186	1,225	1,268	1,289	2
Yarra Valley Water	1,192	1,171	1,409	1,271	1,279	1
Central Coast					1,267	
South East Water	1,105	1,081	1,331	1,200	1,225	2
Sydney Water	1,197	1,182	1,165	1,169	1,167	0
City West Water	1,043	1,020	1,251	1,124	1,148	2
Icon Water	1,210	1,256	1,136	1,152	1,144	–1
Hunter Water	1,034	1,087	1,081	1,094	1,094	0
Barwon Water	1,133	1,222	1,200	1,145	1,094	–4
TasWater					1,086	
Median	**1,165**	**1,204**	**1,306**	**1,268**	**1,267**	
Average	**1,178**	**1,266**	**1,342**	**1,333**	**1,306**	
50,000–100,000 size group						
Townsville	1,428	1,464	1,519	1,508	1,498	–1
P&W (Darwin)	1,162	1,417	1,451	1,496	1,488	–1
Toowoomba		1,464	1,475	1,450	1,450	0
Coliban Water	1,126	1,141	1,295	1,325	1,321	0
Gippsland Water	1,356	1,384	1,337	1,327	1,308	–1
Central Highlands Water	1,308	1,331	1,330	1,304	1,299	0
Cairns	1,190	1,207	1,222	1,223	1,225	0
Western Water	1,094	1,070	1,092	1,021	1,052	3
Goulburn Valley Water	787	829	822	829	826	0
Median	**1,176**	**1,331**	**1,330**	**1,325**	**1,308**	
Average	**1,181**	**1,256**	**1,282**	**1,276**	**1,274**	
20,000–50,000 size group						
MidCoast Water	1,655	1,688	1,664	1,717	1,769	3
Clarence Valley	1,270	1,365	1,442	1,516	1,635	8
Wide Bay Water	1,446	1,499	1,498	1,539	1,586	3
Queanbeyan					1,582	
Port Macquarie Hastings	1,329	1,367	1,401	1,449	1,503	4
Redland City				1,409	1,490	6
Coffs Harbour	1,433	1,473	1,476	1,496	1,483	–1
Tweed	1,188	1,258	1,319	1,389	1,481	7
WC (Mandurah)	1,225	1,268	1,297	1,350	1,457	8
Gladstone				1,237	1,448	17
Mackay	1,326	1,386	1,415	1,432	1,412	–1
Dubbo					1,344	
Bundaberg				1,280	1,322	3
Tamworth	1,289	1,291	1,295	1,308	1,321	1
GWMWater	1,174	1,224	1,258	1,273	1,268	0
East Gippsland Water	1,202	1,274	1,245	1,237	1,241	0
Wannon Water	1,231	1,334	1,299	1,233	1,222	–1

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Shoalhaven	1,108	1,132	1,150	1,167	1,182	1
Albury	747	808	896	1,002	1,091	9
Fitzroy River Water	951	986	1,011	1,055	1,064	1
North East Water	920	937	925	862	855	–1
Lower Murray Water	723	722	734	745	747	0
Median	**1,225**	**1,274**	**1,297**	**1,294**	**1,378**	
Average	**1,189**	**1,236**	**1,254**	**1,285**	**1,341**	
10,000–20,000 size group						
Bega Valley	1,757	1,802	1,815	1,832	1,879	3
Eurobodalla	1,652	1,674	1,806	1,853	1,871	1
Byron	1,649	1,726	1,747	1,769	1,815	3
Lismore	1,406	1,444	1,512	1,596	1,686	6
Kempsey	1,334	1,360	1,433	1,484	1,556	5
WC (Albany)	1,283	1,323	1,366	1,424	1,542	8
Cassowary Coast				1,472	1,519	3
Goulburn Mulwaree	1,425	1,456	1,519	1,540	1,519	–1
Southern Downs				1,405	1,514	8
P&W (Alice Springs)	1,162	1,417	1,451	1,496	1,488	–1
Ballina	1,213	1,263	1,334	1,420	1,475	4
WC (Geraldton)	1,200	1,267	1,321	1,385	1,473	6
Whitsunday				1,459	1,455	0
WC (Australind/Eaton)	1,280	1,317	1,361	1,421	1,450	2
Livingstone				1,379	1,433	4
Westernport Water	1,299	1,323	1,326	1,319	1,317	0
Central Highlands				1,300	1,306	0
Wingecarribee	1,123	1,192	1,222	1,258	1,270	1
Gympie			1,155	1,247	1,263	1
Essential Energy	1,086	1,148	1,119	1,184	1,183	0
Western Downs				1,121	1,162	4
Orange	934	944	983	1,064	1,144	8
South Gippsland Water	1,179	1,203	1,164	1,116	1,100	–1
Bathurst	880	899	942	973	1,019	5
Median	**1,280**	**1,323**	**1,348**	**1,412**	**1,464**	
Average	**1,286**	**1,339**	**1,365**	**1,397**	**1,435**	

Table A5 F8—Revenue from community service obligations, by utility size group (%), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
SA Water	12.1	7.4	9.7	9.4	9.1	–3
WC (Perth)	8.3	7.9	7.9	6.2	6.2	0
Sydney Water	6	6.3	6	6	5.9	–2
Yarra Valley Water	5.6	6.1	4.8	5.3	5	–6
Barwon Water	4	4.6	5	4.8	4.7	–2
Hunter Water	4.8	4.7	4.6	4.6	4.4	–4
South East Water	5.3	5.7	4.6	4.9	4.4	–10
City West Water	4	4.3	3.6	3.9	3.5	–10
Icon Water	3.7	3.9	3.3	3.7	3.2	–14
TasWater			2.8	2.7	2.7	0
Qld Urban Utilities	2.4	6.3	2	1.8	1.6	–11
Unitywater	5.6	9.4	1	0.9	0.9	0
Gold Coast		0	0	0	0	
Logan		0	0	0		
Central Coast						
Median	**5.3**	**5.7**	**4.1**	**4.2**	**4.4**	
Average	**5.6**	**5.1**	**4**	**3.9**	**4**	
50,000–100,000 size group						
Goulburn Valley Water	6	5.7	5.6	5.5	5.6	2
Coliban Water	5.3	5.1	4	4.4	4.1	–7
Western Water	3.9	4	4.6	4.6	4	–13
Gippsland Water	4	3.9	4	4.2	3.9	–7
P&W (Darwin)	3	2	3.3		3.6	
Cairns	2.8	2.8	3.1	2.7	2.9	7
Townsville	0	0	1.7	1.6	1.2	–25
Toowoomba		0.8	0.8		0.7	
Central Highlands Water					0	
Median	**3.9**	**3.4**	**3.6**	**4.3**	**3.6**	
Average	**3.6**	**3**	**3.4**	**3.8**	**2.9**	
20,000–50,000 size group						
GWMWater	8.6	7.4	7.1	6.5	6.6	2
WC (Mandurah)	32.2	19.3	19.9	18.3	6.3	–66
East Gippsland Water			5.2	6.1	6.2	2
North East Water	6.7	5.7	6.1	6.6	6.1	–8
Lower Murray Water	6.3	6	5.9	5.7	5.7	0
Wannon Water	3.6	3.9	4.4	4.3	4.5	5
Bundaberg				1.8	1.7	–6
Shoalhaven	1.8	1.6	1.6	1.5	1.5	0
MidCoast Water	0.9	1.5	1.4	1.4	1.3	–7
Clarence Valley	1.7	1.6	1.4	1.4	1.3	–7
Tweed	1.6	1.5	1.1	1.2	1.2	0
Coffs Harbour	1.1	1.1	1.1	1	1	0
Port Macquarie Hastings	1.7	1.7	1.2	1.4	1	–29
Wagga Wagga (S)	0.9	0.9	1	0.8	0.9	12
Tamworth	1	1.1	0.9	1	0.9	–10
Fitzroy River Water	1.5	1.7	0.7	1.3	0.9	–31
Albury	1.2	1	0.9	0.9	0.8	–11

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Riverina Water (W)	1.2	0.8	0.8	0.6	0.7	17
Wide Bay Water	1.8	1.7	0.4	0.4	0.4	0
Redland City				0.4	0.3	–25
Mackay	0.1	0	0.1	0.2	0.2	0
Gladstone				0	0	
Dubbo						
Queanbeyan						
Median	**1.6**	**1.6**	**1.2**	**1.4**	**1.1**	
Average	**4.1**	**3.2**	**3.2**	**2.9**	**2.2**	
10,000–20,000 size group						
WC (Kal–Boulder) (W)	52.8	47.9	58.7	59.1	62.2	5
WC (Busselton) (S)		23	17.6	23.9	29.9	25
WC (Albany)	27.2	20.8	36.5	34.6	22.5	–35
WC (Australind/Eaton)	27.7	29.2	25.1	22.9	13.8	–40
P&W (Alice Springs)	13	12	7.5		9.3	
WC (Geraldton)	15.7	14.1	14.5	13.6	6.2	–54
South Gippsland Water	5	5.2	5.3	5.5	5.5	0
Westernport Water	2.5	3.6	4.3	3.7	3.9	5
Busselton (W)	0.1	0.1	0.1	4.2	3.7	–12
WC (Bunbury) (S)	7.1	23.1	22.9	14.4	3.5	–76
Aqwest–Bunbury (W)		0	0	0	3	
Whitsunday				1.7	2.5	47
Gympie			4.4	4.4	2.5	–43
Essential Energy	1.3	1.1	1.7	2.2	1.4	–36
Kempsey	1.6	1.5	1.5	1.3	1.3	0
Lismore	1.3	1.4	1.2	1	1	0
Bega Valley	1	1.1	1	1	1	0
Eurobodalla	1.3	1.4	1.2	1.1	1	–9
Wingecarribee	1.4	1.3	1.2	1.2	1	–17
Ballina	1.4	1.4	1.1	1.9	1	–47
Orange	1.1	1	0.9	0.8	0.9	12
Goulburn Mulwaree	1	0.9	0.9	0.2	0.8	300
Bathurst	1.1	0.9	0.8	0.8	0.8	0
Byron	0.8	0.7	0.6	0.6	0.6	0
Goldenfields Water (R)	1	0.9	0.7	0.7	0.6	–14
Livingstone				0	0	
Kal–Boulder (S)	0	0	0	0	0	
Cassowary Coast				0	0	
Central Highlands				0	0	
Western Downs				40.6		
Southern Downs				1		
Median	**1.4**	**1.4**	**1.2**	**1.2**	**1.3**	
Average	**7.5**	**8**	**8.4**	**8.1**	**6.2**	

Table A6 F13—Combined operating cost: water and sewerage, by utility size group ($/property), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Qld Urban Utilities	911	1,046	1,148	1,151	1,147	0
Gold Coast		1,024	1,118	1,165	1,128	–3
City West Water	965	926	1,223	1,095	1,126	3
Logan		1,002	1,079	1,094	1,054	–4
Unitywater	958	949	994	988	987	0
TasWater				901	939	4
Yarra Valley Water	750	726	966	871	926	6
Icon Water	851	821	763	774	917	18
South East Water	785	733	997	874	915	5
SA Water			718	670	697	4
Sydney Water	667	696	686	673	689	2
WC (Perth)	552	587	604	587	597	2
Barwon Water	721	632	648	605	591	–2
Hunter Water	556	627	587	631	584	–7
Central Coast						
Median	**767**	**777**	**966**	**873**	**922**	
Average	**772**	**814**	**887**	**863**	**878**	
50,000–100,000 size group						
Gippsland Water	1,941	1,329	1,241	1,211	1,168	–4
P&W (Darwin)	1,134	1,162	1,036		1,122	
Townsville	740	766	1,066	1,008	989	–2
Western Water	1,198	1,245	852	703	923	31
Goulburn Valley Water	860	828	815	812	846	4
Coliban Water	779	806	807	781	822	5
Central Highlands Water	901	864	819	773	801	4
Toowoomba	516	543	656	1,180	690	–42
Cairns	807	698	700	681	649	–5
Median	**860**	**828**	**819**	**796**	**846**	
Average	**986**	**916**	**888**	**894**	**890**	
20,000–50,000 size group						
Gladstone				2,393	1,420	–41
Mackay	1,268	1,337	1,521	1,287	1,105	–14
GWMWater	919	921	966	940	990	5
MidCoast Water	1,045	976	930	1,035	972	–6
Coffs Harbour	925	1,029	1,037	1,028	971	–6
Wannon Water	1,128	1,013	991	991	956	–4
Tweed	888	940	958	956	934	–2
Tamworth	989	1,002	1,038	955	916	–4
East Gippsland Water	862	455	960	831	911	10
Wide Bay Water	1,404	423	899	851	879	3
Redland City				874	876	0
Port Macquarie Hastings	764	877	907	890	874	–2
North East Water	888	777	820	814	833	2
Clarence Valley	887	957	903	862	806	–6
Bundaberg				776	779	0
Shoalhaven	792	790	775	786	744	–5
Albury	798	810	758	679	674	–1

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Lower Murray Water	764	631	621	662	666	1
Fitzroy River Water	698	669	581	713	661	–7
WC (Mandurah)	571	562	590	556	655	15
Dubbo						
Queanbeyan						
Median	**888**	**877**	**907**	**868**	**878**	
Average	**917**	**834**	**897**	**944**	**881**	
10,000–20,000 size group						
P&W (Alice Springs)	1,665	2,131	1,752		1,787	
Essential Energy	1,814	1,555	1,650	1,376	1,607	17
Central Highlands				1,676	1,535	–8
Bega Valley	1,352	1,300	1,278	1,299	1,448	11
Southern Downs				1,500	1,374	–8
Byron	1,204	1,286	1,293	1,301	1,253	–4
Ballina	1,263	1,377	1,325	1,310	1,233	–6
Whitsunday				1,220	1,219	0
Western Downs				1,127	1,218	8
Livingstone					1,179	
South Gippsland Water	1,190	1,102	1,056	1,071	1,118	4
Lismore	1,117	1,128	1,116	1,081	1,117	3
Bathurst	902	988	977	994	1,046	5
Kempsey	1,003	1,093	1,056	1,054	1,019	–3
Cassowary Coast				938	987	5
Eurobodalla	1,044	968	1,018	917	961	5
Westernport Water	674	699	3,644	450	960	113
WC (Australind/Eaton)	807	1,059	795	954	814	–17
Wingecarribee	795	819	934	821	810	–1
Orange	696	732	779	758	746	–2
Goulburn Mulwaree	843	854	810	768	731	–5
Gympie			905	290	686	137
WC (Albany)	805	740	686	670	648	–3
WC (Geraldton)	676	765	707	695	641	–8
Median	**1,003**	**1,059**	**1,037**	**1,024**	**1,082**	
Average	**1,050**	**1,094**	**1,210**	**1,012**	**1,089**	

Table A7 F16—Total capital expenditure: water and sewerage, by utility size group ($000s), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Sydney Water	780,992	704,580	604,694	636,497	648,180	2
WC (Perth)	557,408	511,430	266,143	356,657	293,885	–18
SA Water			274,010	217,336	275,167	27
Yarra Valley Water	249,826	233,827	203,128	176,132	261,580	49
Qld Urban Utilities	280,724	280,759	201,427	193,174	201,064	4
South East Water	187,925	179,426	219,131	225,069	144,562	–36
TasWater			76,460	103,916	128,647	24
Hunter Water	123,952	92,898	112,280	78,481	88,379	13
Unitywater	149,201	153,495	145,678	85,631	87,212	2
Icon Water	233,861	145,285	60,210	49,622	83,690	69
Barwon Water	246,271	163,155	90,956	64,386	79,895	24
City West Water	123,953	160,424	87,991	60,404	71,115	18
Gold Coast		62,780	45,277	36,389	51,508	42
Logan		72,122	60,519	75,687	45,990	–39
Central Coast						
Median	**240,066**	**161,789**	**128,979**	**94,774**	**108,513**	
Average	**293,411**	**230,015**	**174,850**	**168,527**	**175,777**	
50,000–100,000 size group						
Townsville	53,716	43,089	25,470	47,699	52,018	9
P&W (Darwin)	58,840	65,657	25,953		48,549	
Toowoomba		45,671	20,355	26,388	39,138	48
Coliban Water	40,301	43,610	42,661	20,097	33,796	68
Gippsland Water	39,928	54,759	46,349	48,364	32,167	–33
Goulburn Valley Water	26,639	19,261	22,908	30,925	30,498	–1
Cairns	44,754	29,963	37,082	29,642	17,413	–41
Western Water	18,096	17,260	26,964	26,727	15,725	–41
Central Highlands Water	24,103	14,763	14,537	15,477	8,973	–42
Median	**40,114**	**43,089**	**25,953**	**28,184**	**32,167**	
Average	**38,297**	**37,115**	**29,142**	**30,665**	**30,920**	
20,000–50,000 size group						
Shoalhaven	28,432	22,193	24,409	22,946	21,707	–5
Port Macquarie Hastings	13,898	14,322	9,182	16,085	18,903	18
Fitzroy River Water	28,471	24,111	22,951	16,066	18,840	17
Clarence Valley	32,287	12,433	11,182	25,861	18,460	–29
Redland City				15,656	18,362	17
Wide Bay Water	27,934	18,709	18,254	11,553	17,910	55
Mackay	46,820	48,643	48,546	26,708	16,066	–40
Bundaberg				22,082	15,626	–29
MidCoast Water	86,193	22,602	11,634	6,884	14,337	108
Wannon Water	29,171	22,698	15,273	12,913	14,312	11
WC (Mandurah)	37,915	31,162	29,477	21,948	14,044	–36
North East Water	14,349	37,602	19,927	9,937	13,696	38
Gladstone				10,223	12,654	24
Lower Murray Water	11,133	9,704	9,884	7,868	9,652	23
Tweed	39,700	14,068	13,485	7,095	8,458	19
Albury	2,647	6,126	5,923	4,188	8,434	101
East Gippsland Water	11,497	6,857	10,196	7,712	7,247	–6

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
GWMWater	16,780	14,571	16,369	10,978	6,423	–41
Tamworth	10,935	13,408	21,271	9,160	5,687	–38
Coffs Harbour	7,147	8,982	10,625	14,170	5,459	–61
Dubbo						
Queanbeyan						
Median	**27,934**	**14,571**	**15,273**	**12,233**	**14,178**	
Average	**26,195**	**19,305**	**17,564**	**14,002**	**13,314**	
10,000–20,000 size group						
Essential Energy	4,448	5,655	4,232	6,390	14,431	126
Eurobodalla	17,956	7,017	6,951	6,600	13,164	99
Orange	4,630	7,859	28,989	22,163	11,704	–47
Western Downs				17,092	11,274	–34
WC (Geraldton)	8,962	13,358	8,471	13,365	11,106	–17
WC (Albany)	10,529	6,257	8,278	4,932	9,708	97
Gympie			6,658	5,481	9,009	64
Lismore	12,595	9,314	5,099	6,022	8,313	38
South Gippsland Water	13,069	7,779	10,148	12,315	8,085	–34
Bathurst	6,215	7,046	6,826	13,197	7,646	–42
Cassowary Coast				5,766	7,374	28
WC (Australind/Eaton)	30,504	7,177	3,503	4,697	6,623	41
Kempsey	3,948	7,166	6,709	7,081	6,364	–10
Wingecarribee	18,991	14,591	3,008	6,017	5,996	0
Bega Valley	7,202	4,565	8,419	8,269	5,448	–34
Goulburn Mulwaree	14,100	4,555	3,962	8,561	5,427	–37
Whitsunday				733	5,196	609
P&W (Alice Springs)	10,557	12,093	9,992		5,151	
Ballina	33,140	29,278	11,232	8,335	4,626	–44
Westernport Water	12,495	13,473	3,519	4,791	4,196	–12
Byron	1,496	2,597	2,011	1,214	4,005	230
Southern Downs				3,277	2,548	–22
Livingstone					1,732	
Central Highlands				27,588	883	–97
Median	**10,557**	**7,177**	**6,767**	**6,495**	**6,494**	
Average	**12,402**	**9,399**	**7,667**	**8,813**	**7,084**	

Table A8 F28—Capital expenditure: water, by utility size group ($/property), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
TasWater				254	347	37
Barwon Water	1,336	902	490	223	241	8
Icon Water	1,353	737	267	155	238	54
SA Water			229	153	199	30
WC (Perth)	583	514	179	197	194	–2
Logan		104	160	192	180	–6
Qld Urban Utilities	75	118	117	131	126	–4
Hunter Water	163	131	333	156	125	–20
Sydney Water	167	142	109	81	117	44
City West Water	163	338	148	110	116	5
Unitywater	121	113	112	111	113	2
Yarra Valley Water	147	158	102	89	103	16
Gold Coast		87	60	63	46	–27
South East Water	83	75	66	68	44	–35
Central Coast						
Median	**163**	**137**	**148**	**142**	**126**	
Average	**419**	**285**	**183**	**142**	**156**	
50,000–100,000 size group						
P&W (Darwin)	358	469	251		617	
Townsville	194	312	100	321	453	41
Goulburn Valley Water	353	190	228	432	267	–38
Gippsland Water	225	221	149	149	196	32
Coliban Water	445	503	421	118	192	63
Toowoomba		117	216	195	165	–15
Central Highlands Water	213	62	114	129	133	3
Western Water	142	96	180	196	78	–60
Cairns	330	162	271	212	53	–75
Median	**278**	**190**	**216**	**196**	**192**	
Average	**283**	**237**	**215**	**219**	**239**	
20,000–50,000 size group						
Riverina Water (W)	221	199	215	403	1,104	174
Fitzroy River Water	335	349	377	296	363	23
Wide Bay Water	576	383	293	261	349	34
Shoalhaven	132	96	233	221	279	26
Lower Murray Water	170	155	176	166	245	48
Wannon Water	281	128	166	148	224	51
MidCoast Water	1,254	290	201	81	212	162
Gladstone				138	206	49
Port Macquarie Hastings	262	216	84	330	205	–38
North East Water	243	311	226	134	196	46
Tamworth	318	518	527	309	184	–40
Mackay	1,078	542	343	442	163	–63
Clarence Valley	94	120	104	91	156	71
GWMWater	237	319	448	181	133	–27
WC (Mandurah)	529	506	256	174	130	–25
East Gippsland Water	189	153	221	113	109	–4
Albury	116	155	106	89	108	21

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Bundaberg				89	105	18
Tweed	214	176	279	62	97	56
Coffs Harbour	70	145	69	54	48	–11
Redland City				26	12	–54
Dubbo						
Queanbeyan						
Median	**240**	**208**	**224**	**148**	**184**	
Average	**351**	**264**	**240**	**181**	**220**	
10,000–20,000 size group						
Essential Energy	282	342	304	355	1,218	243
Orange	205	431	1,632	1,070	546	–49
WC (Geraldton)	458	613	261	497	396	–20
WC (Kal–Boulder) (W)	1,773	1,473	6,253	326	381	17
Cassowary Coast				310	357	15
Goldenfields Water (R)				164	348	112
Bathurst	293	185	240	480	328	–32
Kempsey	152	378	417	434	321	–26
Western Downs				624	319	–49
Lismore	121	147	165	88	316	259
WC (Albany)	140	169	168	213	314	47
Busselton (W)	573	145	135	293	294	0
P&W (Alice Springs)	598	547	362		277	
Bega Valley	374	147	187	287	260	–9
Byron	13	93	39	31	243	684
Goulburn Mulwaree	1,161	283	253	559	235	–58
Gympie			153	160	210	31
WC (Australind/Eaton)	2,851	87	104	218	174	–20
Southern Downs				279	169	–39
Eurobodalla	196	144	122	133	149	12
Whitsunday				2	148	7,300
Aqwest–Bunbury (W)	266	241	174	164	146	–11
Wingecarribee	145	137	40	148	112	–24
Ballina	129	121	153	218	108	–50
Westernport Water	237	830	107	47	87	85
Livingstone					84	
South Gippsland Water	212	163	98	135	83	–39
Central Highlands				2,332	34	–99
Median	**252**	**177**	**168**	**248**	**252**	
Average	**509**	**334**	**541**	**368**	**273**	

Table A9 F29—Capital expenditure: Sewerage, by utility size group, ($/property), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
TasWater				300	328	9
Barwon Water	471	270	153	235	320	36
Logan		677	476	581	269	–54
Icon Water	167	184	105	145	258	78
Yarra Valley Water	217	175	184	154	253	64
Hunter Water	395	281	150	182	252	38
Qld Urban Utilities	451	411	254	220	234	6
Sydney Water	272	247	224	265	230	–13
SA Water			173	171	204	19
Unitywater	459	473	433	198	194	–2
WC (Perth)	175	170	175	270	177	–34
Gold Coast		186	139	94	169	80
South East Water	207	199	261	261	161	–38
City West Water	165	74	71	36	50	39
Central Coast						
Median	**244**	**223**	**175**	**209**	**232**	
Average	**298**	**279**	**215**	**222**	**221**	
50,000–100,000 size group						
Toowoomba		865	171	320	618	93
Gippsland Water	459	718	638	658	312	–53
Goulburn Valley Water	153	181	207	131	303	131
Coliban Water	167	138	201	178	298	67
P&W (Darwin)	814	825	242		212	
Western Water	217	241	328	290	204	–30
Cairns	256	231	267	215	191	–11
Townsville	572	262	246	293	191	–35
Central Highlands Water	204	200	128	123	1	–99
Median	**236**	**241**	**242**	**252**	**212**	
Average	**355**	**407**	**270**	**276**	**259**	
20,000–50,000 size group						
Clarence Valley	2,070	675	611	1,625	1,024	–37
Bundaberg				782	509	–35
Port Macquarie Hastings	224	289	243	218	449	106
Redland City				277	347	25
Gladstone				321	337	5
Fitzroy River Water	409	258	395	230	246	7
East Gippsland Water	402	186	276	269	243	–10
Albury	0	116	156	79	235	197
Mackay	125	678	875	201	214	6
WC (Mandurah)	462	270	502	371	202	–46
Shoalhaven	547	430	321	299	201	–33
Coffs Harbour	233	231	378	540	179	–67
Tweed	1,064	284	152	166	170	2
Wide Bay Water	227	195	246	73	169	132
MidCoast Water	1,094	327	111	107	167	56
Wagga Wagga (S)	264	146	186	163	146	–10
Wannon Water	506	497	234	186	132	–29

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
North East Water	72	545	209	77	88	14
GWMWater	374	185	93	208	86	–59
Tamworth	225	126	516	125	82	–34
Lower Murray Water	206	169	147	84	53	–37
Dubbo						
Queanbeyan						
Median	**319**	**264**	**245**	**208**	**201**	
Average	**472**	**312**	**314**	**305**	**251**	
10,000–20,000 size group						
WC (Busselton) (S)		2,269	1,704	1,688	1,390	–18
Western Downs				1,075	844	–21
WC (Bunbury) (S)	338	632	553	1,348	791	–41
Eurobodalla	791	235	254	221	556	152
Gympie			409	288	499	73
WC (Australind/Eaton)	132	755	274	248	498	101
Cassowary Coast				296	457	54
WC (Albany)	758	323	488	132	386	192
South Gippsland Water	556	282	496	569	375	–34
Lismore	862	570	214	372	303	–19
WC (Geraldton)	104	204	314	337	294	–13
Kempsey	219	257	155	168	258	54
Goulburn Mulwaree	155	181	127	215	255	19
Wingecarribee	1,109	819	143	202	235	16
Whitsunday				61	210	244
Ballina	2,344	2,008	644	369	207	–44
Westernport Water	635	39	128	284	195	–31
Essential Energy	153	213	106	273	166	–39
P&W (Alice Springs)	338	546	542		153	
Bathurst	119	280	200	357	147	–59
Bega Valley	152	202	470	339	139	–59
Byron	129	150	149	81	112	38
Orange	75	35	57	207	111	–46
Southern Downs				14	69	393
Livingstone					60	
Central Highlands				42	50	19
Kal–Boulder (S)	123	99	50	67	10	–85
Median	**219**	**268**	**254**	**273**	**235**	
Average	**479**	**505**	**356**	**370**	**325**	

Table A10 C9—Water quality complaints, by utility size group (no. per 1,000 properties), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Central Coast					16.7	
Yarra Valley Water	3.6	4.2	3.7	2.6	2.8	8
Logan		4	4.2	7	2.3	–67
Barwon Water	1.8	2.1	1.6	1.3	2	54
South East Water	2	2.7	2.7	1.8	1.7	–6
Qld Urban Utilities	5.2	3.2	2.7	2	1.7	–15
Hunter Water	2.9	2.9	3.4	3	1.7	–43
Icon Water	0.9	0.8	1.1	1.2	1.1	–8
Gold Coast		1.2	1.2	1	1	0
SA Water			1	1	0.9	–10
City West Water	0.7	0.7	0.4	0.6	0.6	0
Sydney Water	0.5	0.5	0.3	0.4	0.4	0
WC (Perth)	6.9	0.1	0.1	0.1	0.1	0
Unitywater			0.1	0	0	
TasWater						
Median	**2**	**2.1**	**1.2**	**1.2**	**1.4**	
Average	**2.7**	**2**	**1.7**	**1.7**	**2.4**	
50,000–100,000 size group						
Western Water	3.1	3.2	3.9	3.4	4.1	21
Gippsland Water	7.2	4	4	4.3	3.4	–21
Goulburn Valley Water	5	3.3	3.1	1.6	3.3	106
Coliban Water	5.2	3	3	3.4	3	–12
P&W (Darwin)	6.3	1.9	1.8	2.1	2.8	33
Central Highlands Water	3.4	3.9	3.2	1.2	2.4	100
Cairns	3.1	2.7	3	3	2.3	–23
Toowoomba		2.1	2.6	2	1.7	–15
Townsville	0.9	1.3	1	1	0	–100
Median	**4.2**	**3**	**3**	**2.1**	**2.8**	
Average	**4.3**	**2.8**	**2.8**	**2.4**	**2.6**	
20,000–50,000 size group						
Port Macquarie Hastings	3	8.5	6.7	6	5.3	–12
MidCoast Water	3.5	2.8	2.6	3	4	33
Wannon Water	1.3	0.8	0.6	0.6	3.3	450
GWMWater	9.3	7.5	2.5	3.7	2.8	–24
Riverina Water (W)	2.8	4.4	3.1	3	2.6	–13
Redland City				2	2.5	25
Fitzroy River Water	5.9	6.1	2.1	9	2.5	–72
Wide Bay Water	1.1	2.4	1.3	1	2.3	130
Albury	1	4.2	3.2	2.6	2.2	–15
Mackay	2.1	2.5	2.3	3	2	–33
Bundaberg				1	1.9	90
Lower Murray Water	1.1	0.7	0.5	0.6	0.9	50
North East Water	1.9	0.8	0.4	0.4	0.5	25
East Gippsland Water	0.3	0.3	0.5	0.2	0.4	100
Dubbo					0.3	
Shoalhaven	0.5	0.3	0.3	0.5	0.2	–60
Gladstone				0	0	

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Coffs Harbour	1.1	0	0	0	0	
WC (Mandurah)	3.1	0.1	0.1	0	0	
Tamworth		0.8	0.2	0	0	
Clarence Valley	6.7	8.1	22.6	13.9		
Tweed	4.5	4.2	4.9	5.9		
Queanbeyan						
Median	**2.1**	**2.4**	**1.7**	**1**	**2.0**	
Average	**2.9**	**3**	**3**	**2.7**	**1.7**	
10,000–20,000 size group						
Goulburn Mulwaree	1.4	3	7.7	4.5	19.7	338
Wingecarribee	9.5	13.2	11.7	7.7	8.9	16
Bathurst	29.3	37.5	34.6	34	8.5	–75
Cassowary Coast				4	5	25
Western Downs				5	4.7	–6
Livingstone					4.3	
Bega Valley	4.7	8.7	13.3	12.7	4.2	–67
Busselton (W)	22	17.8	2.4	1.8	3.9	117
South Gippsland Water	2.7	9	5.8	1.8	3.3	83
Central Highlands				12	2.7	–78
Whitsunday				2	2.7	35
Westernport Water	2.6	1.2	6.4	1.8	2.5	39
Southern Downs				1	2.1	110
Orange	1.5	1.6	1.3	1.4	1.8	29
Aqwest–Bunbury (W)	8.9	8.1	0.1	0.1	1.8	1,700
Byron	0	0.3	1.3	1.9	1.4	–26
Kempsey	0.2	0.4	0.7	0.2	0.9	350
WC (Albany)	15.9	0.1	0.2	0.2	0.4	100
Eurobodalla	0.3	0.3	0.9	0.7	0.4	–43
Essential Energy	0	8	0	0	0.3	
Gympie			0.1	0	0.3	
WC (Australind/Eaton)	11.8	1.8	0.1	0.3	0.3	0
P&W (Alice Springs)	1.6	0.9	0.1	0	0.1	
Goldenfields Water (R)	6.6	8.8	7.2	4.8	0	–100
Ballina	0.1	0.3	4.3	0	0	
Lismore	1.1	0	0	0	0	
WC (Kal–Boulder) (W)	5	0	0	0	0	
WC (Geraldton)	3.7	0.1	0	0.1	0	–100
Median	**2.7**	**1.6**	**1.1**	**1.4**	**1.8**	
Average	**6.1**	**5.8**	**4.5**	**3.6**	**2.9**	

Table A11 C11—Service complaints: sewerage, by utility size group (no. per 1,000 properties), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Gold Coast			8.4	1.7	1.2	–29
Hunter Water	2.2	1.6	0.8	1	1.1	10
Icon Water	1.4	1.2	0.9	1.3	1.1	–15
Barwon Water	0.6	0.7	0.5	0.9	0.8	–11
Yarra Valley Water	0.3	0.3	0.2	0.3	0.5	67
Sydney Water	0.5	0.4	0.5	0.6	0.5	–17
Qld Urban Utilities	0.2	0.4	0.3	0.6	0.3	–50
Unitywater			0.3	0.4	0.3	–25
City West Water	0.3	0.3	0.3	0.2	0.2	0
SA Water			0.2	0.1	0.1	0
WC (Perth)	0.4	0.1	0.1	0	0.1	
South East Water	0	0	0	0	0	
TasWater						
Logan						
Central Coast						
Median	**0.4**	**0.4**	**0.3**	**0.5**	**0.4**	
Average	**0.7**	**0.6**	**1**	**0.6**	**0.5**	
50,000–100,000 size group						
P&W (Darwin)	10.7	4.5	5.1	2.2	5.2	136
Coliban Water	1.8	2.2	2	2.2	2.6	18
Goulburn Valley Water	0.7	0.7	1.1	0.6	1.1	83
Western Water	0	0.1	0	0	0.7	
Gippsland Water	1	0.6	0.6	0.6	0.4	–33
Central Highlands Water	0.2	0.1	0.2	0.1	0.3	200
Cairns	8.6	6.9	4.3	0.1	0.1	0
Toowoomba		4.3	3.6		0.1	
Townsville	9.5	9.9	10.9	10	0	–100
Median	**1.4**	**2.2**	**2**	**0.6**	**0.4**	
Average	**4.1**	**3.3**	**3.1**	**2**	**1.2**	
20,000–50,000 size group						
Wagga Wagga (S)	49.8	53.7	53.4	41.4	38.1	–8
Fitzroy River Water	0	21	22	18.9	19.8	5
Tamworth	21.8	21.9	21.3	16.4	16.1	–2
Dubbo					12.4	
Port Macquarie Hastings	5.2	8.1	9.9	6.3	9.1	44
Mackay	9.4	9	5.6	5.7	3.8	–33
Wide Bay Water	0.6	0.8	1.9	2.9	3.6	24
MidCoast Water	1.4	1.7	1.7	3	2.3	–23
Albury	33.2	0.5	0.5	2.2	1.3	–41
Bundaberg				1.4	1.1	–21
Redland City				0.1	0.9	800
Lower Murray Water	0.2	0.1	0.2	0.3	0.8	167
Wannon Water	0.3	0.4	0.3	0.1	0.5	400
GWMWater	0.4	1.3	0.6	0.8	0.5	–38
Shoalhaven	0.5	0.4	0.6	0.4	0.5	25
East Gippsland Water	0.3	0.1	0	0.2	0.2	0
Coffs Harbour	22.4	0.3	0	0.3	0.1	–67

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
WC (Mandurah)	0.3	0.1	0	0	0.1	
North East Water	0.3	0.2	0.1	0.3	0.1	–67
Gladstone				0	0	
Clarence Valley	23.9	22.9	19.3	25.6		
Tweed	5.5	5.8	6.7	5.8		
Queanbeyan						
Median	**1**	**1**	**1.2**	**1.4**	**1.0**	
Average	**9.8**	**8.2**	**8**	**6.3**	**5.6**	
10,000–20,000 size group						
Bathurst	19.5	17.7	24	29	46.7	61
Orange	47.9	25.6	30.4	40.8	42.4	4
Goulburn Mulwaree	28.4	21	29.9	28.5	29.2	2
Southern Downs				13.2	22.5	70
Wingecarribee	23.5	20.9	19.6	11.3	14.8	31
Central Highlands				10.3	14.3	39
Cassowary Coast				6.5	9.5	46
Whitsunday				9	8.4	–7
Kal–Boulder (S)	12.3	4.1	4.2	2.7	3.7	37
Livingstone				6.4	3.5	–45
P&W (Alice Springs)	8.5	3.4	0.8	0	2.5	
Bega Valley	9.3	1.5	1.6	1.1	2.1	91
Kempsey	0.6	1.5	1.6	1.3	1.5	15
Eurobodalla	1	1.1	1.8	0.4	1.4	250
Gympie			1.4	0.1	1.3	1,200
Byron	1.3	2.3	3.7	1.3	1	–23
Ballina	2.6	1	3.8	2.8	0.9	–68
Westernport Water	1.6	1.3	1	0.1	0.8	700
Essential Energy	0.4	0.7	0.8	0.2	0.4	100
Lismore	21.5	2.7	16.3	1.6	0.3	–81
WC (Geraldton)	0.7	0.2	0.7	0.8	0.2	–75
WC (Albany)	0.8	0.3	0.1	0.2	0.2	0
WC (Busselton) (S)		0.3	0.1	0.2	0.2	0
South Gippsland Water	0.1	0.3	0.7	0.6	0.2	–67
WC (Australind/Eaton)	2.4	0.1	0.1	0	0	
WC (Bunbury) (S)	1.6	0.2	0.1	0	0	
Western Downs				0.2		
Median	**2.4**	**1.4**	**1.6**	**1.3**	**1.4**	
Average	**9.7**	**5.3**	**6.8**	**6.2**	**8**	

Table A12 C13—Total complaints: water and sewerage, by utility size group (no. per 1,000 properties), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Gold Coast			18.1	5	6.3	26
Qld Urban Utilities	6	4.6	5	5	6	20
Yarra Valley Water	10.3	12.5	7	5	5.8	16
City West Water	3.7	3.3	3.3	3.4	5.2	53
Hunter Water	7.6	7	6	6.3	4.8	–24
Barwon Water	4.3	5.5	2.7	4.3	4.4	2
Icon Water	5	4.8	4	4.3	3.8	–12
South East Water	3.5	4.4	4.7	3.4	3.4	0
Sydney Water	3.5	3.9	3.2	2.7	2.6	–4
SA Water			2.4	2.4	2.3	–4
Unitywater			2.6	2	1.2	–40
WC (Perth)	9.5	0.6	1	0.8	0.8	0
TasWater						
Logan						
Central Coast						
Median	**5**	**4.6**	**3.6**	**3.8**	**4.1**	
Average	**5.9**	**5.2**	**5**	**3.7**	**3.9**	
50,000–100,000 size group						
P&W (Darwin)	72.7	37.5	49.9	39.5	66	67
Gippsland Water	14.6	9.5	9.2	9.5	9.4	–1
Goulburn Valley Water	8.4	5.9	5.9	4.3	6.6	53
Coliban Water	7.7	5.7	5.6	6.3	6.5	3
Western Water	4	4	4.7	4	5.5	38
Central Highlands Water	8.2	13.5	8.3	3.2	5	56
Cairns	74.8			3	2.9	–3
Toowoomba		10.9	5.8	2	2.6	30
Townsville	9.3	9.9	10.7	10	0.7	–93
Median	**8.9**	**9.7**	**7.1**	**4.3**	**5.5**	
Average	**25**	**12.1**	**12.5**	**9.1**	**11.7**	
20,000–50,000 size group						
Tamworth	82	67	78	59	54.5	–8
Fitzroy River Water	38.8	61.9	56	51	48	–6
Mackay	99.8	119.2	131.8	30	33.4	11
Port Macquarie Hastings	24	33	31	32	31.2	–3
Dubbo					23.1	
MidCoast Water	6	7	7	11	8.2	–25
Wide Bay Water	5.2			4	7.7	92
GWMWater	26.4	21.5	11	7.3	7.4	1
Albury		6	5	6	7	17
Wannon Water	7.3	5.6	3.5	3.6	6.1	69
Redland City				4	3.6	–10
Lower Murray Water	7.9	5.8	1.4	1.8	2.9	61
Bundaberg				2	2.8	40
East Gippsland Water	2	1.3	0.6	1	1.8	80
North East Water	3.1	1.6	0.8	2.6	1.7	–35
Shoalhaven	1	1	1	2	1.5	–25
Coffs Harbour	80	1	0	1	0.4	–60

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
WC (Mandurah)	5.1	0.4	0.7	0.4	0.4	0
Gladstone				0	0	
Clarence Valley	76	53	101	109		
Tweed	31	33	40	29		
Queanbeyan						
Median	**16**	**6.5**	**6**	**4**	**6.1**	
Average	**31**	**26.1**	**29.3**	**17.8**	**12.7**	
10,000–20,000 size group						
Central Highlands				182	184.2	1
Orange		85	92	104	123.1	18
Cassowary Coast				128	115.4	–10
Whitsunday				150	106.2	–29
Goulburn Mulwaree					98.5	
Bathurst	100	100	82	91	89.3	–2
Wingecarribee	120	105	103	74	87.9	19
Southern Downs				49	48.5	–1
P&W (Alice Springs)	169.6	60	9.6	3	19.7	557
Bega Valley		16	17	16	7.2	–55
Livingstone				140	7.1	–95
Westernport Water	9.4	9.1	3.6	4.9	6.8	39
South Gippsland Water	7.2	14.3	5.9	6.1	5.2	–15
Byron	32	5	7	5	4.5	–10
Essential Energy	1	10	1	1	2.5	150
Kempsey	1	2	3	2	2.4	20
Gympie			11.3	0	2.3	
Eurobodalla		1	3	1	1.9	90
WC (Geraldton)	7.2	1.7	1.3	1.3	1.2	–8
WC (Albany)	18.2	0.7	0.8	0.6	1	67
Ballina	3	1	12	3	0.9	–70
WC (Australind/Eaton)	16.3	2.5	0.7	0.7	0.8	14
Lismore	28	4	19	4	0.3	–92
Western Downs				5		
Median	**16.3**	**7**	**7**	**5**	**6.8**	
Average	**39.5**	**26.1**	**21.9**	**42.2**	**39.9**	

Table A13 C14—Percentage of calls answered by an operator within 30 seconds, by utility size group (%), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
TasWater				88.6	88.5	0
Barwon Water	95.8	96.2	92.1	89.5	88	–2
SA Water			88	85.3	85.3	0
City West Water	63.4	74.3	83.3	82.6	82.5	0
Unitywater			80.2	80	81	1
Qld Urban Utilities	84	76	72	77	80	4
South East Water	91	82.8	88.3	84.4	77.2	–9
Sydney Water	86.2	86	83	79	73	–8
WC (Perth)	73.3	73.1	72.6	72.8	71.1	–2
Hunter Water	71	79	71	70	71	1
Icon Water		72.5	79.1	71.3	66.7	–6
Yarra Valley Water	61.4	81.9	76.9	63.5	46.9	–26
Gold Coast		49	34	43		
Logan						
Central Coast						
Median	**78.7**	**77.5**	**79.6**	**79**	**78.6**	
Average	**78.3**	**77.1**	**76.7**	**75.9**	**75.9**	
50,000–100,000 size group						
Goulburn Valley Water	97.3	97.8	98.9	99	97.2	–2
Coliban Water	78	80.3	84.8	91.3	90.9	0
Gippsland Water	82	82.6	83.1	82.7	88.8	7
Western Water	98.1	97.2	97.8	94.4	88.3	–6
Central Highlands Water	90.6	89.8	90.4	92	88.2	–4
Cairns	79.7	75.5		76.2		
Toowoomba		82.5	82.8			
Townsville	64.2	85.2	83			
P&W (Darwin)						
Median	**82**	**83.9**	**84.8**	**91.7**	**88.8**	
Average	**84.3**	**86.4**	**88.7**	**89.3**	**90.7**	
20,000–50,000 size group						
Wagga Wagga (S)		100	100	100	100	0
East Gippsland Water	95.9	99.5	99.8	99.8	99.5	0
Wannon Water	99.5	99.4	99.2	99	99.3	0
Port Macquarie Hastings	72	77	75	84	98	17
Shoalhaven	100	100	96	96	98	2
GWMWater	81.1	90.5	94.4	94	93.1	–1
North East Water	96.8	96.5	89.5	89.9	90.8	1
Lower Murray Water	86	87.7	85.7	87.6	86.4	–1
Tweed		51	56	48	49	2
Mackay	26	30	44			
Redland City				89		
Fitzroy River Water				80		
Wide Bay Water						
Gladstone						
Bundaberg						
WC (Mandurah)						
Albury	59					

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Clarence Valley						
Coffs Harbour	99	99	99	99		
MidCoast Water						
Riverina Water (W)						
Tamworth						
Dubbo						
Queanbeyan						
Median	**91**	**96.5**	**94.4**	**92**	**98**	
Average	**81.5**	**84.6**	**85.3**	**88.9**	**90.5**	
10,000–20,000 size group						
Kal–Boulder (S)	100	100	100	100	100	0
South Gippsland Water	99.5	99.5	99.5	99.7	99.5	0
Westernport Water	95	95.1	97.8	97.7	97.6	0
Essential Energy	78	76	78	78	78	0
Lismore		80	80	80	77	–4
Eurobodalla		84		100	72	–28
Wingecarribee		66	79	53	66	25
Orange	80				65	
Kempsey		49	48	45	42	–7
Livingstone						
Cassowary Coast						
Western Downs						
Southern Downs						
Whitsunday						
Central Highlands						
Gympie			60	80		
Aqwest–Bunbury (W)						
WC (Albany)						
WC (Geraldton)						
WC (Australind/Eaton)						
WC (Bunbury) (S)						
WC (Busselton) (S)						
WC (Kal–Boulder) (W)						
Busselton (W)						
P&W (Alice Springs)						
Ballina						
Bathurst						
Bega Valley	65	72	79	87		
Byron						
Goldenfields Water (R)						
Goulburn Mulwaree						
Median	**87.5**	**80**	**79**	**83.5**	**77**	
Average	**86.3**	**80.2**	**80.1**	**82**	**77.5**	

Table A14 C15—Average duration of an unplanned interruption: water, by utility size group (minutes), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Central Coast					198	
SA Water			161	163	185.7	14
Logan		135.4	151.4	155.6	143	–8
Unitywater				157	139	–11
Hunter Water	121.7	142.4	128	136	137	1
Sydney Water	154.8	152.6	151	147	136	–7
Icon Water	118.5	147.9	104	119.5	135	13
Qld Urban Utilities	169	162	139	139	134	–4
Yarra Valley Water	101.3	108.1	99.4	103.2	122.5	19
Gold Coast		119.7	160	132.4	119.7	–10
City West Water	131.4	120.5	115.4	112	119.5	7
WC (Perth)	118	129.7	117.4	96	107.9	12
Barwon Water	113.9	107.2	93.1	88	99.5	13
South East Water	87.3	89	91	89	81.3	–9
Median	**118.5**	**129.7**	**122.7**	**132.4**	**134.5**	
Average	**124**	**128.6**	**125.9**	**126**	**132.7**	
50,000–100,000 size group						
Coliban Water	105.5	113.9	170.2	115	118.4	3
Central Highlands Water	127.7	142.2	103.8	69	109.2	58
Goulburn Valley Water	97.4	128.3	100	113	107.5	–5
Western Water	67	129.2	76.9	95.3	92.8	–3
Cairns	46	109.3	49.7	44.1	92	109
Gippsland Water	75.1	86.4	74.4	89	76.2	–14
Townsville	3.5	3.5	3.2	67.3	63.9	–5
Toowoomba						
P&W (Darwin)	72			93.6		
Median	**73.6**	**113.9**	**76.9**	**91.3**	**92.8**	
Average	**74.3**	**101.8**	**82.6**	**85.8**	**94.3**	
20,000–50,000 size group						
Riverina Water (W)	281	308	173	185	206	11
Shoalhaven	177	194	220	135	202	50
Albury		104	124	137	137	0
Wide Bay Water			38.9	129.5	127.8	–1
Port Macquarie Hastings	205	163	174	210	121	–42
Mackay	282	113	121	92	115	25
Tweed		160	149	134	112	–16
North East Water	198.8	87.3	101.7	104.7	107.7	3
GWMWater	80	64.5	73.2	85.2	105.7	24
Wannon Water	88.6	110.8	100.9	91.2	104.9	15
East Gippsland Water	92.1	70.8	75.8	64	71.5	12
Lower Murray Water	54.5	50.5	43.1	57	54.1	–5
WC (Mandurah)	79	64.3	68	61	49.9	–18
Gladstone				15.9	46	189
Fitzroy River Water	39.5	60	4.1	98.2	33	–66
Redland City				20.5	23.9	17
Bundaberg						
Clarence Valley						

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Coffs Harbour	120					
MidCoast Water						
Tamworth						
Dubbo						
Queanbeyan						
Median	**106**	**104**	**101.3**	**95.1**	**106.7**	
Average	**141.5**	**119.3**	**104.8**	**101.3**	**101.1**	
10,000–20,000 size group						
Cassowary Coast				418	375	–10
Goldenfields Water (R)		235	192	205	240	17
Eurobodalla		240	190	220	214	–3
Lismore		288	120	140	214	53
Kempsey	132	165	127	215	155	–28
Orange		240	238	255	135	–47
WC (Albany)	145	123.8	123.3	124	132	6
WC (Geraldton)	193	139.7	110.2	102	120	18
Whitsunday				120	120	0
Southern Downs				120	120	0
South Gippsland Water	94.8	118	138.6	160	95.6	–40
Busselton (W)	147.6	87.2	77.1	197.5	85.7	–57
Gympie			240	97.2	85	–13
Westernport Water	175.1	123.6	92.3	103	80.2	–22
WC (Kal–Boulder) (W)	36	33.9	55.9	45	62.4	39
Aqwest–Bunbury (W)	61.8	56.7	47.5	43.6	61	40
WC (Australind/Eaton)	86	75.7	78.2	75	56	–25
Central Highlands				45	30	–33
Livingstone				22.9	26	14
Western Downs				62		
P&W (Alice Springs)	121					
Ballina						
Bathurst						
Bega Valley						
Byron						
Essential Energy						
Goulburn Mulwaree						
Wingecarribee		91	108	122		
Median	**126.5**	**123.7**	**120**	**120**	**120**	
Average	**119.2**	**144.1**	**129.2**	**137.7**	**126.7**	

Table A15 E12—Total net greenhouse gas emissions, by utility size group (net tonnes CO_2 equivalents per 1,000 connected water properties), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
WC (Perth)	647	663	731	738	817	11
SA Water			287	320	402	26
Central Coast					397	
Barwon Water	403	266	274	262	267	2
Icon Water	313	288	260	257	255	–1
Unitywater			225		199	
Qld Urban Utilities				199	192	–4
Hunter Water	438	381	412	220	181	–18
Sydney Water	72	85	85	84	144	71
South East Water	50	59	53	60	60	0
Yarra Valley Water	40	41	44	44	44	0
City West Water	–4	25	26	27	32	19
TasWater						
Gold Coast						
Logan						
Median	**193**	**176**	**242**	**210**	**196**	
Average	**245**	**226**	**240**	**221**	**249**	
50,000–100,000 size group						
Gippsland Water	959	661	580	639	897	40
Goulburn Valley Water	777	848	873	872	782	–10
Coliban Water	487	475	446	610	770	26
Western Water	320	282	267	520	530	2
Central Highlands Water	236	228	250	246	444	80
P&W (Darwin)	208	219	205	165	154	–7
Cairns	330	308	273			
Toowoomba		439	394			
Townsville						
Median	**330**	**373**	**333**	**565**	**650**	
Average	**474**	**433**	**411**	**509**	**596**	
20,000–50,000 size group						
North East Water	820	837	860	838	885	6
Wannon Water	819	739	693	751	776	3
Lower Murray Water	1,092	346	533	544	602	11
GWMWater	487	384	652	607	583	–4
Dubbo					492	
Albury	528	541	451	393	477	21
Coffs Harbour	460	515	362	487	456	–6
Shoalhaven	489	423	377	437	454	4
Tweed	454	434	441	413	453	10
Tamworth	374	378	419	393	423	8
Port Macquarie Hastings	222	417	386	416	385	–7
MidCoast Water	315	340	483	490	371	–24
East Gippsland Water	383	380	359	344	346	1
Riverina Water (W)	624	365	372	372	341	–8
Queanbeyan					233	
WC (Mandurah)	287	306	290	193	189	–2

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Clarence Valley	137	114	114	119	177	49
Mackay						
Redland City						
Fitzroy River Water	1,149	1,032	1,134			
Wide Bay Water						
Gladstone						
Bundaberg						
Wagga Wagga (S)	208					
Median	**460**	**400**	**430**	**416**	**453**	
Average	**520**	**472**	**495**	**453**	**450**	
10,000–20,000 size group						
WC (Kal–Boulder) (W)	1,814	1,773	1,604	1,688	1,629	–3
Essential Energy	572	647	930	779	1,118	44
Goulburn Mulwaree		615	618	449	662	47
P&W (Alice Springs)	704	778	686	609	636	4
Orange	390	414	416	405	515	27
Wingecarribee	377	398	467	469	492	5
WC (Australind/Eaton)	337	443	469	457	448	–2
Bega Valley	193	331	343	342	422	23
WC (Albany)	621	554	541	434	419	–3
Bathurst	512	384	362	337	416	23
Goldenfields Water (R)		461	407	394	389	–1
Ballina	347	366	425	390	385	–1
Westernport Water	476	402	411	412	379	–8
WC (Geraldton)	448	419	433	341	373	9
South Gippsland Water	429	445	354	377	372	–1
Eurobodalla	351	352	363	359	335	–7
Kempsey	368	376	349	324	292	–10
WC (Busselton) (S)		297	320	275	273	–1
Kal–Boulder (S)	169	295	281	276	271	–2
Lismore	69	210	248	233	229	–2
WC (Bunbury) (S)	386	330	384	201	216	7
Busselton (W)	194	193	198	196	199	2
Byron	363	164	167	166	172	4
Aqwest–Bunbury (W)	158	159	170	165	138	–16
Livingstone						
Cassowary Coast						
Western Downs						
Southern Downs						
Whitsunday						
Central Highlands						
Gympie						
Median	**377**	**391**	**395**	**368**	**382**	
Average	**442**	**450**	**456**	**420**	**449**	

Table A16 A8—Water main breaks, by utility size groups (no. per 100 km of water main), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Yarra Valley Water	40.4	52.3	50.5	39.3	48.5	23
City West Water	33	52.2	39.9	37.1	40.1	8
Barwon Water	34	44	31	29	33.5	16
South East Water	30.1	31.3	30.8	32.2	33.5	4
Hunter Water	25.2	31.9	30.2	28.9	26.8	–7
Sydney Water	22.3	29	30	26	26	0
Qld Urban Utilities	17.7	26.6	29	28	25.7	–8
Central Coast					17	
SA Water			11.4	13.9	14.9	7
Icon Water	24.7	20	11.5	14.2	13.8	–3
WC (Perth)	12.5	13.3	13.4	15	12	–20
Gold Coast		10.5	12	7.1	7.4	4
Logan		10.8	6.6	6.5	4.7	–28
Unitywater			5.6	3.3	3.7	12
TasWater						
Median	**25.2**	**29**	**29**	**26**	**21.4**	
Average	**26.7**	**29.3**	**23.2**	**21.6**	**22**	
50,000–100,000 size group						
Townsville	23.3	17.7	24.6	28.6	31.6	10
Coliban Water	28.4	26.7	28.6	26.1	29.1	11
Gippsland Water	22.6	33.6	25.2	25.1	24.5	–2
Goulburn Valley Water	22.2	29.4	27.5	22.6	19.9	–12
Central Highlands Water	22.2	23.4	22.8	20.7	18.8	–9
P&W (Darwin)	40.7	16.9	20.2	21.1	17.2	–18
Western Water	13.9	18.8	13.3	12.2	13.3	9
Toowoomba	23	18.5	13.8	20.7	13.3	–36
Cairns	12.1	13	14.1	13.3	12.4	–7
Median	**22.6**	**18.8**	**22.8**	**21.1**	**18.8**	
Average	**23.2**	**22**	**21.1**	**21.2**	**20**	
20,000–50,000 size group						
GWMWater	56.2	51.5	60.3	55.4	55.5	0
Gladstone				141	33.9	–76
Lower Murray Water	44.1	45	30	35.4	32	–10
Riverina Water (W)	14	14.3	19	6.9	18.6	170
Fitzroy River Water	14.2	18.7	24.9	12.9	16.7	29
East Gippsland Water	7.5	7.9	7.5	17.3	12.9	–25
Clarence Valley	10.3	12	12.5	10.7	12.3	15
Mackay	9.3	10.4	11.8	10.3	11.8	15
Wannon Water	10.9	12.7	10.5	9.7	11.1	14
Tamworth	12.6	7.5	6.6	13.9	8.9	–36
North East Water	18	21.3	13.3	12.5	8.7	–30
Shoalhaven	9.8	10.1	9.5	7.9	8	1
Tweed	4.6	4.4	8	4.1	7.5	83
Queanbeyan					7.5	
Coffs Harbour	8.6	10	3.3	2.7	7.1	163
Dubbo					6.5	
Bundaberg				3.9	4.2	8

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Albury	6	7.7	10.3	4.7	4.1	–13
WC (Mandurah)	6.8	6.3	4.2	4.2	3.6	–14
Redland City				3.4	3.2	–6
Wide Bay Water	7.7	4.5	6.2	3.6	3	–17
Port Macquarie Hastings	1.6	3	2.4	3.1	2.6	–16
MidCoast Water	5	7.5	8.3	9.2	1.7	–82
Median	**9.6**	**10.1**	**9.9**	**9.2**	**8**	
Average	**13.7**	**14.2**	**13.8**	**17.8**	**12.2**	
10,000–20,000 size group						
South Gippsland Water	32.1	41.7	47.8	39.5	40.9	4
Central Highlands				42.5	40.4	–5
Lismore	10.2	25.1	36.7	20.1	35.8	78
WC (Geraldton)	20	27.7	23.4	26.9	25.2	–6
Westernport Water	22.7	28.2	16.6	13.6	22	62
Essential Energy		24.1	16.5	14.1	20.9	48
Western Downs				24.6	20.5	–17
WC (Kal–Boulder) (W)	16.7	13.1	16.8	20.8	20.3	–2
Whitsunday				19.4	15	–23
Bathurst	7.6	4.9	8.2	6.8	14.8	118
Aqwest–Bunbury (W)	10.2	12	10.4	12.4	13.5	9
Goldenfields Water (R)	20.7	20.6	10.3	13.1	12.9	–2
Eurobodalla		11.4	13.4	13	12.7	–2
Wingecarribee	5.9	5.5	11.8	5.3	12	126
WC (Albany)	8.1	13.8	11.6	11.3	11.4	1
Orange		9.2	8.5	7.1	8.8	24
P&W (Alice Springs)	41.7	17.6	26.7	2.2	8.2	273
Cassowary Coast				18	7.6	–58
WC (Australind/Eaton)	7.1	5.2	5.5	4.7	7.4	57
Busselton (W)	3.3	6.6	7.5	8.3	7.2	–13
Byron	7.2	7.2	9.3	8.8	7.1	–19
Kempsey	8.5	7.3	9.8	7.3	5.5	–25
Bega Valley	3.8	7.9	8.8	6.3	4.5	–29
Gympie			9.6	4.8	3.8	–21
Ballina	2.2	12.1	6.3	5.4	3.7	–31
Southern Downs				16.6	3.7	–78
Livingstone				3.9	3.2	–18
Goulburn Mulwaree		10.7	10.7	9.6		
Median	**8.5**	**12**	**10.5**	**11.9**	**12**	
Average	**13.4**	**14.9**	**14.8**	**13.8**	**14.4**	

Table A17 A10—Real losses, by utility size group (L/service connection/d), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Hunter Water	75	75	82	91	104	14
SA Water			89	90	82	–9
Gold Coast		80.9	110	77	81	5
WC (Perth)	91	81.1	77.9	79.7	78	–2
Sydney Water	85	87	81	74	76	3
City West Water	65	69	67	70	71	1
Yarra Valley Water	50	65	70	60	71	18
Qld Urban Utilities	96	84	69	69	71	3
Icon Water	59	52	38	58	69	19
Logan		44.2	32.7	78.8	67	–15
Unitywater			58	69	66	–4
South East Water	74	81	70.3	67	64	–4
Barwon Water	61	64	39	25	47	88
Central Coast					31	
TasWater						
Median	**74**	**75**	**70**	**70**	**71**	
Average	**72.9**	**71.2**	**68**	**69.9**	**69.9**	
50,000–100,000 size group						
Townsville					276	
P&W (Darwin)	293	416	268	229	96	–58
Goulburn Valley Water	62	75	82	111	93	–16
Toowoomba	100.4	100	111.6	84.5	85	1
Coliban Water	121	85	54	65	74	14
Gippsland Water	52	87	98	78	72	–8
Western Water	50	53	33	47	37	–21
Central Highlands Water	53	59	40	30	30	0
Cairns	120	78	50.6	24	27	12
Median	**81.2**	**81.5**	**68**	**71.5**	**74**	
Average	**106.4**	**119.1**	**92.1**	**83.6**	**87.8**	
20,000–50,000 size group						
Bundaberg				50.3	354	604
Gladstone				860.2	336	–61
Fitzroy River Water	145	185	227.7	180	152	–16
Mackay	146.9	167.7	118.4	106.5	131	23
Riverina Water (W)	64	81	81	86	115	34
GWMWater	136.2	185.7	215	110	109	–1
Tamworth	74	83	91	69	87	26
Wide Bay Water	49.2	68	53	84	78	–7
Lower Murray Water		56.5	68	45.7	76	66
Wannon Water	125	110	82	71	72	1
Shoalhaven	37	43	57	92	72	–22
MidCoast Water	84	57	57	61	71	16
WC (Mandurah)	43	44.5	74.1	54.5	67	23
East Gippsland Water	76	67.7	42.5	51.4	66	28
North East Water	55	60	60	120	60	–50
Coffs Harbour	60	75	63	50	48	–4
Port Macquarie Hastings	62	37	37	45	43	–4

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Redland City				44.1	17	–61
Albury	50	56	57	55		
Clarence Valley		104	127	111		
Tweed	56	58	61	56		
Dubbo						
Queanbeyan						
Median	**63**	**67.8**	**65.5**	**69**	**74**	
Average	**79**	**85.5**	**87.3**	**114.4**	**108.6**	
10,000–20,000 size group						
Cassowary Coast				356	390	10
Whitsunday				537.2	346	–36
WC (Geraldton)	108	156.3	220.4	262.4	217	–17
WC (Albany)	84	82	90	174.5	189	8
Ballina	121	156	145	156	156	0
P&W (Alice Springs)	300	428	291	200	126	–37
Wingecarribee	74	122	133	61	116	90
WC (Australind/Eaton)	105	83.3	88.6	139.8	107	–23
South Gippsland Water	77	95	138	103.5	100	–3
Gympie			75	190	98	–48
Southern Downs				182	96	–47
Aqwest–Bunbury (W)	115.3	95	115	106	95	–10
Kempsey	48	50	96	97	93	–4
Byron	63	78	68	53	90	70
Essential Energy	98	102	90	82	84	2
Busselton (W)	88.4	87.8	95.9	79.8	69	–14
Orange		64	60	61	63	3
Bega Valley	54	143	50	50	50	0
Eurobodalla	59	50	50	48	50	4
Westernport Water	30	15	24.5	13	47	262
WC (Kal–Boulder) (W)	58	44.8	63	30.1	42	40
Lismore	46	37	39	40	39	–3
Livingstone					0	
Western Downs						
Central Highlands						
Bathurst						
Goldenfields Water (R)	74	91	92	91		
Goulburn Mulwaree		68	82	70		
Median	**75.5**	**85.6**	**90**	**94**	**95**	
Average	**89**	**102.4**	**100.3**	**132.6**	**115.8**	

Table A18 A14—Sewerage mains breaks and chokes, by utility size group (no. per 100 km sewer main), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Sydney Water	48.2	46.2	61.4	68.7	58.4	–15
Icon Water	42	42	57	51.6	54.1	5
SA Water			46	48	51	6
Hunter Water	46.6	42.3	53.6	53.6	42.7	–20
Barwon Water	24.5	25.2	29	35.4	38.8	10
Central Coast					38	
Yarra Valley Water	26.3	25.4	27.6	31.6	35.3	12
Qld Urban Utilities	15.1	21.1	22.9	30.1	25.2	–16
Unitywater			20.4	25	24.5	–2
City West Water	15.4	15	16.2	17	21.4	26
WC (Perth)	18.6	16.1	17	17.6	18.6	6
South East Water	11.7	12.3	14.8	14.3	17.6	23
Logan		12.1	12.1	12.6	11.5	–9
Gold Coast				3.9	7.2	85
TasWater						
Median	**24.5**	**23.2**	**25.3**	**30.1**	**30.3**	
Average	**27.6**	**25.8**	**31.5**	**31.5**	**31.7**	
50,000–100,000 size group						
Toowoomba	18	16.1	30.7	29	64.8	123
Coliban Water	42.6	53.7	62.9	48.1	53.7	12
Central Highlands Water	12.4	16.9	18.8	19.7	22.6	15
P&W (Darwin)	23.8	15.7	8.5	8.9	22.2	149
Western Water	15.6	12.7	15.7	15.5	14.1	–9
Goulburn Valley Water	17.7	22.4	20.4	10.1	9.5	–6
Gippsland Water	7.9	7.8	8.6	8	8	0
Cairns	22.1	14.6	14.7	7.6	7.2	–5
Townsville	5.5	2.7	5.4	2.8	3.9	39
Median	**17.7**	**15.7**	**15.7**	**10.1**	**14.1**	
Average	**18.4**	**18.1**	**20.6**	**16.6**	**22.9**	
20,000–50,000 size group						
Coffs Harbour	43	65	76	89	97	9
Albury		67	75	65	76	17
Wagga Wagga (S)	75	88	80	80	72	–10
GWMWater	22	33.2	38.7	45	50.5	12
Dubbo					46	
Queanbeyan					33	
Port Macquarie Hastings	13				27	
Fitzroy River Water	70.5	70.3	12.1	24.4	25.9	6
Tamworth	79	77	74	50	20	–60
Wannon Water	8.3	10.7	11.5	13.4	18.2	36
Lower Murray Water	11.8	16.1	16.7	17.1	15.6	–9
Shoalhaven	13	14	8	11	13	18
Bundaberg				9.1	11.4	25
Gladstone				6.9	10.9	58
North East Water	9.1	5.7	9.7	8.8	9.6	9
WC (Mandurah)	8.1	9.4	8.1	7.5	9	20
MidCoast Water	6	6	6	6	8	33

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Redland City				7.2	7.2	0
Wide Bay Water	29.1	23.7	8.5	5.4	6.2	15
East Gippsland Water	2.7	3.6	5.3	6.1	5.2	–15
Mackay	3.5	4.3	19.3	4.1	5.1	24
Tweed	8	2	1	0	1	
Clarence Valley	29	43	45	52		
Median	**13**	**16.1**	**12.1**	**10.1**	**14.3**	
Average	**25.4**	**31.7**	**29.1**	**25.4**	**25.8**	
10,000–20,000 size group						
Bathurst	64	58	84	99	162	64
Orange	19	15	24	33	42	27
Central Highlands				24.9	39.4	58
Southern Downs				13.2	35.7	170
WC (Albany)	25.6	30.7	19.5	25	30.6	22
South Gippsland Water	21.4	17	14.8	23.6	29.9	27
Lismore	101	55	49	50	28	–44
Kal–Boulder (S)	63.6	24.4	30.3	17.7	27	53
Kempsey	11	24	16	33	25	–24
Eurobodalla		29	30	32	23	–28
Byron	20	32	11	11	21	91
Bega Valley	10	9	22	9	20	122
WC (Bunbury) (S)	12.2	14.6	12.1	12.4	12.8	3
Wingecarribee	25	44	46	22	10	–55
Whitsunday				0.3	8.9	2,867
WC (Geraldton)	8.8	14.3	7	10.8	8.7	–19
WC (Australind/Eaton)	6.1	6.5	6.4	10.4	7.9	–24
Livingstone				3.6	6	67
Western Downs				9.6	4.8	–50
Westernport Water	4.7	4.6	2.8	2	4.2	110
Gympie			21.3	40.9	3.8	–91
WC (Busselton) (S)		8.4	3.1	3.5	3.7	6
P&W (Alice Springs)	9.7	9.6	1.4	0.9	1.8	100
Cassowary Coast				3.5	1.3	–63
Ballina	10	8	20	3		
Essential Energy	102	128	115	129		
Goulburn Mulwaree						
Median	**19**	**17**	**19.7**	**12.8**	**16.4**	
Average	**30.2**	**28**	**26.8**	**24**	**23.2**	

Table A19 A15—Property connection sewer breaks and chokes, by utility size group (no. per 1,000 properties), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
SA Water			30	29	32	10
Icon Water	8	8	10	9.4	10.1	7
Hunter Water	9.3	8.6	10.1	10.2	8.5	–17
Yarra Valley Water	10.2	5.8	6.5	6.7	7.4	10
City West Water	11.2	4.2	4.2	5	5.2	4
South East Water	6.7	7.2	4.9	4.7	5	6
Qld Urban Utilities	2.6	2.9	2.9	3.8	3.3	–13
Central Coast					2.9	
Barwon Water	0	0	0	1.8	2.8	56
Logan		1.2	1	1.8	1.8	0
Unitywater			0.7	1.5	1.3	–13
Gold Coast				1.2	0.9	–25
Sydney Water	0.1	0.2	0.2	0.2	0.2	0
TasWater						
WC (Perth)						
Median	**7.4**	**4.2**	**4.2**	**4.2**	**3.3**	
Average	**6**	**4.2**	**6.4**	**6.3**	**6.3**	
50,000–100,000 size group						
Western Water	4.2	4.1	5.2	5	5.6	12
Coliban Water		14.5	18	4.5	5.2	16
Goulburn Valley Water		8.2	5.2	0	4.3	
Townsville	2.6	3.1	4.1	3	4.3	43
P&W (Darwin)	0.8	2.2	3.3	3.1	3.1	0
Gippsland Water			0	1.8	1.8	0
Central Highlands Water	0	1.9	2.6	1	1.7	70
Cairns	9.4	1.3	3.2	3.2	1.4	–56
Toowoomba	0				0.6	
Median	**1.7**	**3.1**	**3.7**	**3**	**3.1**	
Average	**2.8**	**5**	**5.2**	**2.7**	**3.1**	
20,000–50,000 size group						
GWMWater	0	4.8	0	25.1	31.4	25
Wagga Wagga (S)	17.5	17.2	20.8	14.7	13.4	–9
Albury		11.6	10.3	13.4	12.5	–7
Tamworth	1.2	3.1	8.7	2.4	10.8	350
Fitzroy River Water	11.3	11.4	11.5	9.7	9.8	1
Lower Murray Water	0	0	0	0	6.2	
Wannon Water			0	4.6	3.5	–24
North East Water	2.4	2.4	4.5	1.8	2	11
Coffs Harbour	9.7	12.8	2.7	3.5	1.5	–57
Wide Bay Water	1.5	0.8	1.9	1.3	1.3	0
Tweed	1.2	0.4	0.4	0.3	1.2	300
East Gippsland Water	6	1.3	0.4	0.6	0.8	33
Gladstone				0.8	0.7	–13
Redland City				0.3	0.6	100
Mackay	1.6	0.1	0.3	1.7	0.6	–65
Bundaberg				0.2	0.2	0

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Shoalhaven	0.4	0.5	0.2	0.2	0.1	–50
WC (Mandurah)						
Clarence Valley	15.8	10.7	10.2	3.6		
MidCoast Water						
Port Macquarie Hastings						
Dubbo						
Queanbeyan						
Median	**1.6**	**2.7**	**1.9**	**1.8**	**1.5**	
Average	**5.3**	**5.5**	**4.8**	**4.7**	**5.7**	
10,000–20,000 size group						
Essential Energy	40.1	36.2	36.9	41.3	44	7
Goulburn Mulwaree		12.9	5.2	6.6	17	158
Kempsey		10	13.6	9.6	14.1	47
Byron	9.4	9.9	7.7	7.9	10.3	30
Lismore	12.3	6.3	9.3	10.1	8.2	–19
Southern Downs				8.4	6.3	–25
Eurobodalla		5.9	5	5.7	4.4	–23
Wingecarribee	7.8	9.1	6.9	8.5	3.7	–56
Cassowary Coast				0.9	3.2	256
Bathurst	2.9	2.8	2.5	1.7	3.1	82
Western Downs				1.6	2.8	75
Westernport Water	0	0	0	0.6	2.3	283
Central Highlands					2.3	
Bega Valley		3	3.3	0.9	2	122
South Gippsland Water	0	0	0	4.5	1.8	–60
Orange	7	0.6	4.5	9.9	1.4	–86
Gympie			2.3	0.8	0.5	–38
Whitsunday				1.7	0.3	–82
P&W (Alice Springs)	3.3	1.6	0.2	0.2	0.2	0
Livingstone				2.3		
WC (Albany)						
WC (Geraldton)						
WC (Australind/Eaton)						
WC (Bunbury) (S)						
WC (Busselton) (S)						
Kal–Boulder (S)	8.9		4.2	2.5		
Ballina	0.7	1.6	2.1	0.1		
Median	**7**	**4.5**	**4.3**	**2.5**	**3**	
Average	**8.4**	**7.1**	**6.5**	**6**	**6.7**	

Table A20 H3—Percentage of population where microbiological compliance was achieved, by utility size group (%), 2011–12 to 2015–16

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
100,000+ size group						
Barwon Water	100	100	100	100	100	0
City West Water	100	100	100	100	100	0
South East Water	100	100	100	100	100	0
Yarra Valley Water	100	100	100	100	100	0
Qld Urban Utilities	100	100	100	100	100	0
Unitywater	100	100	100		100	
SA Water			100	100	100	0
WC (Perth)	100	100	100	100	100	0
Hunter Water	100	100	100	100	100	0
Sydney Water	100	100	100	100	100	0
Central Coast					100	
Icon Water	100	100	100	100	100	0
TasWater			99	98.6	99.2	1
Gold Coast		100	100			
Logan		100	100			
Median	**100**	**100**	**100**	**100**	**100**	
Average	**100**	**100**	**99.9**	**99.9**	**99.9**	
50,000–100,000 size group						
Central Highlands Water	100	100	100	100	100	0
Coliban Water	100	99.8	99.4	100	100	0
Goulburn Valley Water	100	100	100	100	100	0
Western Water	100	100	100	100	100	0
P&W (Darwin)	100	100	100	100	100	0
Gippsland Water	99.7	100	100	100	88.6	–11
Cairns	99.9	100	100	100		
Toowoomba		100	99.8			
Townsville	100	100	100			
Median	**100**	**100**	**100**	**100**	**100**	
Average	**100**	**100**	**99.9**	**100**	**98.1**	
20,000–50,000 size group						
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
North East Water	100	100	100	100	100	0
Wannon Water	99.3	100	100	100	100	0
WC (Mandurah)	100	100	100	100	100	0
Albury	100	100	100	100	100	0
Clarence Valley	99	73	100	100	100	0
Coffs Harbour	100	100	100	100	100	0
MidCoast Water	100	100	100	100	100	0
Port Macquarie Hastings	100	100	100	100	100	0
Shoalhaven	100	100	100	100	100	0
Tamworth	100	99	100	100	100	0
Tweed	100	100	100	100	100	0
Dubbo					100	
Queanbeyan					100	

Utility	2011–12	2012–13	2013–14	2014–15	2015–16	Change from 2014–15%
Mackay	100	100	100			
Redland City						
Fitzroy River Water		100	100			
Wide Bay Water	100	100	100			
Gladstone						
Bundaberg						
Wagga Wagga (S)						
Median	**100**	**100**	**100**	**100**	**100**	
Average	**99.9**	**98.4**	**100**	**100**	**100**	
10,000–20,000 size group						
South Gippsland Water	100	100	100	100	100	0
Byron	100	100	100	100	100	0
Orange	100	100	100	100	100	0
Lismore	100	100	100	100	100	0
Kempsey	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
Bega Valley	100	100	100	100	100	0
Westernport Water	100	100	100	100	100	0
Bathurst	100	100	100	100	100	0
Ballina	100	100	100	100	100	0
P&W (Alice Springs)	100	100	100	100	100	0
WC (Australind/Eaton)	100	100	100	100	100	0
WC (Geraldton)	100	100	100	100	100	0
WC (Albany)	100	100	100	100	100	0
Wingecarribee	100	100	100	100	100	0
Livingstone						
Cassowary Coast						
Western Downs						
Southern Downs						
Whitsunday						
Central Highlands						
Gympie			100			
WC (Bunbury) (S)						
WC (Busselton) (S)						
Kal–Boulder (S)						
Median	**100**	**100**	**100**	**100**	**100**	
Average	**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 2015–16 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 2016 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	20,000–50,000
Aqwest–Bunbury Water Corporation (W)	Western Australia	10,000–20,000
Ballina Shire Council	New South Wales	10,000–20,000
Barwon Water	Victoria	100,000+
Bathurst Regional Council	New South Wales	10,000–20,000
Bega Valley Shire Council	New South Wales	10,000–20,000
Bundaberg Regional Council	Queensland	20,000–50,000
Busselton Water (W)	Western Australia	10,000–20,000
Byron Shire Council	New South Wales	10,000–20,000
Cairns Water and Waste (Cairns Regional Council	Queensland	50,000–100,000
Cassowary Coast Regional Council	Queensland	10,000–20,000
Central Coast Council	New South Wales	100,000+
Central Gippsland Water	Victoria	50,000–100,000
Central Highlands Regional Council	Queensland	10,000–20,000
Central Highlands Water	Victoria	50,000–100,000
City of Kalgoorlie–Boulder (S)	Western Australia	10,000–20,000
City West Water	Victoria	100,000+
Clarence Valley Council	New South Wales	20,000–50,000
Coffs Harbour City Council	New South Wales	20,000–50,000
Coliban Water	Victoria	50,000–100,000
Dubbo Regional Council	New South Wales	20,000–50,000
East Gippsland Water	Victoria	20,000–50,000
Essential Energy	New South Wales	10,000–20,000
Eurobodalla Shire Council	New South Wales	10,000–20,000
Fish River Water	New South Wales	Bulk utility
Fitzroy River Water (Rockhampton Regional Council)	Queensland	20,000–50,000
Gladstone Area Water Board	Queensland	Bulk utility
Gladstone Regional Council	Queensland	20,000–50,000
Gold Coast City Council	Queensland	100,000+
Goldenfields Water	New South Wales	Bulk utility
Goldenfields Water (R)	New South Wales	10,000–20,000
Goulburn Mulwaree Council	New South Wales	10,000–20,000
Goulburn Valley Water	Victoria	50,000–100,000
GWMWater	Victoria	20,000–50,000
Gympie Regional Council	Queensland	10,000–20,000
Hunter Water Corporation	New South Wales	100,000+
Icon Water Limited	Australian Capital Territory	100,000+
Kempsey Shire Council	New South Wales	10,000–20,000
Lismore City Council	New South Wales	10,000–20,000
Livingstone Shire Council	Queensland	10,000–20,000
Logan City Council	Queensland	100,000+
Lower Murray Water	Victoria	20,000–50,000
Mackay Regional Council	Queensland	20,000–50,000
Melbourne Water	Victoria	Bulk utility
MidCoast Water	New South Wales	20,000–50,000
North East Water	Victoria	20,000–50,000

Utility name	Jurisdiction	Type or size group
Orange City Council	New South Wales	10,000–20,000
Port Macquarie Hastings Council	New South Wales	20,000–50,000
Power and Water–Alice Springs	Northern Territory	10,000–20,000
Power and Water–Darwin	Northern Territory	50,000–100,000
Queanbeyan–Palerang Regional Council	New South Wales	20,000–50,000
Qld Urban Utilities	Queensland	100,000+
Redland City Council	Queensland	20,000–50,000
Riverina Water	New South Wales	20,000–50,000
Rous Water	New South Wales	Bulk utility
SA Water Corporation	South Australia	100,000+
Seqwater	Queensland	Bulk utility
Shoalhaven City Council	New South Wales	20,000–50,000
South East Water	Victoria	100,000+
South Gippsland Water	Victoria	10,000–20,000
Southern Downs Regional Council	Queensland	10,000–20,000
Sydney Water Corporation	New South Wales	100,000+
Tamworth Regional Council	New South Wales	20,000–50,000
Tasmanian Water and Sewerage Corporation	Tasmania	100,000+
Toowoomba Regional Council	Queensland	50,000–100,000
Townsville Water (Townsville Regional Council)	Queensland	50,000–100,000
Tweed Shire Council	New South Wales	20,000–50,000
Unitywater	Queensland	100,000+
Wagga Wagga Council	New South Wales	20,000–50,000
Wannon Water	Victoria	20,000–50,000
Water Corporation–Albany	Western Australia	10,000–20,000
Water Corporation–Australind-Eaton	Western Australia	10,000–20,000
Water Corporation–Bunbury (S)	Western Australia	10,000–20,000
Water Corporation–Busselton (S)	Western Australia	10,000–20,000
Water Corporation–Geraldton	Western Australia	10,000–20,000
Water Corporation–Kalgoorlie–Boulder (W)	Western Australia	10,000–20,000
Water Corporation–Mandurah	Western Australia	20,000–50,000
Water Corporation–Perth	Western Australia	100,000+
Water NSW	New South Wales	Bulk utility
Western Downs Regional Council	Queensland	20,000–50,000
Western Water	Victoria	50,000–100,000
Westernport Water	Victoria	10,000–20,000
Whitsunday Regional Council	Queensland	10,000–20,000
Wide Bay Water	Queensland	20,000–50,000
Wingecarribee Shire Council	New South Wales	10,000–20,000
Yarra Valley Water	Victoria	100,000+

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 and chokes	A14	Sewerage mains breaks and chokes (no. per 100 km sewer main)
Asset	Sewerage breaks and chokes	A15	Property connection sewer breaks and chokes (no. per 1,000 properties)
Customers	Connected properties and population	C1	Population receiving water supply services (000s)
Customers	Connected properties and population	C2	Connected Residential properties—water supply (000s)
Customers	Customers	C3	Connected non-residential properties—water supply (000s)
Customers	Connected properties and population	C4	Total connected properties—water supply (000s)
Customers	Connected properties and population	C5	Population receiving sewage services (000s)
Customers	Connected properties and population	C6	Connected residential properties—sewerage (000s)
Customers	Connected properties and population	C7	Connected non-residential properties—sewerage (000s)
Customers	Connected properties and 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 and account complaints	C12	Billing and account complaints—water and sewerage (per 1,000 properties)
Customers	Billing and account complaints	IC12	Total number of billing and account complaints —water and sewerage
Customers	Total water and sewerage complaints	C13	Total water and sewerage complaints (per 1,000 properties)
Customers	Total water and 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)

Indicator category	Indicator subcategory	Indicator code	Indicator name
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
Customers	Restrictions or 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 or 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 or 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 or 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)

Indicator category	Indicator subcategory	Indicator code	Indicator name
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 ($/ML)
Finance	Revenue	F6	Revenue per property for sewerage services ($/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)

Indicator category	Indicator subcategory	Indicator code	Indicator name
Pricing	Residential tariff structure	P1.1	Free water allowance—water (kL/property)
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)
Water resources	Uses of water supplied	W9.2	Volume of non-potable water supplied—commercial, municipal and industrial (ML)

Indicator category	Indicator subcategory	Indicator code	Indicator name
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 waste collected—residential sewage, non-residential sewage and non-trade waste (ML)
Water resources	Sewage collected	W17	Volume of waste 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 and stormwater	W20	Volume of recycled water supplied—residential (ML)
Water resources	Uses of recycled water and stormwater	W21	Volume of recycled water supplied—commercial, municipal and industrial (ML)
Water resources	Uses of recycled water and stormwater	W22	Volume of recycled water supplied—agricultural (ML)
Water resources	Uses of recycled water and stormwater	W23	Volume of recycled water supplied—environmental (ML)
Water resources	Uses of recycled water and stormwater	W24	Volume of recycled water supplied—on-site (ML)
Water resources	Uses of recycled water and stormwater	W25	Volume of recycled water supplied—other (ML)
Water resources	Uses of recycled water and stormwater	W25.1	Volume of recycled water supplied—managed aquifer recharge (ML)
Water resources	Uses of recycled water and stormwater	W26	Total recycled water supplied (ML)
Water resources	Uses of recycled water and stormwater	W27	Recycled water (per cent of effluent recycled)
Water resources	Uses of recycled water and stormwater	W28.1	Volume of urban stormwater supplied to other infrastructure operators (ML)
Water resources	Uses of recycled water and stormwater	W28.4	Volume of urban stormwater used (ML)
Water resources	Uses of recycled water and 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
2015–16	108.300	1.38	0.0
2014–15	106.800	1.71	1.014
2013–14	105.025	2.71	1.031
2012–13	102.250	2.28	1.059
2011–12	99.975	2.30	1.083
2010–11	97.725	3.10	1.108
2009–10	94.775	2.30	1.143
2008–09	92.625	3.10	1.169
2007–08	89.825	3.40	1.206
2006–07	86.900	3.00	1.246
2005–06	84.400	3.20	1.283

Appendix F Jurisdictional summaries

Jurisdictional summaries are provided here 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.

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

	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)	511.66	517.73	1.2

The next determination is due in 2018.

In November 2015, the ICRC released an issues paper (Technical Report 1) as the first step in its review of Icon Water's water and sewerage services tariff. During 2016, the ICRC released the following technical papers:

- *Report 2 Price Elasticity of water demand in the ACT*
- *Report 3 Marginal Cost Pricing in the ACT*
- *Report 4 Tariff Review of Water and Sewerage Services*

The community was able to make submissions to these reports.

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 166,000 connected properties with over 3,200 km of water mains and sewerage services to 165,000 connections.

The ACT Auditor-General is Icon Water's auditor. Private firms provided internal audit services. Icon Water reports regularly to the ACT Government. In April 2014, the ACT Auditor-General concluded a performance audit that examined the governance and administrative arrangements for the ICRC review of water and sewerage prices in the ACT.

Strategic planning for the sewage treatment plants culminated in the release of the *Lower Molonglo Water Quality Control Centre Strategic Plan*.

In 2015–16, the ACT received a rainfall amount 602.6 mm (at the airport reading), which is just below the long-term average of 616 mm. The period was marked by a dry autumn but good rainfall in early winter.

Water consumption remained similar to that of 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 2004*. 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 2015–16* in accordance with the code in 2016.

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

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

F1.4 Performance reporting

Icon Water's commercial and business objectives, activities, and priorities, as agreed by voting shareholders, are detailed in its annual statement of corporate intent. Icon Water released its statement for 2016–17 to 2019–20 in May 2016.

The *Icon Corporation annual report 2014–15* was provided to the ACT Government in September 2015. The 2015–16 annual report is scheduled to be tabled in the Assembly in late 2016.

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 regulator for the three major metropolitan water utilities in NSW: Sydney Water, Water NSW, and Hunter Water. 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 Primary Industries (DPI Water) manages the State Government's Country Towns Water Supply and Sewerage Program, oversees and monitors regional utility performance, and is the primary regulator for the State's 92 regional LWUs, which serve a total urban population of 1.84 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 Dam Safety NSW, are each responsible for aspects of the regulation of NSW water utilities.

The State's water utilities have obligations under a number of Australian and New South Wales legislation, including the Australian Government's *Corporations Act 2001*, *Privacy Act 1988*, and *Water Management Act 2000*, and the following NSW legislation: *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 Amendment (Review) Act 2014*, *Hunter Water Act 1991*, *Sydney Water Act 1994*, and the *Sydney Water Catchment Management Act 1998*.

F2.2 Establishment of water utilities

The three NSW metropolitan utilities, (Sydney Water, Water NSW, 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 1998*, 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 section 12 of the *Sydney Water Act 1994*), Hunter Water (under Part 5 of the *Hunter Water Act 1991*), and Water NSW (under Part 4 of the *Water NSW Act 1998*). The operating licences include obligations relating to water quality, asset management, water quantity, environmental/catchment management, compliance, and performance reporting.

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.

DPI Water is the primary regulator of the 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 government financial assistance towards the capital cost of backlog infrastructure (as at 1996) and for dividend payments to councils' general revenue is conditional on the implementation of the 19 requirements of the Framework.

Each LWU needs to prepare a 30-year strategic business plan, total asset management plan (TAMP), and financial plan, which are reviewed by DPI Water.[1] Each LWU also needs to undertake extensive community consultation (DPI Water 2012) and has to prepare and implement a risk-based drinking water management system (NSW Health and DPI Water 2013), in accordance with the *Australian drinking water guidelines 2011*. The water-quality management systems need to be independently audited.

Each LWU also needs to prepare and implement a 30-year integrated water-cycle management (IWCM) strategy for water supply, sewerage, and stormwater that '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. DPI Water reviews each LWU's IWCM strategy and provides confirmation to each utility that its final IWCM strategy is sound.

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

Each 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 will therefore become 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 DPI Water, where insights and expertise obtained from DPI Water'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 DPI Water section 90(1) concurrence.

Under section 61 of the *Local Government Act 1993*, DPI Water 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.

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

NSW Health regulates water quality in NSW and administers functions relating to water suppliers (Sydney Water, 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 Water NSW) 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,[2] which tests and monitors the water quality of samples collected by the LWUs in accordance with the *Australian drinking water guidelines 2011*.

1 The strategic business plan is an LWU's peak planning document for water supply and sewerage. The plan 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.

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

The Office of Environment and Heritage regulates the environmental impact of water utilities' operations through environmental protection licences issued under the *Protection of the Environment Operations Act 1997* and through memorandums of understanding with the utilities. Annual reports of compliance performance, required by the licences, are publicly available on the NSW Environment Protection Authority website.

Dams Safety NSW regulates the water utilities with respect to dam safety. The *Dams Safety Act 1978* enables the committee to direct the utilities to undertake works, surveillance, and emergency planning to ensure the safety of dams in New South Wales.

DPI Water also licenses the extraction of water from natural surface water and groundwater sources for supply to Hunter Water and LWU customers.

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 4 million people in Sydney, the Illawarra, and the Blue Mountains. Drinking water is sourced from a network of dams managed by Water NSW and from the desalination plant at Kurnell before it is treated and delivered to customers.

Water NSW is a State-owned corporation established in 2015 by the *Water NSW Act 2014* through the merging of the Sydney Catchment Authority and State Water Corporation. Water NSW supplies raw water in bulk. The urban component of Water NSW 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.

DPI Water annually reports the performance of all the New South Wales utilities.[3] 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.

3 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 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. DPI Water 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, including 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 W*ater 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 objectives 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.

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 *2004 Australian drinking water guidelines*.

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 to it 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. Many of the NPR indicators are audited in accordance with NPR auditing requirements.

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 of South Australia 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 Essential Services Commission of South Australia (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 760,000 customers, servicing around 95 per cent of the State's population. SA Water Corporation also provides sewerage services to approximately 590,000 customers, servicing around 76 per cent of the State's population.

The 66 other water and sewerage retailers provide drinking water to approximately 6,000 customers and sewerage services to around 85,000.

F4.4 Operation of water utilities

Section 35 of the *Water Industry Act 2012* empowers the Essential Services Commission (the Commission) of South Australia 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 first independent revenue determination for SA *Water Corporation Act 1994* in May 2013, setting maximum allowed revenues for drinking water and sewerage retail services for the 3-year period from 1 July 2013–30 June 2016.

A different, proportional approach to price regulation has been applied to other water retailers for the Initial Regulatory Period (1 July 2013–30 June 2017) 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.

F4.5 Performance reporting

The Essential Services Commission of South Australia produces annual 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 include the Tasmanian Economic Regulator (TER), which is responsible for licensing, price regulation, and service standards; Director of the Environment Protection Authority (EPA), for environmental performance; Director of Public Health (drinking water quality and safety); and Secretary of the Tasmanian Department of Primary Industries, Parks, Water and Environment, for water use and dam safety.

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

F5.2 Establishment of water utilities

Since 1 July 2013, the Tasmanian Water and Sewerage Corporation Pty Ltd (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 licences place a number of regulatory obligations on licensees 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 include ensuring that: infrastructure planning occurs on a statewide basis; service is delivered consistently; governance arrangements between council owners and TasWater are streamlined; and opportunities are created for cost savings.

F5.3 Operation of water utilities

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 to meet other regulatory obligations.

The Tasmanian EPA administers and enforces the provisions of the *Environmental Management and Pollution Control Act 1994* and 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 guidelines and for the fluoridation of drinking water.

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 (i.e. customers are required to be paying the same price for the same service irrespective of where they live in Tasmania 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 (i.e. the estimated demand placed on the system) of each property.

F5.4 Performance reporting

One of the TER's regulatory functions is to monitor and report on the performance of Tasmanian regulated entities.[4] The performance indicators reported upon are based on the National Performance Reporting Framework with some additional Tasmanian based measures, as set out in the TER's performance and information reporting guidelines.

Licensed water utilities are required to carry out regular audits to assess:

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

The approach to regulatory reporting is set out in the TER's regulatory reporting guidelines.

The independent appraisal of TasWater's performance indicators was carried out in three tranches over three years, between 2013–14 and 2015–16. A second round of independent appraisals is scheduled to occur between 2016–17 and 2018–19. TasWater undertook reviews of its *Emergency management plan* and *Compliance plan* during 2014–15 while a review of its *Asset management plan* was completed in 2015–16.

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 Energy and Water Supply (DEWS) administers the Queensland *Water Supply (Safety and Reliability) Act 2008*. Chapter 2 of the *Water Supply 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.

DEWS also administers the Queensland *South East Queensland Water* (*Distribution and Retail Restructuring) Act 2009*, which provides for council-owned distributor retailers and the operation of council water businesses in South East Queensland (SEQ).

Chapter 4 of the Queensland *Water Act 2000* provides the administrative and reporting framework for Category 1 water authorities. The Queensland *South East Queensland Water (Restructuring) Act 2007* governs the provision of bulk water services in SEQ by Seqwater. DEWS jointly administers this Act with Queensland Treasury.

4 The TER's annual Water and Sewerage state of the industry reports are available on its website, www.economicregulator.tas.gov.au

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* (administered by DEWS)
- *Public Health Act 2005 and Regulations*, *Water Fluoridation Act 2008* and the Water Fluoridation Regulation 2008 (administered by the Queensland Department of Health).

Water quality—discharges to the environment

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

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 DEWS)
- *Environmental Protection Act 1994* and Regulations (administered by the Queensland Department of Environment and Heritage Protection)
- *Local Government Act 2009* and Regulations (administered by the Queensland Department of Infrastructure, Local Government, and Planning)
- *Plumbing and Drainage Act 2002* and Queensland Development Code (administered by the Queensland Department of Housing and Public Works)
- *Sustainable Planning Act 2009* (administered by the Queensland Department of Infrastructure, Local Government, and Planning), to be replaced by the *Planning Act 2016* from mid 2017).

Pricing

- *South East Queensland Water (Distribution and Retail Restructuring) Act 2009 and Water Act 2000* (administered by DEWS)
- *Local Government Act 2009* and Regulations (administered by the Queensland Department of Infrastructure, Local Government, and Planning)
- *Queensland Competition Authority Act 1997* (administered by Queensland Treasury).

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.

The regulatory approach aligns with the NPR framework and uses mandatory reporting on key performance indicators and public and comparative performance reporting. It is anticipated to drive service improvement and improved planning and infrastructure management by fostering a reputational incentive for better performance and enhancing accountability to customers by opening provider performance to public scrutiny. Transparency for customers should be improved as service providers are now required to consult on and publish customer service standards as well as publish annual reports.

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

The Queensland Competition Authority is responsible for monitoring retail and distribution pricing in South East Queensland and 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.[5] This includes many entities that are not traditional utilities.

With the exception of Mt Isa in the northwest of the State, all residential water service providers with more than 5,000 connections are concentrated in South East Queensland and along the east coast north to Douglas Shire.

The smaller providers commonly service small populations over a large and/or remote location, such as Indigenous council areas and rural towns. The majority (68 per cent) of residential water service providers in Queensland have less than 5,000 residential connections. In many cases, these connections are spread over a number of isolated supply schemes within the council water supply area.

In South East Queensland, there are five distribution and retail providers: the two local government-owned distributor retailers (Queensland Urban Utilities and Unitywater) and three local governments that provide water and sewerage services directly (Gold Coast, Logan, and Redland City Council). Seqwater now performs all bulk production and transport services in South East Queensland.

F6.5 Performance reporting

DEWS is the Queensland Water Supply Regulator. It 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 DEWS 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 DEWS 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

DEWS 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.

DEWS administers the NPR process for Queensland.

5 Data is supplied by the Queensland Water Supply Regulator, current as at 1 January 2016, https://www.google.com.au/url?url=https://www.dews.qld.gov.au/__data/assets/excel_doc/0011/88967/service-provider-register.xlsx&rct=j&frm=1&q=&esrc=s&sa=U&ei=3njhVI_eNcm8AWCwILgDw&ved=0CBoQFjAB&usg=AFQjCNFJqlG_2SZVSrtGXD_2g9y4N4VMpw

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 (2012), 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 4I 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 corporations' proposed strategic directions and business management activities in terms of their potential for financial risk to the business and its implications for the Victorian Government, focusing on the State's budget, net debt position, and credit rating.

The DHHS Services 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 businesses. The Regulations establish an auditing framework.[6] Under the legislation, the DHHS Services 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 businesses 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.

6 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.

Water utilities are also subject to EPA works approval permits before constructions of new treatment plants or major alterations can begin.[7]

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,[8] and Westernport Water).

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

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

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

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

- setting the entity's strategic direction and steering the entity
- setting objectives and performance targets
- 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.

7 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

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

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.[9] They include details about proposed revenue requirements and tariffs and pricing structures and are assessed by the ESC.

F7.5 Performance reporting

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

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).

9 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.

F8 Western Australia

F8.1 Introduction

The WA Department of Water 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–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'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 Environment 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 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 km^2. 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 Rottnest Island Authority, Robe River Mining Company, Peel Water, WA Sewage, and four small regional local governments.[10]

10 Between April and September 2016, the WA Minister for Water exempted 15 small regional local government sewerage and non-potable water suppliers from being licensed. The exemption is for a period of five years.

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.