



Australian Government
Bureau of Meteorology

National performance report 2020–21: **urban water utilities**

////////////////////////////////////

PART A



Publication details

National performance report 2020–21: urban water utilities, part A
February 2022

ISBN: 978-1-925738-36-0
ISSN: 1837-7572

Published by the Bureau of Meteorology
GPO Box 1289
Melbourne VIC 3001
(03) 9669 4000

water@bom.gov.au



With the exception of logos and photography, this publication is licensed under a Creative Commons Attribution 3.0 Australia License. The terms and conditions of the licence are available at <http://creativecommons.org/licenses/by/3.0/au/>

© Commonwealth of Australia (Bureau of Meteorology) 2022

Cover image: Aerial view of Sydney Harbour, New South Wales.

An appropriate citation for this publication is: Bureau of Meteorology 2022, *National performance report 2020–21: urban water utilities, part A*, Bureau of Meteorology, Melbourne

Acknowledgements

Data for this report were supplied by Australian urban water utilities.

Data coordination was undertaken by the Bureau of Meteorology, the Independent Pricing and Regulatory Tribunal of New South Wales (for Sydney Water Corporation, Hunter Water Corporation, and WaterNSW); the Department of Planning, Industry and Environment (for all other New South Wales utilities); the Department of Regional Development, Manufacturing and Water (for Queensland utilities); the Department of Environment, Land, Water and Planning (for Victorian utilities); the Economic Regulation Authority and Department of Water and Environmental Regulation (for Western Australian utilities); the Department for Environment and Water and Office of the Technical Regulator (for SA Water Corporation); the Environment, Planning and Sustainable Development Directorate (ACT) (for Icon Water Limited); the Department of Treasury and Finance (Northern Territory) (for Power and Water); and the Office of the Tasmanian Economic Regulator (for TasWater).

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

Disclaimer

This report has been produced by the Bureau of Meteorology with support from 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.



Australian Government

Bureau of Meteorology

National performance report 2020–21: urban water utilities

PART A



Contents

A guide to this report	6
Key terms and abbreviations	6
Interpreting 'overview of results' tables	7
Interpreting box-and-whisker plots	8
Interpreting data and commentary	8
Executive summary	9
1 Introduction	11
1.1 Context and overview	11
1.2 Reporting	11
1.3 Locations of utilities	12
1.4 Key drivers	12
1.4.1 Rainfall	12
1.4.2 Temperature	14
1.4.3 Utility size	15
1.4.4 Sources of water	15
2 Major urban centres	19
2.1 Water resources	19
2.1.1 Volume of water sources – W1, W2, W3.1, W26	19
2.1.2 Average volume of residential water supplied per property – W12	20
2.1.3 Total volume of recycled water supplied – W26	21
2.2 Pricing	21
2.2.1 Total typical residential bill – P8	21
2.3 Environment	22
2.3.1 Total net greenhouse gas emissions per 1,000 properties – E12	22
2.4 Finance	23
2.4.1 Combined operating cost per property: water supply and wastewater – F13	23
2.4.2 Total capital expenditure: water supply and wastewater – F16	23
2.5 Customers	24
2.5.1 Total water and sewerage complaints per 1,000 properties – C13	24
2.5.2 Average duration of an unplanned interruption: water supply – C15	24
3 Water resources	26
3.1 Average annual residential water supplied – W12	26
3.1.1 Key findings	26
3.1.2 Results and analysis – Major utility group	27
3.2 Total recycled water supplied – W26	27
3.2.1 Key findings	29
3.2.2 Results and analysis – Major utility group	29
4 Pricing	30
4.1 Typical residential bill: water supply and wastewater – P8	30
4.1.1 Key findings	30
4.1.2 Results and analysis – Major utility group	31
4.2 Annual residential bill based on 200 kL per annum: water supply and wastewater – P7	33
4.2.1 Key findings	33
4.2.2 Results and analysis – Major utility group	33

5	Finance	35
5.1	Total capital expenditure: water supply and wastewater – F16	35
5.1.1	Key findings	35
5.1.2	Results and analysis – Major utility group	36
5.2	Capital expenditure per property: water supply (F28) and wastewater (F29)	36
5.2.1	Key findings	36
5.2.2	Results and analysis – Major utility group	37
5.3	Combined operating cost per property: water supply and wastewater – F13	39
5.3.1	Key findings	39
5.3.2	Results and analysis – Major utility group	40
5.4	Community service obligations ratio – F8	40
5.4.1	Key findings	42
5.4.2	Results and analysis – Major utility group	42
6	Customer	43
6.1	Average duration of an unplanned interruption: water – C15	43
6.1.1	Key findings	43
6.1.2	Results and analysis – Major utility group	45
6.2	Number of water and sewerage complaints per 1,000 properties – C13	45
6.2.1	Key findings	45
6.2.2	Results and analysis – Major utility group	47
6.3	Percentage of calls answered by an operator within 30 seconds – C14	47
6.3.1	Key findings	47
6.3.2	Results and analysis – Major utility group	49
7	Asset	50
7.1	Number of water main breaks, bursts and leaks per 100 km of water mains – A8	50
7.1.1	Key findings	50
7.1.2	Results and analysis – Major utility group	51
7.2	Number of sewer mains breaks and chokes – A14 and property connection sewer breaks and chokes – A15 per 1,000 properties	51
7.2.1	Key findings	53
7.2.2	Results and analysis – Major utility group	54
7.3	Real losses: service connections – A10	54
7.3.1	Key findings	54
7.3.2	Results and analysis – Major utility group	57
8	Environment	59
8.1	Total net greenhouse gas emissions per 1,000 properties – E12	59
8.1.1	Key findings	59
8.1.2	Results and analysis – Major utility group	60
9	Health	61
9.1	Percentage of population for whom microbiological compliance was achieved – H3	61
9.1.1	Key findings	61
9.1.2	Results and analysis – Major utility group	61
	Appendix A Individual utility group tables	62
	Appendix B Audit framework	99
	Appendix C Utilities reporting	101
	Appendix D Urban performance indicators	103
	Appendix E CPI indexation	109
	Appendix F Jurisdictional summaries	110

A guide to this report

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

Key terms and abbreviations

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

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

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

Abbreviations used in utility names include:

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

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

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

Bulk water authorities

Bulk water authorities operate in a number of jurisdictions across Australia and provide wholesale water and wastewater services. These authorities do not have direct relationships with retail customers. For example, Melbourne Water supplies bulk water and wastewater services to the 8 retail utilities in and surrounding the Melbourne metropolitan region.¹

Utility groups

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

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

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

¹ City West Water, South East Water Ltd, Yarra Valley Water Corporation, Western Water, Central Gippsland Water, Barwon Water, South Gippsland Water, and Westernport Water

Reporting year

References to the 'reporting year' or '2020–21' refer to the reporting year between 1 July 2020 and 30 June 2021 inclusive.

Missing or unavailable data

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

Interpreting 'overview of results' tables

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

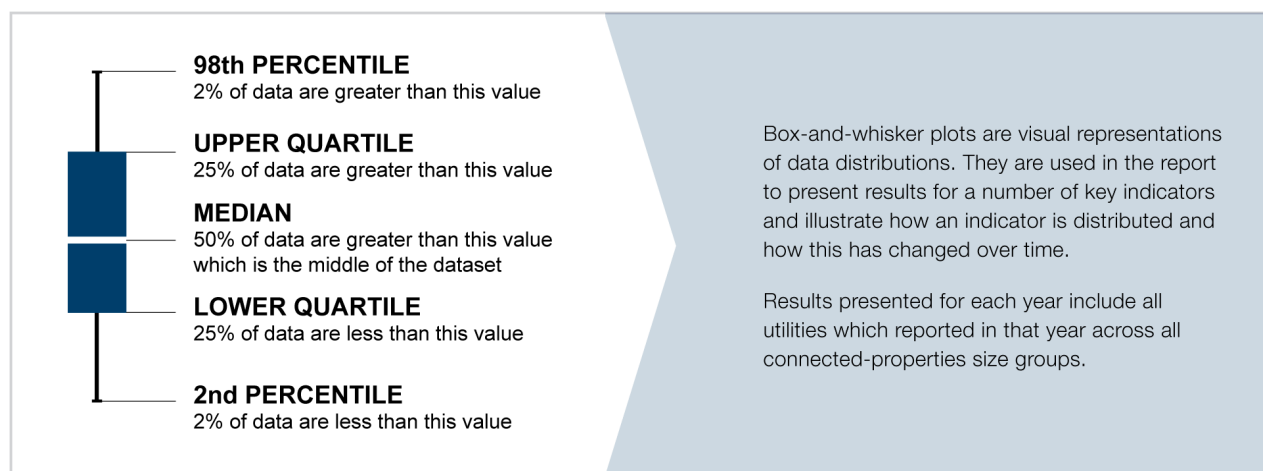
Size group	Range		Number of utilities with increase/decrease from previous year		Median or Total		Change from previous year (%)
	High	Low	Increase	Decrease	Previous year	Current year	
Major	249	140	10	1	158	162	3
	WC (Perth)	Logan					
Large	454	130	9	1	164	181	10
	P&W (Darwin)	Toowoomba					
Medium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

- 1 The range shows the utilities with the highest and lowest result in the current reporting year for each utility group.
- 2 These columns show the number of utilities reporting an increase or decrease from the previous year's results for each utility group. Utilities that did not report in both years are not included in this column. The figures do not include utilities that reported no change from the previous year.
- 3 The median value is the middle number in the range of results. For example, if five utilities reported for this indicator and their results are 190, 195, 206, 207, and 210, the median is 206 as it is the middle number. The median value is calculated using data from all utilities reporting against this indicator in that year. For indicators that are not represented as an 'average' for the utility (for example, average duration of water interruptions), or are divided by the number of properties (per property), the summary tables present the sum (total) of the results. The total value for a year is the sum of the results for that year of all the utilities that reported in both years.
- 4 This column shows the percentage change between the current and previous years and is rounded to the nearest integer, except in cases where additional precision is required.
- 5 'Multiple utilities' is used when more than one utility recorded the same value.

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

Interpreting box-and-whisker plots

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



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

Interpreting data and commentary

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

- The indicator codes are noted in the titles of each section (for example, W12, F3, P7) and can be cross-referenced with the *National urban water utility performance reporting framework: indicators and definitions handbook, January 2018*. The median is the preferred metric for the reporting dataset, as outlier results can affect the average (mean), which can skew results towards the outliers.
- The median is the value at which 50% of utilities fall above and 50% fall below that point. Where average results are presented in addition to the median, they are to be interpreted together with the full dataset.
- Many factors can influence the performance of a utility, and individual performance indicators need to be interpreted in context. A low ranking for one indicator may not accurately reflect the overall performance of a utility. For example, a utility might have a low operating cost per property, but also poor drinking water quality and environmental performance, and a high level of complaints.
- In discussions of indicators, the 'normaliser' is often omitted to improve the flow of the commentary about indicators. For example, in the discussion of results for water main breaks per 100 km of water main, the commentary refers to a utility's 'water main breaks'. In this case, it is not the absolute number of water main breaks, rather, the number of breaks per 100 km from the water main.
- Single-service utilities are only included in the analysis of an indicator when a comparison can be made on a like-for-like basis with utilities that provide both water and sewerage services. For example, the overview tables for water and sewerage operating expenditure per connected property and for typical residential bills do not include single-service providers, but the overview tables for sewer overflows per 100 km of sewer main include all utilities that provide sewerage services.
- Financial time series information is given in real 2020–21 dollars; the impact of inflation is removed to ensure that years can be compared on a like-for-like basis. Consumer price index (CPI) figures can be found in Appendix E (CPI indexation).
- The percentage (%) change is calculated from the 2019–20 reporting year to 2020–21 with figures rounded to the nearest integer, except in cases where additional precision is required.

Executive summary

The National performance report 2020–21: urban water utilities (2021 Urban NPR) compares the performance of 81 utilities and councils (utilities) and 5 bulk water authorities providing urban water services to over 23 million people across Australia. The 2021 Urban NPR is published by the Bureau of Meteorology (the Bureau) with information provided by utilities across Australia's states and territories. The report is the sixteenth in the series, and the eighth to be produced by the Bureau.

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

Urban water use increased with warm conditions and improved rainfall

Nationally, total urban water use rose by over 11% in 2020–21 despite varying results in major urban centres. Adelaide and Perth reported increased water supplied, whereas other capital cities reported decreased water sourced in 2020–21. Improved rainfall conditions across much of Australia replenished many surface water storages, particularly in regional New South Wales. The 2020–21 year was the wettest for Australia since 2016–17 and followed 3 drier-than-average financial years. December 2020 was Australia's third-wettest December on record, and for New South Wales, March 2021 was the second-wettest March on record. In combination with increased surface water availability, mean daily temperatures in 2020–21 were above to very much above average across most of Australia, increasing demand for water in some of Australia's urban areas.

Shift back to surface water supplies to meet water demand for New South Wales and South Australia

High surface water availability for much of south-eastern Australia saw a shift towards surface water sources and away from groundwater and desalination to supply water to urban users in New South Wales and South Australia in 2020–21. Surface water supplies in New South Wales increased by 69% compared to 2019–20, with water sourced from desalination decreasing by 72%. For South Australia, high surface water availability in 2020–21 meant desalinated water was not required to facilitate the Water for Fodder program, which in 2019–20 helped farmers maintain their breeding stock during the drought. For South-East Queensland, a gradual decline in surface water in storages since 2018 has coincided with an increase in water supplied from desalination. Desalination increased by 41% compared to 2019–20; however, it only accounted for 6% of total water sourced.

Groundwater and desalination remain as important water sources for Perth urban water users, collectively accounting for around 90% of Perth's total water supplies in 2020–21.

Typical residential bills (water supply and wastewater) decreased slightly

Nationally, there was a slight decrease (0.4%) in the typical residential bills compared to 2019–20. This continued the downward trend reported over the past several years. The total typical residential bill decreased across all major urban centres, with Adelaide and Sydney reporting the highest percentage decreases of 17.9% and 10.4%, respectively, compared to 2019–20.

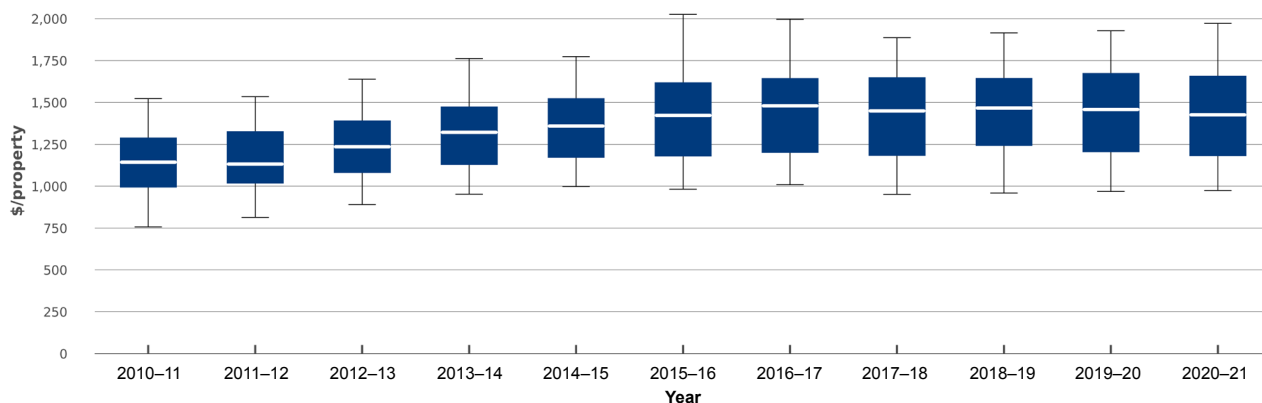


Figure 1 Typical residential bill: water supply and wastewater (\$), 2010–11 to 2020–21

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

Increasing trend in capital expenditure on water services continued

In real terms, total capital expenditure on water supply services by utilities increased for the sixth consecutive year. When combined with wastewater services, total capital expenditure decreased slightly – decreasing by 2% from \$4.7 billion in 2019–20 to \$4.6 billion in 2020–21.

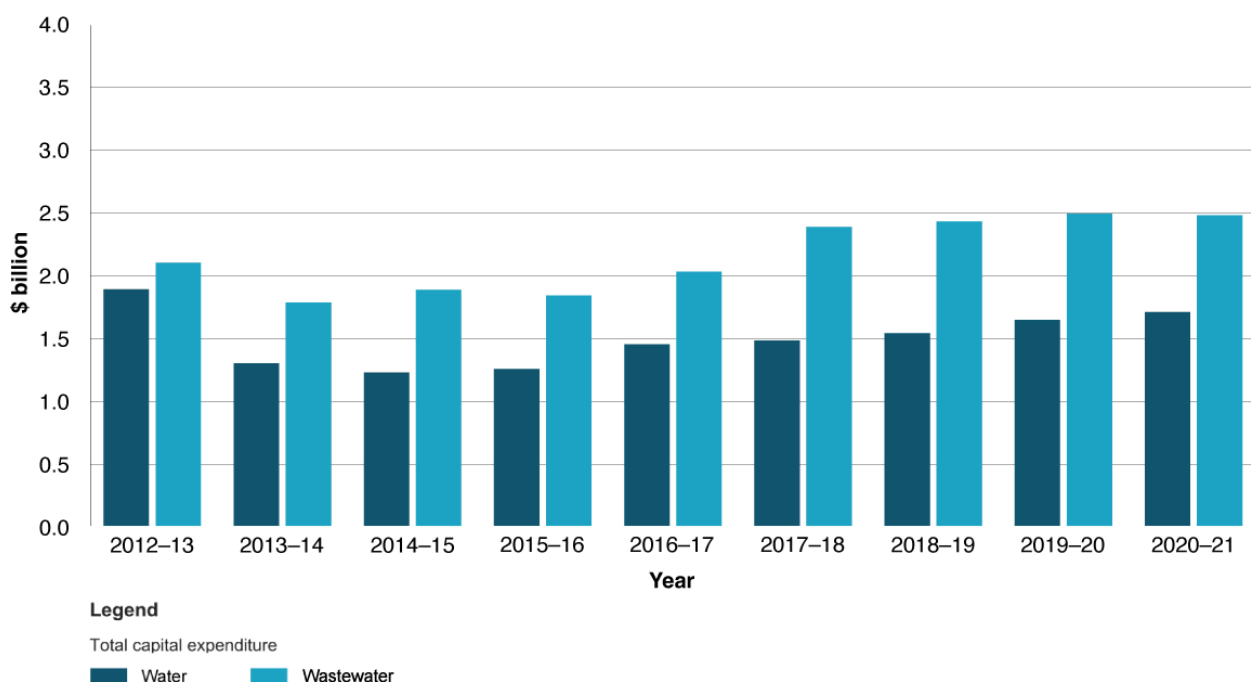


Figure 2 Total capital expenditure: water supply and wastewater (\$ billion) for utilities that reported all 9 years (excluding bulk water utilities)

For more about capital expenditure see Chapter 5 Finance and Tables A5, Appendix A.

1 Introduction

1.1 Context and overview

This *National performance report 2020–21: urban water utilities* (2021 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.²

The 2021 Urban NPR compares the performance of 81 utilities and councils (utilities) and 5 bulk water authorities providing urban water and sewerage services to over 23 million people across Australia. It is produced by the Bureau of Meteorology (the Bureau) in conjunction with state and territory governments and the Water Services Association of Australia.

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

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

The commentary and analysis in this 2021 Urban NPR are not intended to be a comprehensive explanation of every reported indicator. They present some of the more apparent trends or differences between years and utilities. Most of the information is sourced from publicly available sources, such as annual reports, regulatory decisions and utility websites.

1.2 Reporting

The 86 utilities contributing data to the 2021 Urban NPR (including 5 bulk water authorities) are listed in Appendix C. Table 1.1 summarises the utility size groups by jurisdiction.

Seventy-two of the 86 utilities included in this report provide both reticulated water supply and wastewater (sewerage) services. The remaining utilities provide only water supply or sewerage services. In summary, the report includes data for:

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

Snowy Monaro Regional Council reported for the first time (in the Small size group).

Table 1.1 Utilities reporting in the 2021 Urban NPR by size group and jurisdiction

Jurisdiction	Bulk	Major	Large	Medium	Small	Total
Australian Capital Territory		1				1
New South Wales	2	3	1	13	12	31
Northern Territory			1		1	2
Queensland	2	4	4	5	7	22
South Australia		1				1
Tasmania		1				1
Victoria	1	4	6	5	1	17
Western Australia		1	1		9	11
Total	5	15	13	23	30	86

² National Water Initiative clauses 75–76

1.3 Locations of utilities

Figure 1.1 shows the administrative boundaries of all utilities reporting data for the 2021 Urban NPR. Further details about the utilities are available from the relevant utility websites. While SA Water Corporation provides services across South Australia, it does not provide water and wastewater services to all communities, which are also serviced by councils and private entities.³

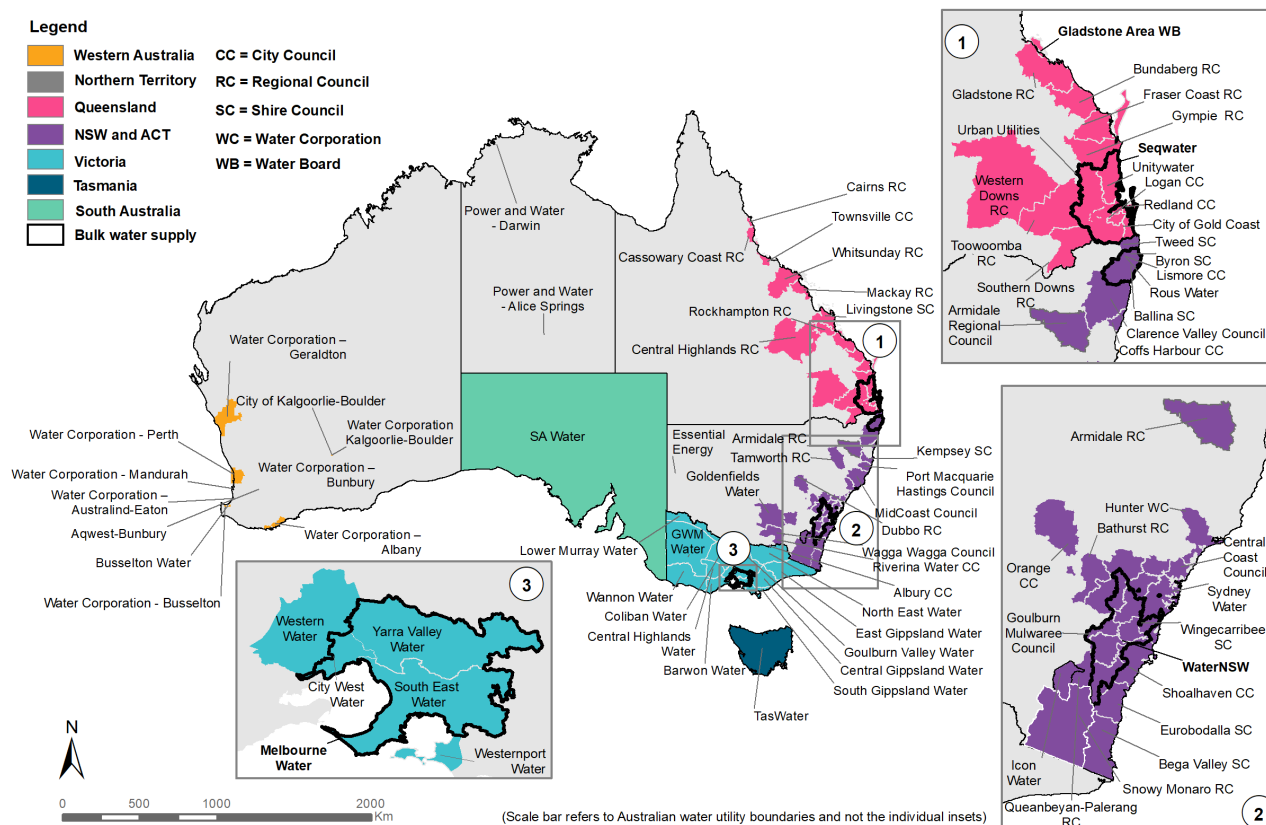


Figure 1.1 The administrative boundaries of all utilities reporting data for 2020–21

1.4 Key drivers

Key drivers of water utility performance presented in the 2021 Urban NPR include rainfall, temperature, utility size and sources of water.

Other factors – network density, soil types, the age and condition of infrastructure, impacts of the COVID-19 pandemic, and government policy and regulation – also affect performance but are not discussed in detail.

1.4.1 Rainfall

Rainfall can affect utility performance in many ways.

- Significant droughts with prolonged periods of low rainfall can stress urban water supply systems. Depending on the severity of the drought, security of the system and availability of climate-resilient water sources (for example, desalinated or recycled water), the utility may impose water restrictions to conserve water and ensure continuity of the water supply.
- Wet or dry conditions can affect demand for outdoor watering, resulting in a change in the volume of urban water and recycled water supplied to residents, councils and parklands to be used for outdoor leisure activities such as golf courses (Water resource indicators W12, W26). Changes in water consumption affect the revenue collected by utilities, their profitability, and the strength of their water-usage pricing signal.

³ Maps of cities and towns serviced by SA Water are available in SA Water's 2020–21 annual report pp. 15–19.
https://www.sawater.com.au/_data/assets/pdf_file/0010/589078/SA-Water-2020-21-Annual-Report.pdf

- Wet or dry conditions can affect decisions about the water sources used (Water resource indicators W1 to W7). Persistent dry conditions can trigger thresholds for production from desalination plants and the use of groundwater and recycled water sources, which affect the operating costs of utilities (Finance indicators F11 to F13).
- Increased rainfall can result in infiltration of water into sewer systems, which can increase the volume of sewage to be pumped and treated, increasing the operating costs of utilities (Finance indicators F12, F13) and also greenhouse gas emissions from sewage (Environment indicators E10, E12). Additional rainfall and sewer infiltration can also result in additional sewer overflows, especially during heavy rainfall.
- Extreme wet or dry conditions can cause expansion and shrinking of reactive clay soils in some parts of Australia. This can result in ground movement causing an increase in water or sewer main breaks (Asset indicators A8, A14) – especially when conditions fluctuate rapidly from wet to dry or dry to wet. In periods of more consistent rainfall, the soils maintain more even moisture levels, resulting in less ground movement.

In 2020–21, Australia’s total rainfall was 10% above average (Figure 1.2). It was the wettest financial year for Australia since 2016–17 after 3 drier-than-average financial years. The latter included 2019–20 and 2018–19, which were the third- and fourth-driest financial years since national records began in 1900.

In December 2020, rainfall was above or very much above average for much of the country. That month was Australia’s third-wettest December on record due to a number of tropical lows affecting the north-west of the country and a slow-moving low pressure system on the east coast (for more information see the Bureau’s 2020–21 Climate Report, <http://www.bom.gov.au/climate/updates/articles/a039.shtml>). March 2021 was also very wet, with rainfall for New South Wales more than double the March average, and the second-wettest March on record for the state, behind March 1956. In contrast, rainfall during April 2021 was very low for the south-eastern mainland, with New South Wales experiencing its ninth-driest April on record and South Australia its seventh driest.

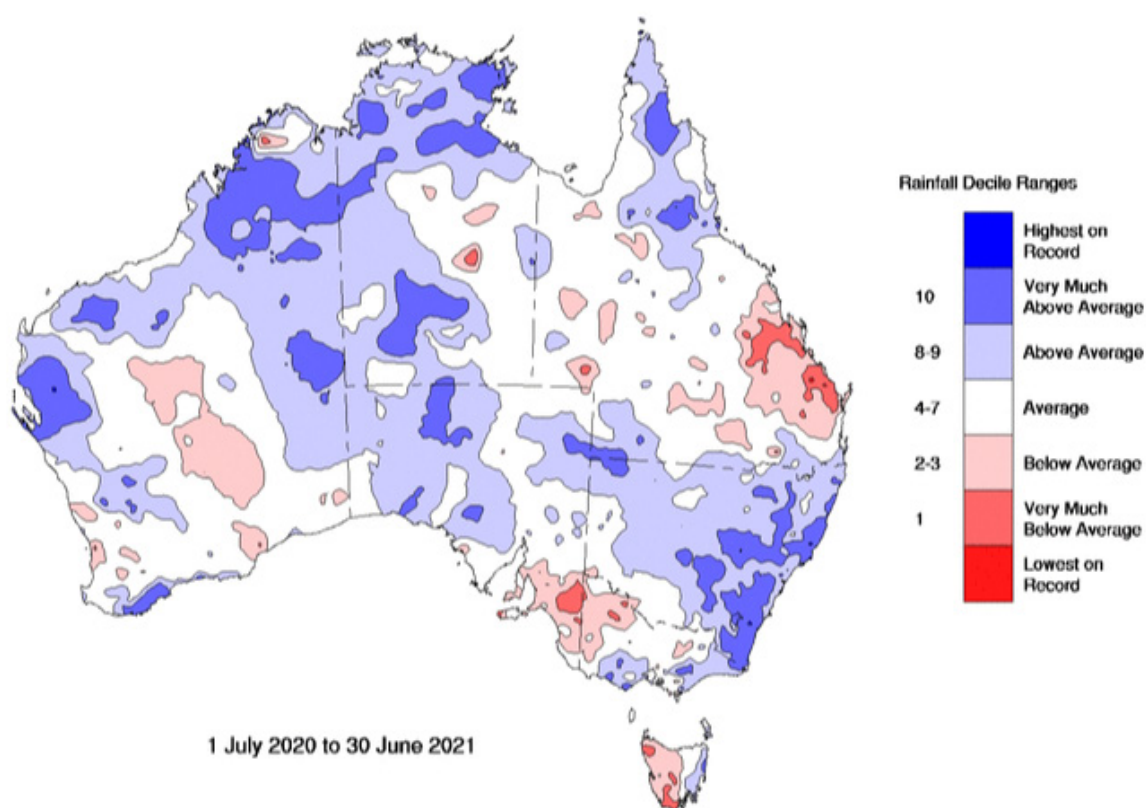


Figure 1.2 Rainfall decile map for 2020–21 (based on all years of data since 1900)

1.4.2 Temperature

There are many relationships between temperature and utility performance.

- Temperature can influence demand, particularly residential and non-residential outdoor demand. Prolonged periods of above-average temperatures can result in increased potable and recycled water (Water resource indicators W12, W26, W27) supply to residents, councils, and parklands to be used for outdoor leisure activities such as golf courses. Changes in water consumption affect the revenue collected by water utilities, their profitability (Finance indicators F3, F24), and the strength of their water-usage pricing signal (Finance indicator F4).
- Hot weather can increase the risk of bushfires, resulting in resources being deployed to protect water supply catchments and mitigate the impacts of a bushfire. Emergency deployments can affect operating expenditure (Finance indicators F11–F13). When responding to a bushfire, temporary water restrictions may be put in place to ensure the availability of supply and to meet firefighting requirements during extreme fire weather. These restrictions can affect the volume of water supplied by a utility and its operating cost and revenue. Poor water quality in a burnt catchment can affect water available for supply.
- Extended periods of heat or cold can affect the quality of water sources and supply, and thus decisions about water sources used (Water resource indicators W1 to W7) and the level of treatment required. For example, a heatwave can contribute to the decline in dissolved oxygen levels in a waterbody and can trigger the need to supply water from an alternative source, or increase water treatment, which affects the operating costs of utilities (Finance indicators F11 to F13).
- Changes in temperature can affect the quality of treated water as biological processes are particularly sensitive to extremes of heat or cold and rapid fluctuations in temperature. These events can have consequences for the quality of water supplied (Health indicators H1 to H5) and the need for treatment, which affects the operational costs of a utility (Finance indicators F11 to F13).
- Extended hot conditions cause dry soil conditions. Consequently, many trees will seek out moisture, and their roots can enter the sewer system, causing blockages and breaks (Asset indicators A14, A15), as well as increasing the number of water main breaks (Asset indicator A8).

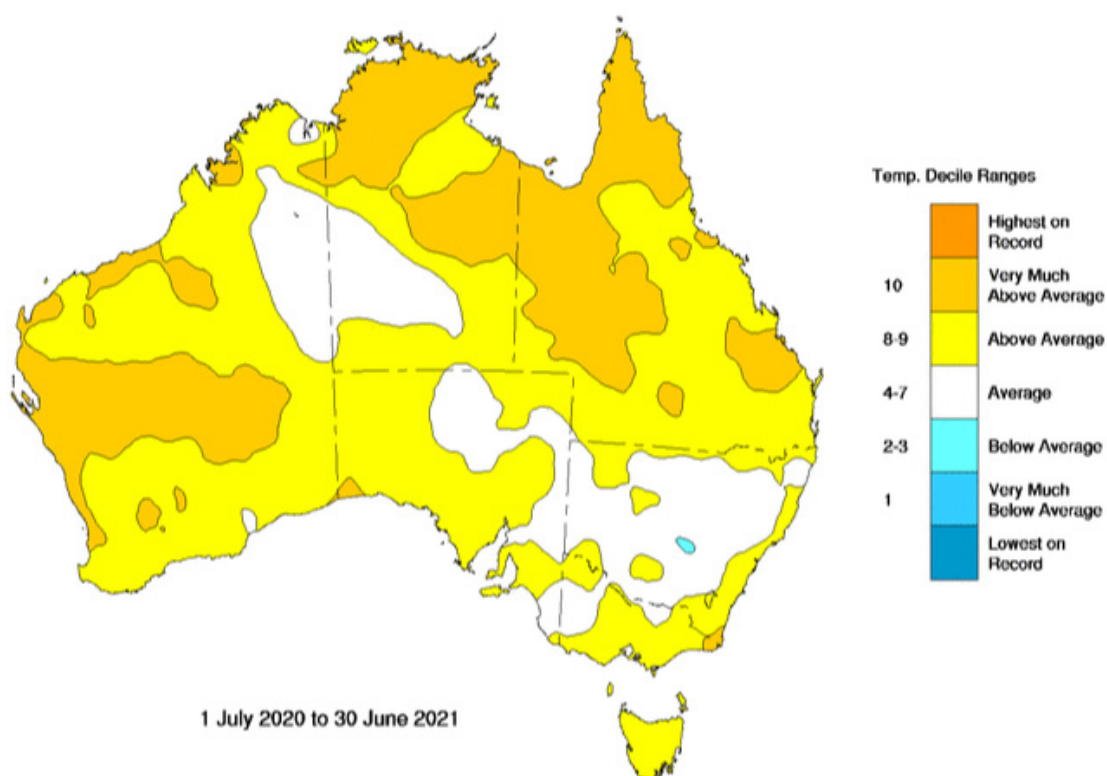


Figure 1.3 Mean daily temperature deciles for 2020–21 (based on all years of data since 1910)

In 2020–21, mean daily temperatures were above to very much above average across most of Australia (Figure 1.3). Large areas in north Queensland, far eastern Victoria and the western part of Australia experienced very much above average temperatures, both daytime and night-time. However, in 2020–21, Australia was cooler than the preceding 3 financial years, which were each among the 5 warmest financial years since national records began in 1910. The 2020–21 financial year was just outside the 10 warmest financial years on record. The mean temperature anomaly was 0.83 °C above the 1961–90 average, and both daytime and night-time temperatures were warmer than average (for more information see the Bureau's 2020–21 Climate Report, <http://www.bom.gov.au/climate/updates/articles/a039.shtml>). Warm conditions were widespread and persistent throughout the early part of 2020–21, with November 2020 being the warmest on record. In November, large areas of the country experienced daily maximum temperatures more than 10 °C above average over a number of days (Smithville in New South Wales and Birdsville Airport in Queensland recorded 4 consecutive days above 46 °C).

1.4.3 Utility size

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

1.4.4 Sources of water

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

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

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

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

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

Figure 1.4 shows the annual supply from different sources of water, and the total supply, for utilities in each state and territory from 2016–17 to 2020–21.

- Water sourced from surface waters (that is, rivers, streams, and dams; Water resource indicator W1) is the dominant water source in all states and territories except Western Australia, where most of the water is sourced from groundwater (Water resource indicator W2) and desalinated marine water (Water resource indicator W3.1).

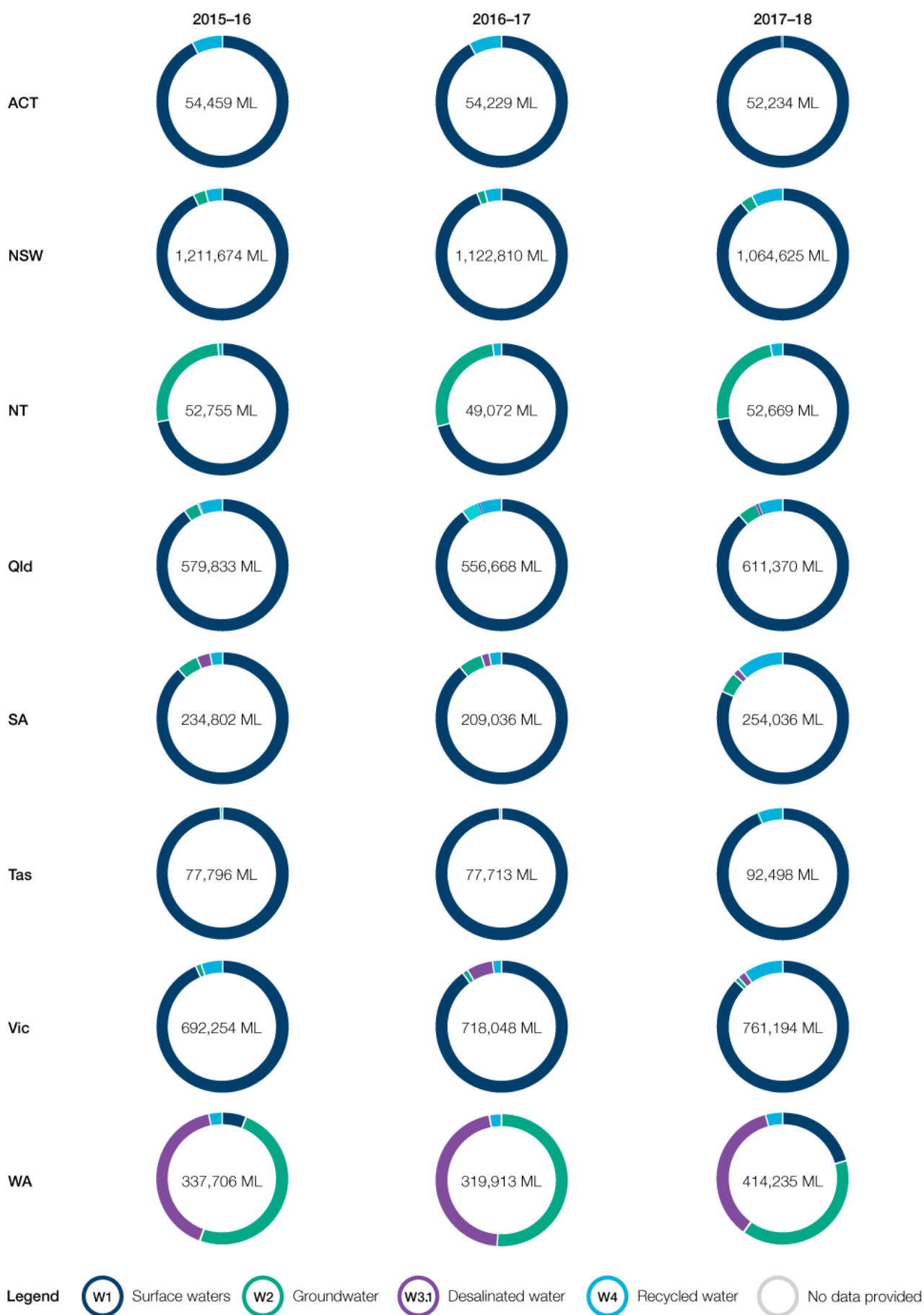


Figure 1.4a Water source breakdown (W1, W2, W3.1, W4/W26) in each state and territory, 2015-16 to 2017-18

Note: W26 replaced W4 to represent recycled water sources as W4 was discontinued. Please refer to the reporting handbook for details on the definition of W26.

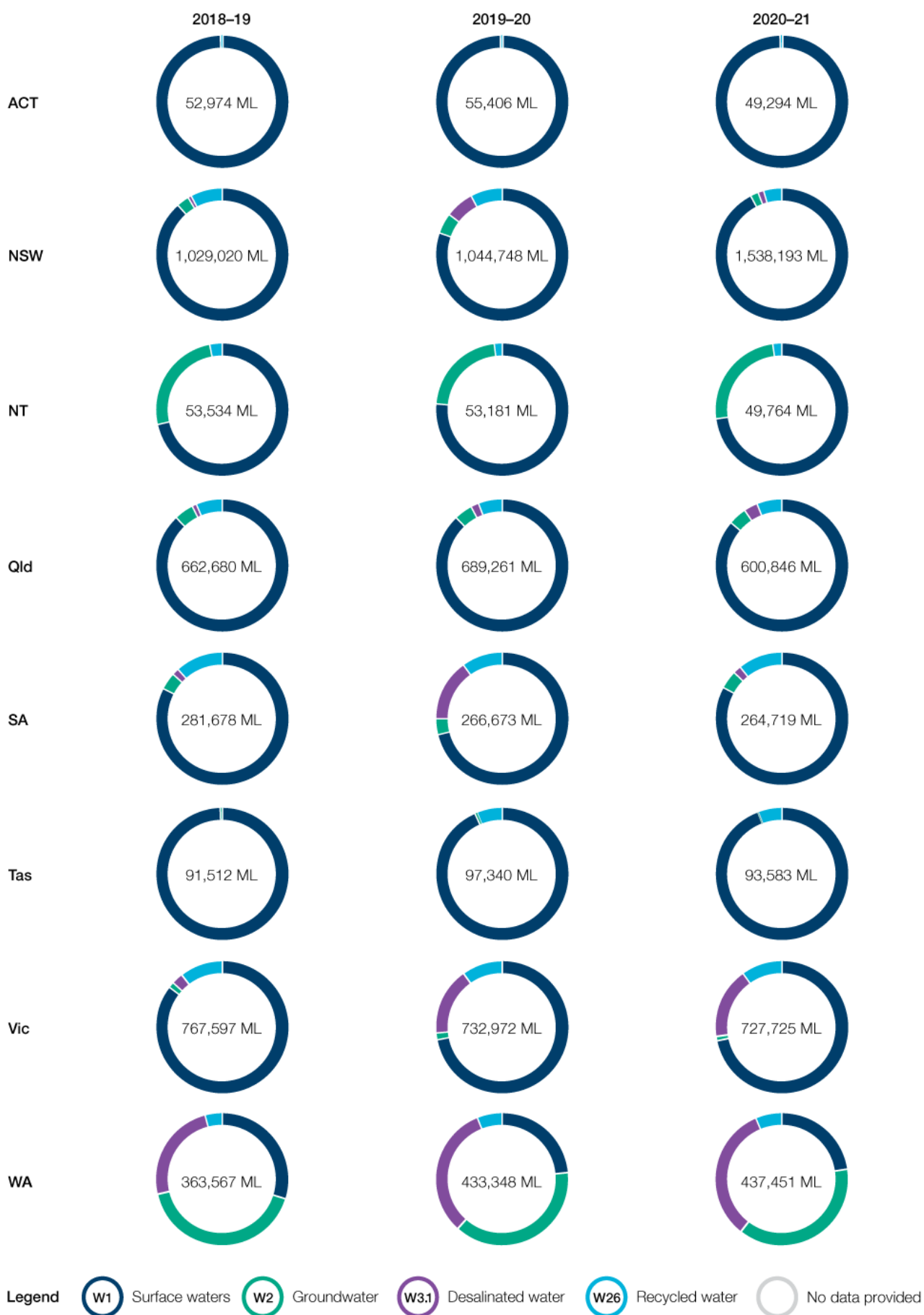


Figure 1.4b Water source breakdown (W1, W2, W3.1, W4/W26) in each state and territory, 2018–19 to 2020–21

Note: W26 replaced W4 to represent recycled water sources as W4 was discontinued. Please refer to the reporting handbook for details on the definition of W26.

- In 2020–21, total water sourced nationally increased by 11.5%, driven by a 20% increase in water sourced from surface water. With above-average rainfall and increased surface water available in storages, there was a shift towards surface water sourced, with a decline in total water sourced from other sources.
- The national increase in total surface water extraction can be attributed to a 69% increase in surface water supplied in New South Wales and a 16% increase in South Australia. All other states reported a decrease in surface water supplied compared to 2019–20, with Queensland reporting the highest percentage decrease (15%).
- The volume of water sourced from groundwater across the country decreased by 8% from 2019–20. New South Wales reported the highest percentage decrease (37%). South Australia, the Northern Territory and Western Australia all recorded small increases in water sourced from groundwater compared to 2019–20.
- The volume of water sourced from desalinated water in 2020–21 decreased significantly from 2019–20; South Australia and New South Wales reported decreases of 87% and 72%, respectively. This decrease coincided with increased surface water availability. For South Australia, it also reflects that in 2019–20, Adelaide's desalination plant was used to facilitate the Australian Government's Water for Fodder program⁴, which helped farmers maintain their breeding stock during the drought. In 2020–21, water sourced from desalination was no longer needed for that purpose. Queensland reported a 40% increase compared to 2019–20, but this increase came from a relatively low base as desalinated water only accounted for 3% of the total water sourced for Queensland in 2020–21. As in previous years, Western Australia sourced the highest volume of water from desalination.
- Total volume of recycled water supplied across the country decreased slightly (by 6%) from 2019–20.

⁴ <https://www.agriculture.gov.au/water/mdb/programs/basin-wide/water-for-fodder>

2 Major urban centres

This chapter provides comparative tables and figures for a selection of key indicators for major urban centres.

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

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

Table 2.1 Data sources for capital city analyses

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

2.1 Water resources

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

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

Nationally, total water sourced for major urban centres decreased by 5% from 2019–20 to 2020–21. Perth and Adelaide reported a 2% increase in water sourced by volume, but total water sourced decreased for all other major cities. South East Queensland had the largest decrease (17%).

Perth remains the largest supplier of groundwater (137,064 ML) and desalinated marine water (143,641 ML) to an urban centre. Melbourne sourced the highest volume of recycled water (41,716 ML) followed by Sydney (37,669 ML), which sourced the highest volume in 2019–20.

Adelaide and Sydney's reliance on desalination water decreased by 87% and 72%, respectively, due to increases in surface water availability.

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

Major urban centre	Surface water (W1)		Groundwater (W2)		Desalinated marine water (W3.1)		Recycled water (W26)		Total	
	2019–20	2020–21	2019–20	2020–21	2019–20	2020–21	2019–20	2020–21	2019–20	2020–21
Adelaide	127,928	163,007			40,001	5,139	23,803	26,627	191,732	194,773
Canberra	55,331	49,267					75	27	55,406	49,294
Darwin	40,663	36,313	2,794	4,271					43,457	40,584
Melbourne ^a	330,687	313,791			118,879	125,381	42,877	41,716	492,443	480,888
Perth	17,424 ^b	17,157 ^b	135,517	137,064	140,048	143,641	20,681	22,579	313,670	320,441
South East Queensland ^c	365,315	290,939	14,842	13,699	13,805	19,486	14,874	15,468	408,836	339,592
Sydney ^d	467,605	510,487			71,147	19,609	46,919	37,669	585,671	567,765

Notes:

a Melbourne's surface water is sourced from Melbourne Water and South East Water, while its recycled water is sourced from Melbourne Water and the 3 retailers (Yarra Valley Water, South East Water, and City West Water). Western Water is not included in the Melbourne major urban centre.

b Perth's surface water (W1) volume reflects Water Corporation transferring water into surface water storages. In 2020–21, it diverted 98,358 ML from surface water (W1) and returned 81,201 ML. In 2019–20, WC (Perth) diverted 101,929 ML from surface water (W1) and returned 84,505 ML.

c South East Queensland's surface water, groundwater, and desalinated water are sourced from Seqwater. South East Queensland's recycled water is sourced from Seqwater and the retailers (Urban Utilities, Unitywater, Gold Coast and Redland City).

d Sydney's surface water (W1) is the total of the water received by Sydney Water Corporation from WaterNSW and water it sources directly.

2.1.2 Average volume of residential water supplied per property – W12

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

The volume of residential water supplied decreased from 2019–20 to 2020–21 for most major urban centres. The exception was Perth, whose annual average volume of residential water supplied was steady at 227 kL/property.

Canberra had the highest decrease (13%), which reflects to the high rainfall Canberra received during the period. Canberra's annual average volume per property in 2020–21 is the lowest it has been over the past 5 years.

Sydney continued a downward trend, reporting a 2% decrease from 2019–20 to 2020–21; its 2020–21 average is 10% lower than that of 2016–17.

Table 2.3 Average volume of residential water supplied per property (kL/property)

Major urban centre ^a	2016–17	2017–18	2018–19	2019–20	2020–21	Change from 2019–20 (%)
Adelaide	171	195	202	198	196	-1
Canberra	190	197	204	202	176	-13
Darwin	361	368	380	373	360	-3
Melbourne ^b	149	0	151	148	147	-1
Perth	223	219	219	227	227	0
South East Queensland ^b	158	0	158	162	159	-2
Sydney	206	215	199	189	186	-2

Notes:

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

b Melbourne and South East Queensland figures are the weighted averages for their respective retailers (i.e. W8 – Total volume of water supplied to residential customers/C2 – Number of connected residential properties: water supply).

2.1.3 Total volume of recycled water supplied – W26

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

Total recycled water supply across the major urban centres decreased by 3% from 2019–20, but it is still 8% higher than 2017–18 levels. Adelaide and Perth increased their supply of recycled water (by 12% and 9%, respectively), while Sydney had the largest decrease in volume (9,250 ML). Darwin did not supply any recycled water to customers in this reporting year.

See Section 3.2 for recycled water supplied by all utilities.

Table 2.4 Total volume of recycled water supplied (ML)

Major urban centre	2016–17 ^a	2017–18	2018–19	2019–20	2020–21	Change from 2019–20 (%)
Adelaide	21,316	26,564	30,533	23,803	26,627	12
Canberra	4,404	77	60	75	27	-64
Darwin	541	451	488	0	0	0
Melbourne ^b	32,442	38,147	45,535	42,877	41,716	-3
Perth	9,568	12,100	9,817	20,681	22,579	9
South East Queensland ^b	14,755	13,056	15,445	14,874	15,468	4
Sydney	38,339	42,833	44,020	46,919	37,669	-20

Notes:

a Data for 2016–17 were sourced from the 2016–17 published NPR, as the definition of W26 changed from 2017–18.

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

2.2 Pricing

2.2.1 Total typical residential bill – P8

Table 2.5 reports the total typical residential bill (\$) for water supply and wastewater in each major urban centre.

All major urban centres reported a decrease in total typical residential bill for 2020–21 with Adelaide reporting the largest decrease (17.9%). In real terms, total typical residential bills for Canberra, Darwin, Melbourne and Sydney in 2020–21 are lower than 2016–17 levels.

Customers in Melbourne and Sydney had the lowest typical residential bill across all major urban centres (\$1,022), while those in Darwin had the highest, continuing the pattern seen in previous years.

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

Table 2.5 Total typical residential bill (\$)

Major urban centre ^a	2016–17	2017–18	2018–19	2019–20	2020–21	Change from 2019–20 (%)
Adelaide	1,243	1,330	1,355	1,337	1,098	-17.9
Canberra	1,212	1,223	1,175	1,189	1,100	-7.5
Darwin	1,916	1,905	1,917	1,887	1,831	-3.0
Melbourne ^b	1,070	1,064	1,035	1,027	1,022	-0.5
Perth	1,479	1,533	1,593	1,632	1,598	-2.1
South East Queensland ^b	1,425	1,466	1,472	1,512	1,503	-0.6
Sydney	1,158	1,180	1,135	1,141	1,022	-10.4

Notes:

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

b Melbourne and South East Queensland figures are the weighted average of the retail utilities (i.e. P3 – Typical residential bill: water supply/C2 – Number of connected residential properties: water supply and P6 – Typical residential bill: wastewater/C6 – Number of connected residential properties: wastewater).

2.3 Environment

2.3.1 Total net greenhouse gas emissions per 1,000 properties – E12

The contribution of the utilities' operations to greenhouse gas (GHG) emissions (t CO₂ equivalent/1,000 properties), aggregated by major urban centre, is reported in Table 2.6.

Emissions decreased for most of the major cities, and the highest decrease in emissions occurred in Canberra (41%).

Perth continued to report the highest net greenhouse gas emissions per 1,000 properties, which correlates with the high percentage of water sourced from desalination in that city.

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

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

Major urban centre	2016–17	2017–18	2018–19	2019–20	2020–21	Change from 2019–20 (%)
Adelaide	250	285	434	332	342	3
Canberra	242	268	363	331	196	-41
Darwin	179	229	215	213	199	-7
Melbourne ^a	268	243	249	278	249	-10
Perth	828	754	510	701	695	-1
South East Queensland ^{b d}	-	179	200 ^c	204	205	0
Sydney	176	173	180	175	169	-3

Notes:

a Melbourne figures are the weighted average of the 3 retailers (i.e. E12/C4 – Total connected properties) and Melbourne Water. Melbourne Water's emissions are calculated based on the total connected properties of the 3 retailers.

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

c Gold Coast did not report against this indicator in 2017–18.

d No data were available for South East Queensland in 2016–17.

2.4 Finance

2.4.1 Combined operating cost per property: water supply and wastewater – F13

Table 2.7 reports the combined operating cost (\$/property) of the utilities' water and sewerage operations, aggregated by major urban centre.

In real terms, combined operating costs per property decreased for all major urban centres except Adelaide, which reported a 3% increase. Darwin, which experienced a large increase in from 2018–19 to 2019–20 due to changes in corporate overheads and COVID-19, reported a decrease of 6% in 2020–21. Canberra and Sydney also reported large decreases (10% and 9%, respectively).

See Section 5.3 for combined operating cost for all utilities.

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

Major urban centre ^a	2016–17 ^a	2017–18 ^a	2018–19	2019–20	2020–21	Change from 2019–20 (%)
Adelaide	580	573	601	546	561	3
Canberra ^b	1,046	965	1,014	965	873	-10
Darwin	1,026	963	912	1,215	1,147	-6
Melbourne	960	932	940	934	898	-4
Perth	626	628	564	631	603	-4
South East Queensland	1,136	1,164	1,201	1,234	1,183	-4
Sydney ^c	718	695	741	743	677	-9

Notes:

a Data for 2017–18 and later are equal to F13; for 2016–17 the data are equal to F11 – Operating cost per property: water supply plus F12 – Operating cost per property: wastewater.

b Canberra figures for 2016–17 include a water abstraction charge and a utilities network facility tax.

c Sydney figures are for Sydney Water and include the bulk water purchases from WaterNSW.

2.4.2 Total capital expenditure: water supply and wastewater – F16

Table 2.8 reports the combined capital expenditure (\$000s) related to the utilities' water and sewerage operations, aggregated by major urban centre.

The sum of total capital expenditure for water supply and wastewater across all capital cities decreased slightly from 2019–20 to 2020–21, and all but one major urban centre reported a decrease in total capital expenditure. The largest decreases were reported by Adelaide (17%) and Canberra (16%), who both reported large increases in the previous year. The only major urban centre to report an increase was Melbourne with 4%.

See Section 5.1 for combined capital expenditure for all utilities.

Table 2.8 Total capital expenditure: water supply and wastewater (\$000s)

Major urban centre	2016–17	2017–18	2018–19	2019–20	2020–21	Change from 2019–20 (%)
Adelaide	283,968	219,630	290,238	345,599	285,502	-17
Canberra	97,968	92,001	90,764	103,819	87,233	-16
Darwin	23,733	47,625	34,479	20,802	20,568	-1
Melbourne	845,012	917,356	999,332	1,050,558	1,089,687	4
Perth	464,259	495,224	474,939	405,194	371,371	-8
South East Queensland	600,920	622,745	708,323	837,105	827,771	-1
Sydney	691,690	846,968	1,194,870	1,030,995	988,592	-4

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

2.5 Customers

2.5.1 Total water and sewerage complaints per 1,000 properties – C13

Table 2.9 reports the total number of complaints per 1,000 properties received by utilities for water and sewerage services, aggregated by major urban centre.

Four out of the 7 major urban centres experienced improved customer satisfaction (based on complaints as an indicator of satisfaction) with a decrease in the number of complaints received in 2020–21. Perth had the lowest levels of complaints with 0.6 total water and sewerage complaints per 1,000 properties, and Canberra had the largest decrease in complaints (35%).

Perth, Sydney, and South East Queensland also experienced an improvement in customer satisfaction.

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

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

Major urban centre	2016–17	2017–18	2018–19	2019–20	2020–21	Change from 2019–20 (%)
Adelaide ^a	2.5	2.5	2.1	2.2		
Canberra	4.3	3.7	2.8	3.4	2.2	-35
Darwin	85.1	68.4	60.4	50.9	59.2	16
Melbourne	6.3	6.2	6.9	6.9	7.7	11
Perth	0.8	1.2	0.8	0.8	0.6	-25
South East Queensland	5.1	5.2 ^b	5.3	5.7	5.7	-1
Sydney	2.1	2.2	2.4	2.1	2.0	-5

Notes:

a No data were available for Adelaide in 2020–21.

b Logan did not report against this indicator before 2017–18.

2.5.2 Average duration of an unplanned interruption: water supply – C15

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

Adelaide and Melbourne were the only 2 major urban centres that had a decrease in the average duration of unplanned interruptions to water supply (by 8% and 3%, respectively). Those cities are at levels lower than their 2016–17 reporting year.

The highest increase was reported by Perth, which had a 26% increase in the average duration of unplanned interruptions for water. Perth experienced an increased number of burst mains in 2020–21, which incurred relatively longer repair times.

Darwin had major unplanned interruptions in 2020–21.

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

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

Major urban centre	2016–17	2017–18	2018–19	2019–20	2020–21	Change from 2019–20 (%)
Adelaide	195	237	243	204	188	-8
Canberra	135	125	135	136	147	8
Darwin					139	
Melbourne	106	101	95	101	98	-3
Perth	103	112	103	111	140	26
South East Queensland	94	125	124	114	121	6
Sydney	133	155	143	187	200	7

Note: No data are available for Darwin in previous years.

3 Water resources

3.1 Average annual residential water supplied – W12

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

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

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

Average annual residential water supply (W12) data for all utilities reporting in 2020–21 are given in Table A1, Appendix A.

3.1.1 Key findings

Table 3.1 presents a summary of the median average annual volume of water supplied to residential customers by utility size group.

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	227	139	4	10	161	159	-1
	WC (Perth)	Multiple utilities					
Large	360	147	2	9	195	194	-1
	P&W (Darwin)	Multiple utilities					
Medium	477	117	8	14	184	174	-5
	Lower Murray Water	Eurobodalla					
Small	465	93	7	18	201	193	-4
	Central Highlands	Westernport Water					
All size groups (national)	477	93	21	53	180	176	-2
	Lower Murray Water	Westernport Water					

Note: The median average annual residential water supplied (kL/property) for each year is calculated using data from all utilities providing water supply services in that reporting year.

Nationally, there was a 2% decrease in the average annual water supplied in 2020–21. The decrease is consistent with the increased rainfall experienced across most of the country.

The number of utilities reporting a decrease in the average annual residential water supplied was higher than the number of utilities reporting an increase in all size groups (overall 51 out of 76 utilities reported a decrease and 4 reported no change). Riverina Water County Council reported the highest percentage decrease (21.9%) in average annual residential water supplied, and Clarence Valley Council reported the highest percentage increase (42.6%).

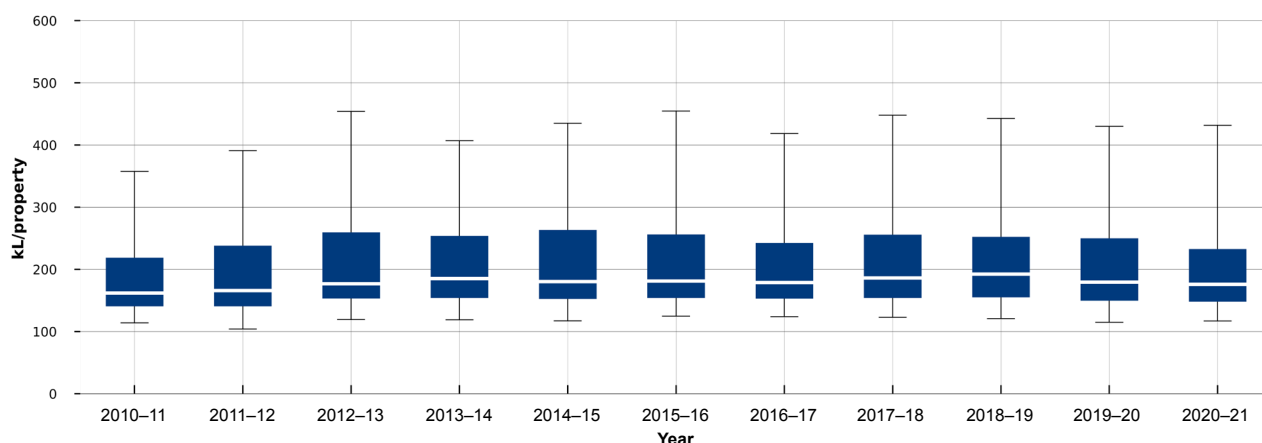


Figure 3.1 Average annual residential water supplied (kL/property)

Figure 3.1 shows a box-and-whisker plot of the average annual volume of residential water supplied for all utilities reporting W12. Across all utilities, the distribution of median residential water supply was smaller when compared to previous years and was similar to that reported in 2016–17, which experienced above-average rainfall nationally.

3.1.2 Results and analysis – Major utility group

Figure 3.2 shows a ranked breakdown of the average volume of residential water supplied for each utility in the Major utility group.

The largest volumes supplied to residential customers occurred in the Water Corporation – Perth and SA Water Corporation regions (227 and 192 kL/property, respectively).

Variations ranged from a 12.9% decrease by Icon Water Limited (Canberra) to a 1.9% increase by Central Coast Council.

3.2 Total recycled water supplied – W26

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

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

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

Total recycled water supplied (W26) data for all utilities reporting in 2020–21 are presented in Table A2, Appendix A.

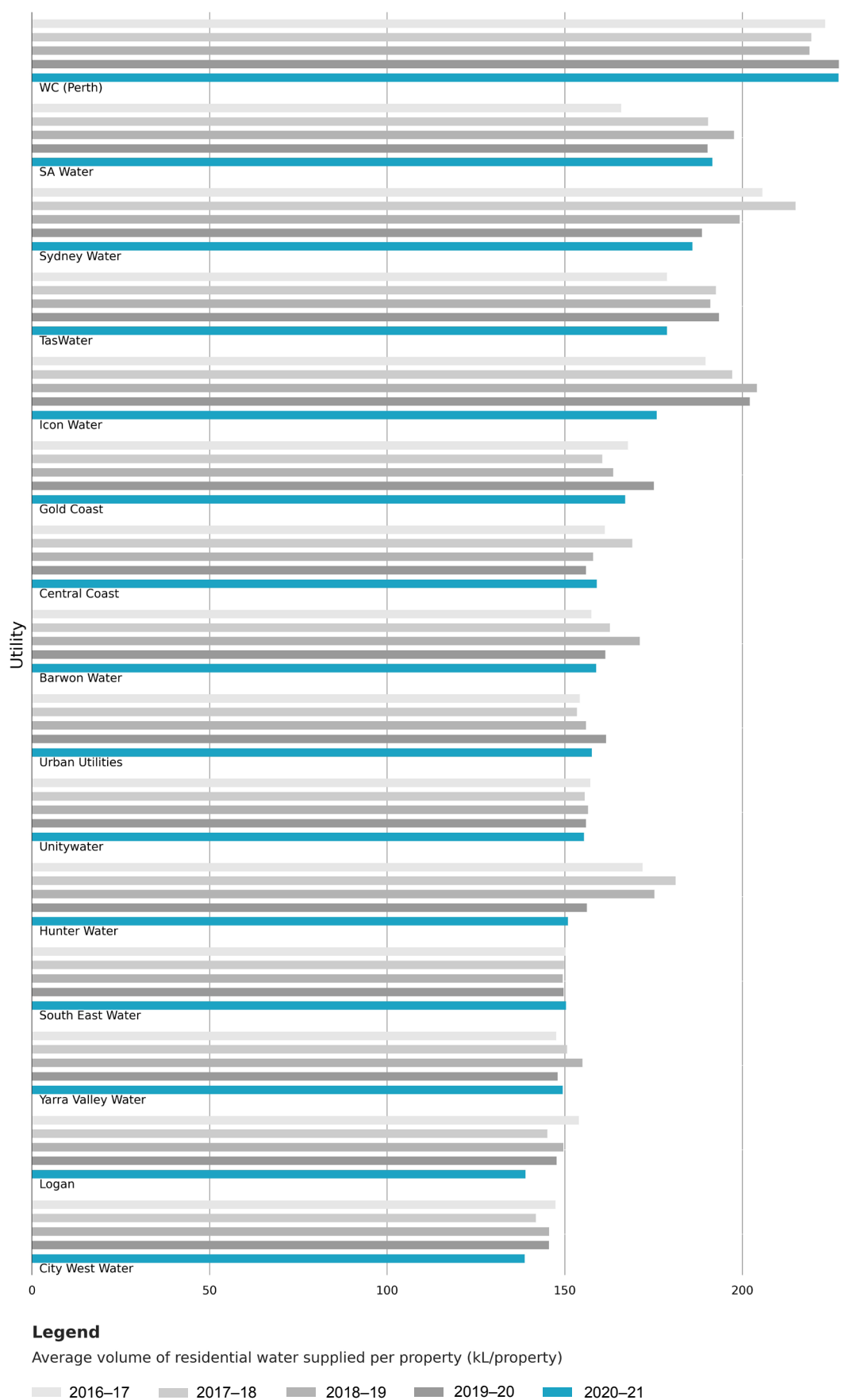


Figure 3.2 Average annual residential water supplied (kL/property – Major utility group)

3.2.1 Key findings

Table 3.2 presents a summary of the total recycled water supplied by utility size group.

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Total		Change in total from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	37,669	27	4	11	136,429	125,598	-8
	Sydney Water	Icon Water					
Large	8,443	0	5	7	27,736	26,086	-6
	North East Water	P&W (Darwin)					
Medium	5,188	86	9	13	37,213	33,852	-9
	Wagga Wagga (S)	Wingecarribee					
Small	2,677	21	12	12	18,242	17,467	-4
	Orange	Lismore					
All size groups (national)	37,669	0	30	43	219,620	203,003	-8
	Sydney Water	P&W (Darwin)					

Note: The total recycled water supplied (ML) is calculated using data from all utilities that reported data for W26 in both the 2019–20 and 2020–21 reporting years.

Nationally, the total volume of recycled water supplied decreased by 8% in 2020–21 with all utility groups reporting a decrease.

There was a large variation in the changes between reporting periods, with Queanbeyan–Palerang Regional Council increasing production by 437.1% while Mackay Regional Council decreased by 88.9%.

3.2.2 Results and analysis – Major utility group

In 2020–21, the total volume of recycled water supplied was 203,003 ML, and over half of this was supplied by the Major utility group (62%). Sydney Water Corporation was the largest supplier of recycled water with 37,669 ML, and Icon Water Limited reported the lowest level (27 ML) of utilities which provided recycle water.

4 Pricing

4.1 Typical residential bill: water supply and wastewater – P8

The typical residential bill (\$) for water supply and wastewater (P8) is the sum of fixed charges and volumetric-usage charges for water and sewage billed to a residential customer. The typical bill is based on each utility's average annual volume of residential water supplied (W12) and its pricing structure (P1, P1.2 to P1.7, P4.1 to P4.3). Prices are set by government or, in some jurisdictions, by a regulator, council, or utility.

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

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

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

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

Historically, residential water bill pricing models have varied across the nation. Most utilities now have a water supply pricing model based on a 2-part structure: a fixed component and a component based on volumetric usage.

Townsville City Council remains an exception: ratepayers have a choice between a fixed allocation and a 2-part structure.⁵

Unlike residential water supply pricing, most utilities have a fixed price model for wastewater services. The exceptions are the Melbourne utilities⁶, Central Coast Council, Essential Energy, Queanbeyan–Palarang Regional Council, Shoalhaven City Council and Unitywater. These utilities have both a fixed and volumetric component in their wastewater charges.

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

Typical residential bill (P8) data for all utilities reporting in 2020–21 are presented in Table A3, Appendix A.

Table 4.1 presents a summary of the median typical residential bills by utility size group.

4.1.1 Key findings

Nationally, median typical residential bills remained almost unchanged for water and wastewater services with a decrease from 2019–20 of less than 1%. Nationally, this translated to a \$6 decrease in the median residential bill. SA Water Corporation from the Major utility group reported a 17.1% decrease and Queanbeyan–Palarang Regional Council from the Medium utility group reported a 32.9% increase.

⁵ www.townsville.qld.gov.au/payments-rates-and-permits/rates

⁶ Western Water, Yarra Valley Water, South East Water and City West Water.

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	1,647	903	3	12	1,189	1,100	-7
	Gold Coast	Central Coast					
Large	1,831	895	3	10	1,369	1,343	-2
	P&W (Darwin)	Goulburn Valley Water					
Medium	1,947	982	9	12	1,501	1,516	1
	Queanbeyan	Lower Murray Water					
Small	2,126	1,180	11	11	1,679	1,627	-3
	Central Highlands	Westernport Water					
All size groups (national)	2,126	895	26	45	1,449	1,443	-0.4
	Central Highlands	Goulburn Valley Water					

Note: The typical residential bill in each year is calculated using data from all utilities supplying both water and wastewater services in that year.

Figure 4.1 shows a box-and-whisker plot of typical residential bills for all utilities reporting data in a given year. For a sixth consecutive year, residential bills have remained steady; the national median remained almost unchanged from 2019–20.

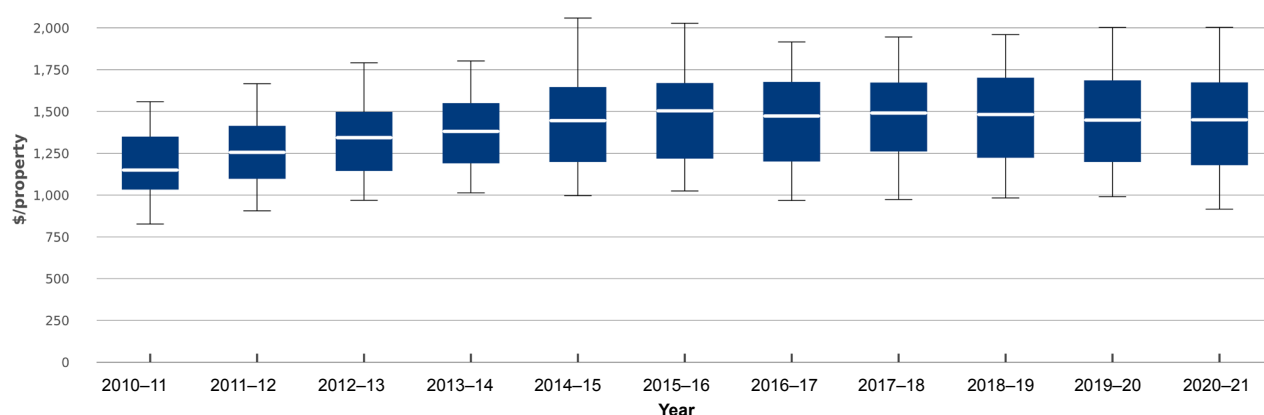


Figure 4.1 Typical residential bill: water supply and wastewater (\$), 2010–11 to 2020–21

4.1.2 Results and analysis – Major utility group

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

Since 2016–17, typical residential bills for Central Coast Council customers have generally trended downwards; they decreased from \$1,324 in 2016–17 to \$903 in 2020–21 and became the cheapest utility in the Major utility group. City West Water, which had previously been the cheapest utility, became the second cheapest in 2020–21.

City of Gold Coast, Water Corporation – Perth and Logan City Council remain the 3 most expensive retailers, consistent with previous years.

The variation in the typical residential bill for the Major utility group is larger than in previous years. The highest percentage increase (8.1%) was at Barwon Water and the greatest percentage decrease (17.1%) was at the SA Water Corporation.

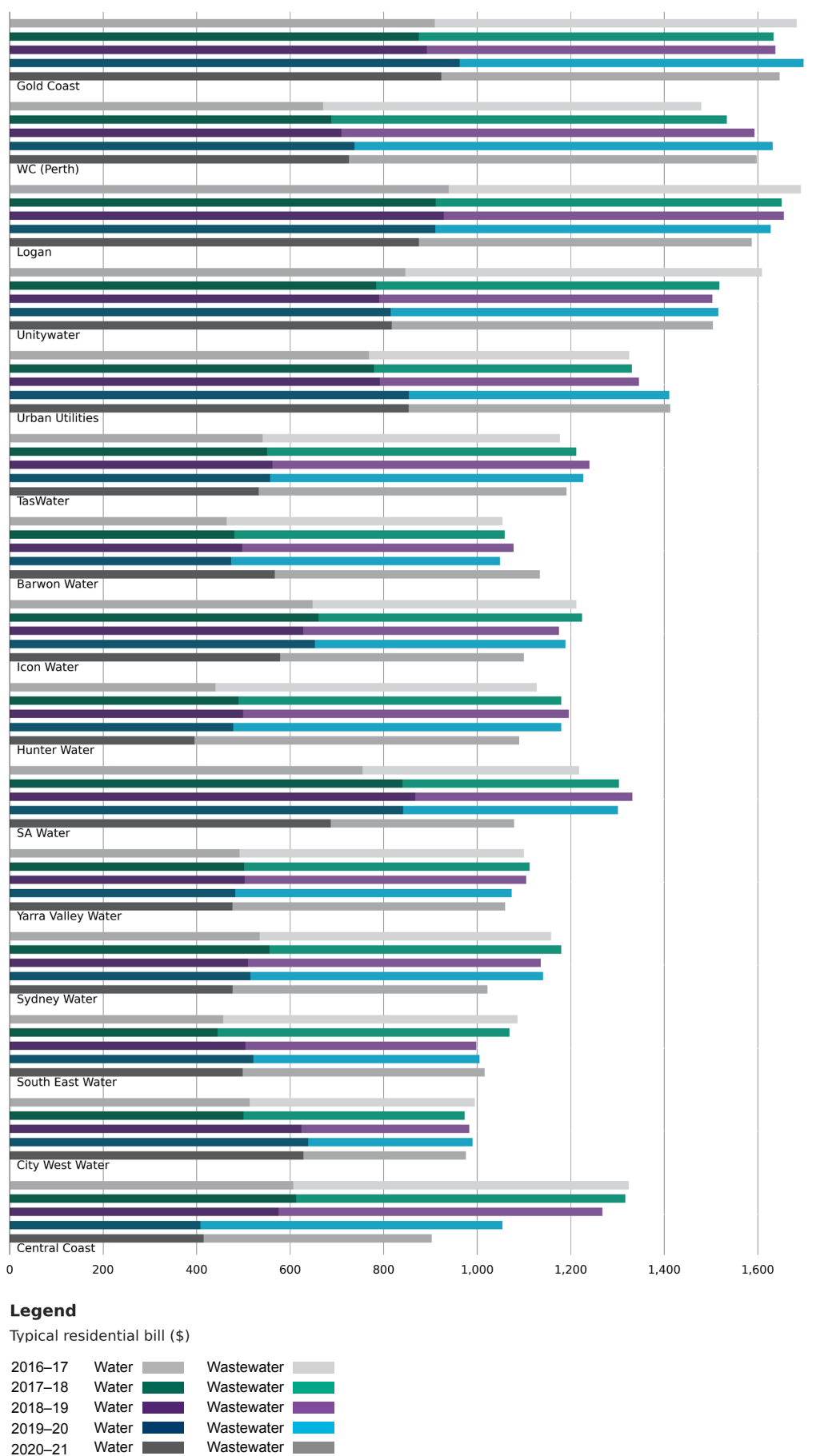


Figure 4.2 Typical residential bill: water supply and wastewater (\$) – Major utility group

4.2 Annual residential bill based on 200 kL per annum: water supply and wastewater – P7

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

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

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

Annual bill based on 200 kL (water supply and wastewater) data for related utilities presented in Table A4, Appendix A.

4.2.1 Key findings

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

Table 4.2 Overview of results: Annual residential bill based on 200 kL per annum: water supply and wastewater (\$)

Utility group	Range		No. utilities with increase/decrease from 2019–20		Total		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	1,840	989	2	13	1,277	1,211	-5
	Logan	Central Coast					
Large	1,770	826	4	9	1,382	1,359	-2
	Toowoomba	Goulburn Valley Water					
Medium	3,036	791	11	9	1,478	1,499	1
	Tweed	Lower Murray Water					
Small	2,112	1,252	14	8	1,626	1,645	1
	Bega Valley	Essential Energy					
All utility groups (national)	3,036	791	31	39	1,478	1,518	2
	Tweed	Lower Murray Water					

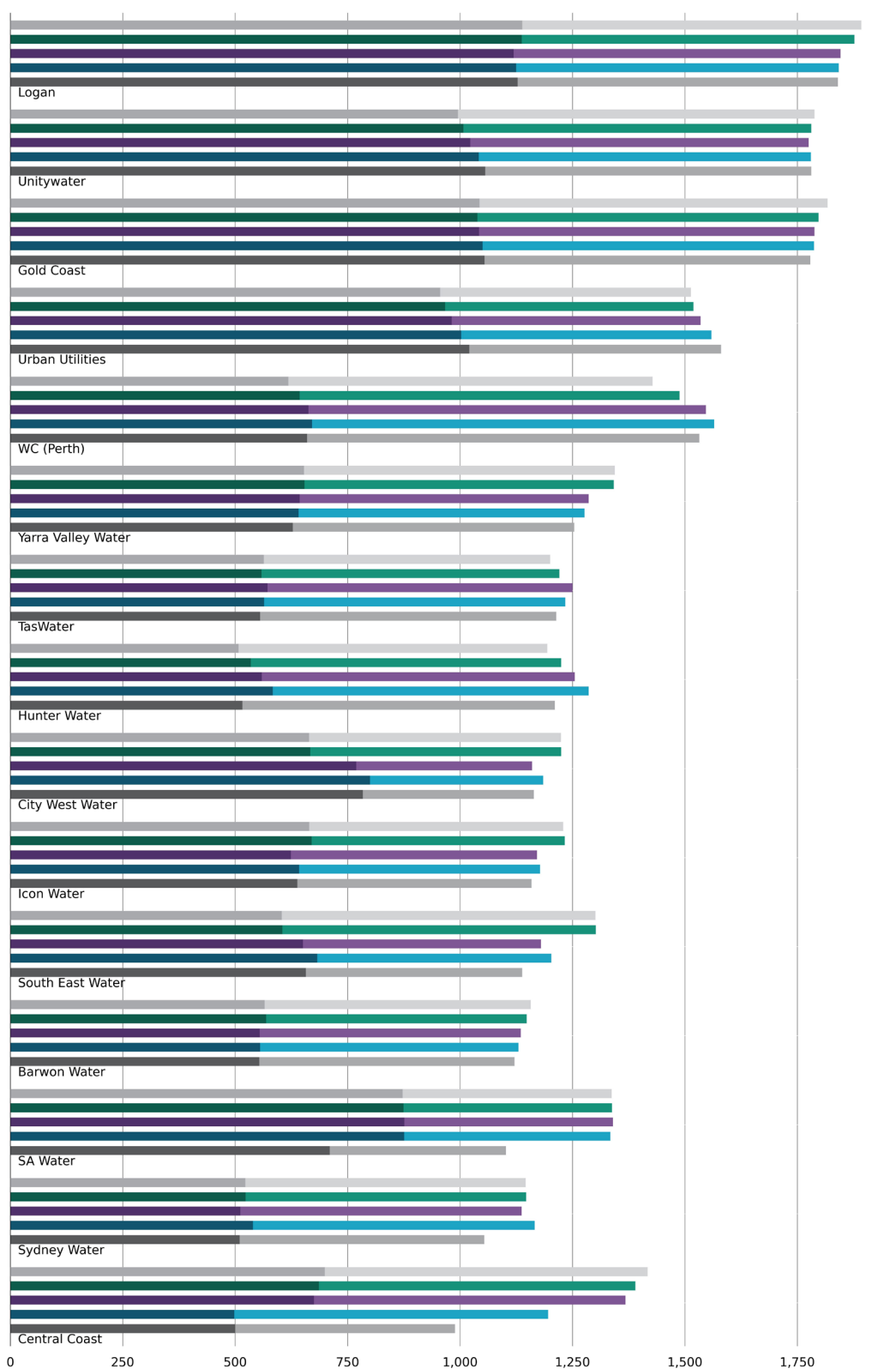
Note: The 200 kL residential bill data for water supply and wastewater for each year are calculated using data from all utilities reporting against the P2 and P5 indicators in that year.

On a 200 kL/annum basis, the national median bill in 2020–21 was a slight (2%) increase from 2019–20. The Major and Large utility groups had decreased by 5% and 2% respectively while all other utility groups had a small increase (1%) compared to 2019–20. The Small utility group had a large variation in changes, from an 20.8% increase by Armidale Regional Council to a decrease of 2.1% by Water Corporation – Australind/Eaton.

4.2.2 Results and analysis – Major utility group

Figure 4.3 presents a ranked breakdown of the annual residential bill based on 200 kL for the Major utility group. The figure reinforces the higher volumetric pricing of water by Queensland's Major utilities as in previous years, but it also demonstrates the decreasing trend over the last 5 periods by Central Coast Council and SA Water Corporation. This decrease was also reflected in the typical residential bill (P8).

Urban Utilities had the highest percentage increase in annual residential bill based on 200 kL in this utility group (1.3%). SA Water Corporation had the largest annual percentage decrease (17.4%).



Legend

Annual bill based on 200kL (\$)

2016-17	Water		Wastewater	
2017-18	Water		Wastewater	
2018-19	Water		Wastewater	
2019-20	Water		Wastewater	
2020-21	Water		Wastewater	

Figure 4.3 Annual bill based on 200 kL: water supply and wastewater (\$) – Major utility group

5 Finance

5.1 Total capital expenditure: water supply and wastewater – F16

Total capital expenditure (\$000s) on water supply and wastewater (F16) provides a measure of the total level of capital investment by each utility and the size of the utility and its capital responsibilities.

Capital expenditure programs often affect operational expenditure. They are influenced by several factors, including the:

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

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

Total capital expenditure for water supply and wastewater data for all utilities reporting in 2020–21 are presented in Table A5, Appendix A.

5.1.1 Key findings

Table 5.1 presents a summary of total capital expenditure for water and wastewater by utility size group. In real terms, total capital expenditure decreased slightly by 2% to \$4.6 billion with the majority of this decrease associated with the capital expenditure from the Major utility group. This follows a significant increase in capital expenditure from the Major utility group in the previous year. The Large and Medium utility groups reported an increase in capital expenditure from 2019–20 to 2020–21.

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

Table 5.1 Overview of results: Total capital expenditure: water and wastewater (\$000s)

Utility group	Range (\$ million)		No. utilities with increase/decrease from 2019–20		Total (\$ million)		Change in total from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	922,079	65,846	5	9	3,811,675	3,656,923	-4
	Sydney Water	Barwon Water					
Large	86,946	9,777	9	4	440,239	475,357	8
	Western Water	Redland City					
Medium	30,347	70	11	8	275,163	300,440	9
	Fraser Coast	Dubbo					
Small	14,348	0	10	10	188,706	166,468	-12
	WC (Geraldton)	Armidale					
All size groups (national)	922,079	0	35	31	4,715,783	4,599,188	-2
	Sydney Water	Armidale					

Note: Total capital expenditure for water and wastewater services in each year is calculated using data from utilities reporting against F14 and F15 in both years.

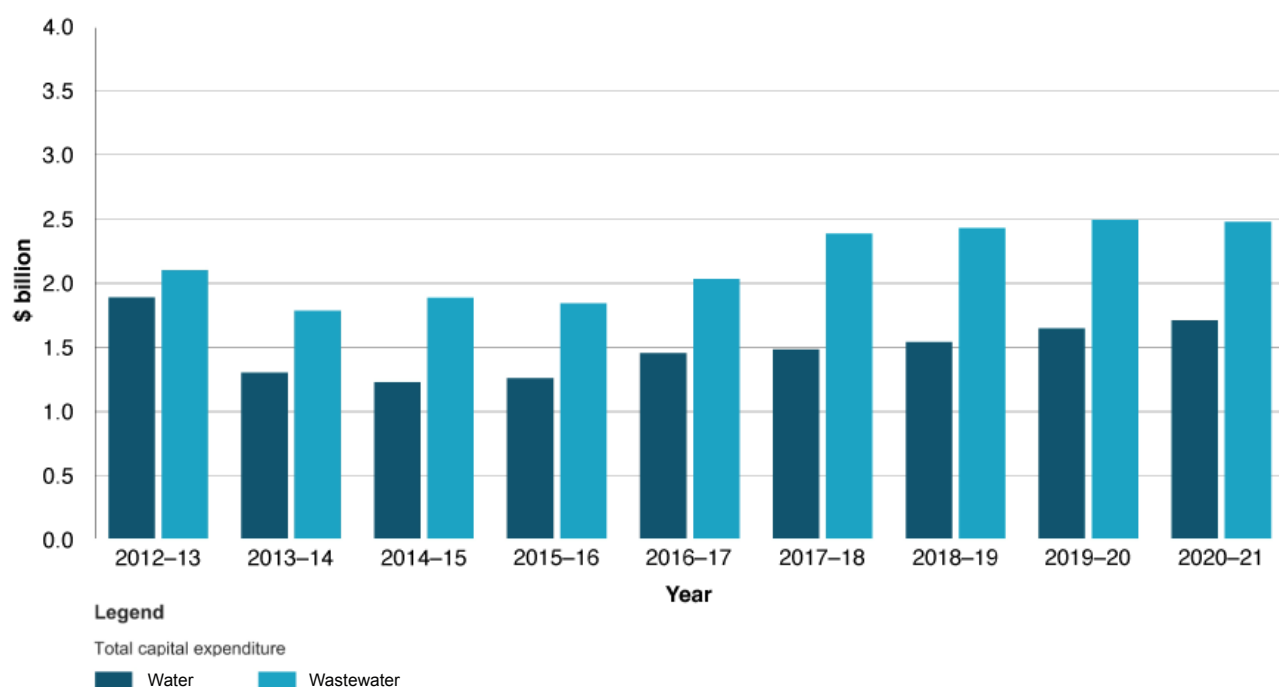


Figure 5.1 Total capital expenditure: water supply and wastewater (\$ billion) for utilities that reported all 9 years (excluding bulk water utilities)

5.1.2 Results and analysis – Major utility group

Nine of the 14 utilities in the Major utility group reported decreases in capital expenditure across their water and wastewater operations. Logan City Council reported the largest decrease of 36.4%. This decrease follows a large (30.5%) increase in capital expenditure from 2019–20 to 2020–21.

TasWater had the largest percentage increase (26.3%) followed by City of Gold Coast (22.6%).

5.2 Capital expenditure per property: water supply (F28) and wastewater (F29)

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

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

Capital expenditure data per connected property, for water and wastewater services, for all utilities reporting in 2020–21 are presented in Tables A6 and A7, Appendix A.

5.2.1 Key findings

Tables 5.2 and 5.3 present a summary of the median capital expenditure of utilities providing water and wastewater services, respectively, by utility size group.

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	488	77	4	10	179	166	-7
	TasWater	Gold Coast					
Large	576	16	7	6	250	216	-14
	Toowoomba	Redland City					
Medium	835	0	12	6	180	240	33
	Tamworth	Dubbo					
Small	763	0	10	10	223	348	56
	Essential Energy	Armidale					
All size groups (national)	835	0	33	32	218	240	10
	Tamworth	Multiple utilities					

Note: Median capital expenditure per property: water supply (\$/property) for each year is calculated using data from utilities providing water and wastewater services that reported against F28 in that year.

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	571	144	5	9	293	270	-8
	Logan	City West Water					
Large	854	147	6	7	264	225	-15
	Western Water	P&W (Darwin)					
Medium	845	4	11	8	163	218	34
	Eurobodalla	Dubbo					
Small	537	0	10	10	256	249	-3
	Goulburn Mulwaree	Multiple utilities					
All size groups (national)	854	0	32	34	264	234	-11
	Western Water	Orange					

Note: Median capital expenditure: wastewater (\$/property) in each year is calculated using data from all utilities providing water and wastewater services that reported against F29 in that year.

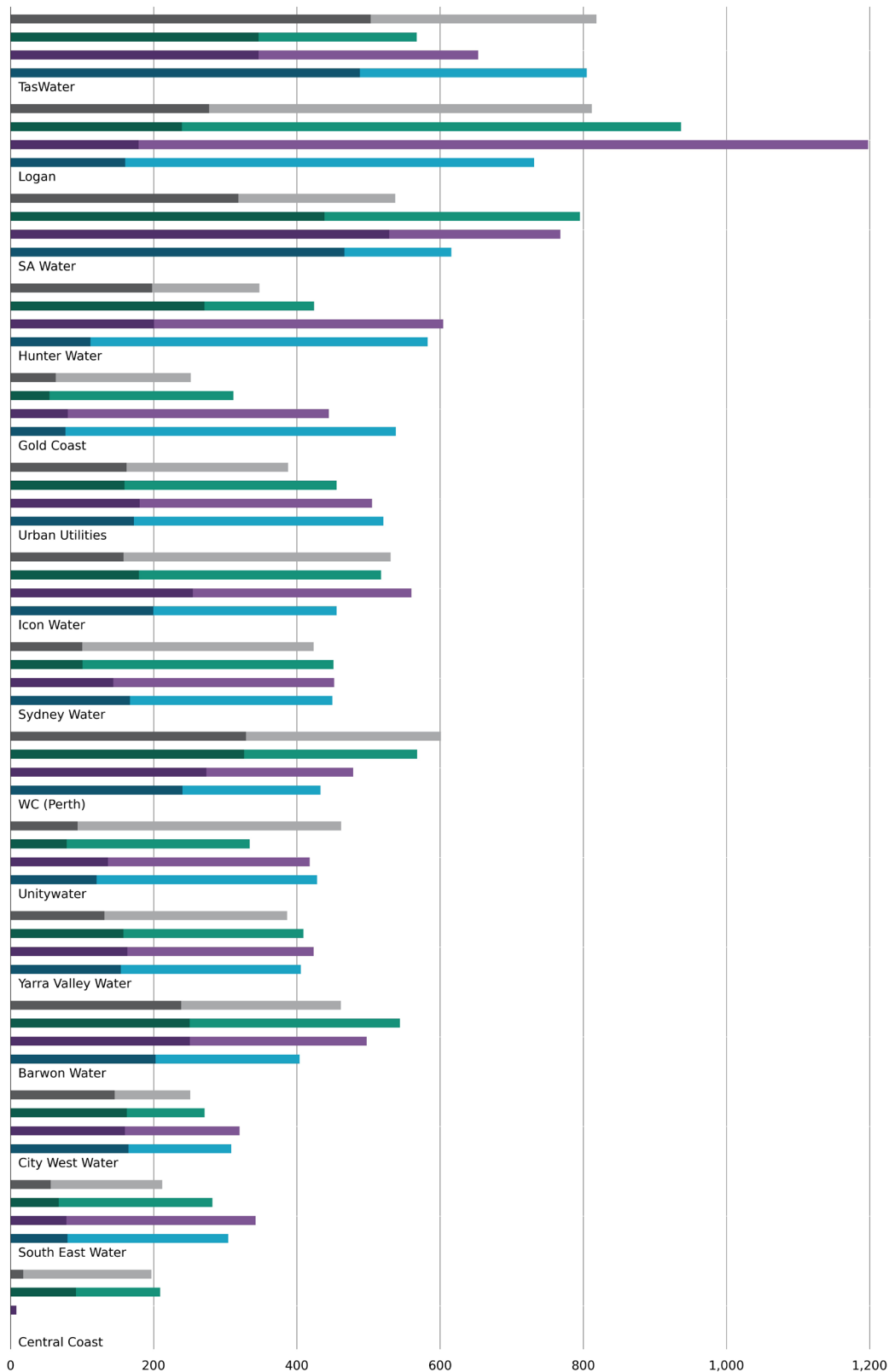
In 2020–21, the national median per property capital expenditure on water services increased by 10%. Utilities in the Small size group had the highest percentage increase in median per property capital expenditure on water supply (56%) (Table 5.2).

In contrast, the national median per property capital expenditure on wastewater services decreased by 11% from 2019–20 to 2020–21 (Table 5.3). Major and Large utility groups reported decreases for both water and wastewater services, while the Medium utility group reported increases of 33% and 34% for median per property expenditure on water services and wastewater services, respectively.

5.2.2 Results and analysis – Major utility group

Figure 5.2 shows a ranked breakdown of capital expenditure on a per connected property basis for the Major utility group. The figure shows the water supply (F28) and wastewater (F29) components of the total expenditure and reinforces the year-to-year variation.

The capital expenditure on water and wastewater services combined decreased by 8% compared to 2019–20. These decreases follow increases for both water and wastewater components in 2019–20.



Legend

Capital expenditure: water supply and wastewater (\$/property)

2017-18	Water	Wastewater
2018-19	Water	Wastewater
2019-20	Water	Wastewater
2020-21	Water	Wastewater

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

TasWater reported the highest percentage increases in capital expenditure on water supply (40.8%) from 2019–20 to 2020–21, which was directly linked to an acceleration of TasWater’s capital expenditure. Hunter Water Corporation reported the largest percentage decrease of capital expenditure on water services (44.3%), which was offset by a 16.6% increase in capital expenditure on wastewater services.

5.3 Combined operating cost per property: water supply and wastewater – F13

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

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

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

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

Combined operating cost (water supply and wastewater) data for all utilities reporting in 2020–21 are presented in Table A8, Appendix A.

5.3.1 Key findings

Figure 5.3 shows a box-and-whisker plot of combined operating cost (water supply and wastewater) data for all utilities reporting F13 for a given reporting year from 2010–11 to 2020–21. Table 5.4 presents a summary of the median combined operating costs per property by utility size group.

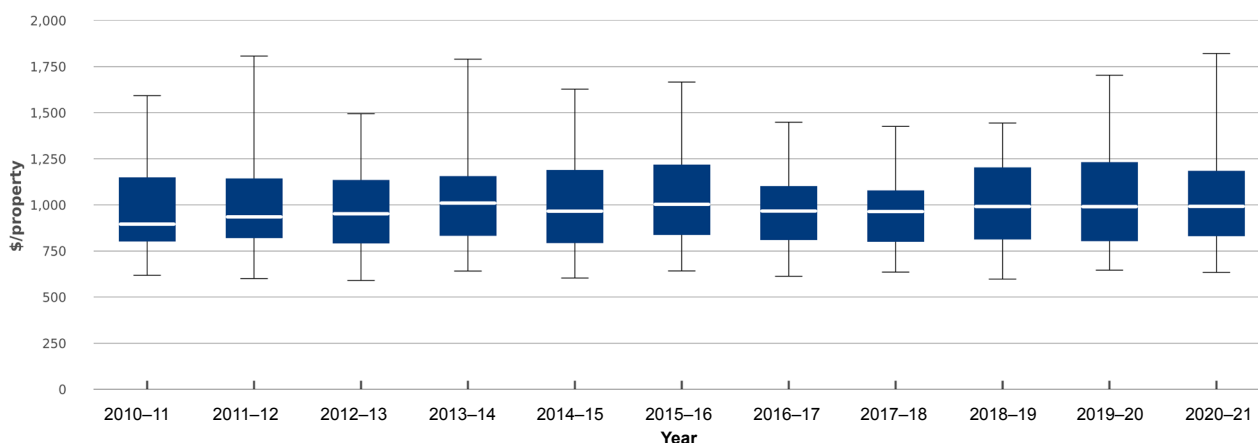


Figure 5.3 Combined operating cost per property: water supply and wastewater (\$/property)

The national 2020–21 median operating cost (on a per property basis for utilities delivering both water and wastewater services) was \$982, with a decrease of 1% from 2019–20. (Table 5.4).

In a direct reversal from the previous year's results, the Major, Large and Small utility groups reported decreases, whereas the Medium utility group reported an increase in median costs. Nationally, 24 utilities across all size groups reported increases in their operating expenditure per property, while 44 utilities reported decreases.

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	1,256	603	2	12	895	867	-3
	Gold Coast	WC (Perth)					
Large	1,281	598	2	11	990	958	-3
	Townsville	WC (Mandurah)					
Medium	1,997	681	11	8	978	1,020	4
	Gladstone	Fitzroy River Water					
Small	1,854	662	9	13	1,223	1,123	-8
	Byron	WC (Australind/Eaton)					
All size groups (national)	1,997	598	24	44	1,000	982	-1
	Gladstone	WC (Mandurah)					

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

5.3.2 Results and analysis – Major utility group

Figure 5.4 presents a ranked breakdown of operating expenditure per connected property for water supply and wastewater services for the Major utility group. The figure shows the component of operating expenditure for water (F11) and wastewater (F12) expenditure for each Major utility from 2016–17 to 2020–21.

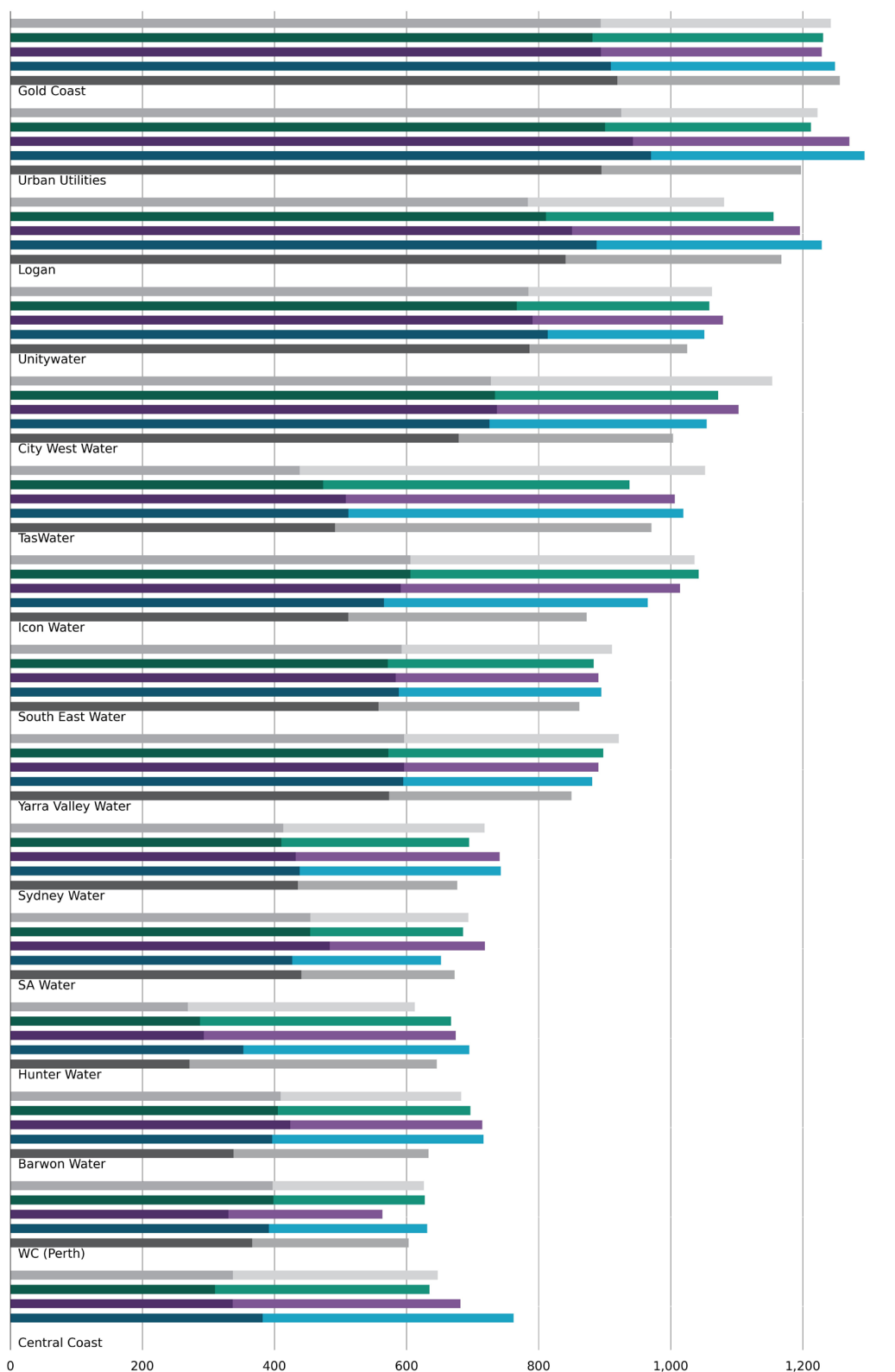
5.4 Community service obligations ratio – F8

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

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

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

CSO data for all utilities reporting in 2020–21 are presented in Table A9, Appendix A.



Legend

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

2016-17	Water	Wastewater
2017-18	Water	Wastewater
2018-19	Water	Wastewater
2019-20	Water	Wastewater
2020-21	Water	Wastewater

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

5.4.1 Key findings

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

In 2020–21, the number of utilities that reported a decrease (27) was greater than the number of utilities that reported an increase (22), and 13 utilities reported no change in the revenue received from CSOs. This resulted in a 9% decrease in the national median revenue from CSOs from 2019–20 to 2020–21.

Table 5.5 Overview of results: Community service obligations ratio

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	0.1103	0	6	4	0.0435	0.0397	-9
	SA Water	Multiple utilities					
Large	0.0626	-0.1405	5	8	0.025	0.022	-12
	North East Water	WC (Mandurah)					
Medium	0.0721	0.002	5	5	0.01	0.01	0
	GWMWater	Mackay					
Small	0.1581	-1.0678	6	10	0.0075	0.007	-7
	P&W (Alice Springs)	WC (Geraldton)					
All size groups (national)	0.1581	-1.0678	22	27	0.011	0.01	-9
	P&W (Alice Springs)	WC (Geraldton)					

Notes:

Median revenue from community service obligations ratio for each year is calculated using data from all utilities providing data in that year.

In Western Australia, some regional schemes recover adequate revenue to cover the cost of service of the scheme, including the community service obligations, and these schemes partially offset the net loss of other regional services. When reported independently, these schemes will show a negative operating subsidy.

5.4.2 Results and analysis – Major utility group

The Major utility group reported a decrease in median CSO payments of 9% from 2019–20.

SA Water Corporation continued to have the highest proportions of revenue from CSOs with 11.0%. For this utility, CSO payments are used to subsidise non-profitable water services, to provide water services in country areas at metropolitan water prices.

Icon Water reported the largest percentage increase, with its CSO revenue increasing from 1.7% to 2.5% in 2020–21. TasWater reported the largest decrease, with a 57.6% reduction in the ratio of revenue coming from CSO.

6 Customer

6.1 Average duration of an unplanned interruption: water – C15

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

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

The average duration is influenced by the:

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

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

Data on the average duration of an unplanned interruption (water supply) for all utilities reporting in 2020–21 are presented in Table A10, Appendix A.

6.1.1 Key findings

Table 6.1 presents a summary of unplanned interruptions by utility size group.

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	208	89.5	9	5	131.9	147	11
	Central Coast	South East Water					
Large	141.5	45	2	9	106.3	87.3	-18
	Coliban Water	Cairns					
Medium	220	23.3	9	10	95	125	32
	Queanbeyan	Mackay					
Small	251	28.6	9	8	90	130	44
	Bega Valley	Livingstone					
All size groups (national)	251	23.3	29	32	110	120	9
	Bega Valley	Mackay					

Note: Median average duration of an unplanned interruption: water (minutes) for each year is calculated for all utilities that reported data for C15 in that year.

Nationally, the median average duration of unplanned interruptions increased by 9% from 110 minutes in 2019–20 to 120 minutes in 2020–21. Bega Valley Shire Council in the Small utility group had the highest duration of unplanned interruption of all utility group (251 minutes). Queanbeyan–Palerang Regional Council reported the highest percentage increase (478.9%, from 38 to 220 minutes) while East Gippsland Water reported the highest percentage decrease (56.2%, from 169 to 74 minutes) from 2019–20.

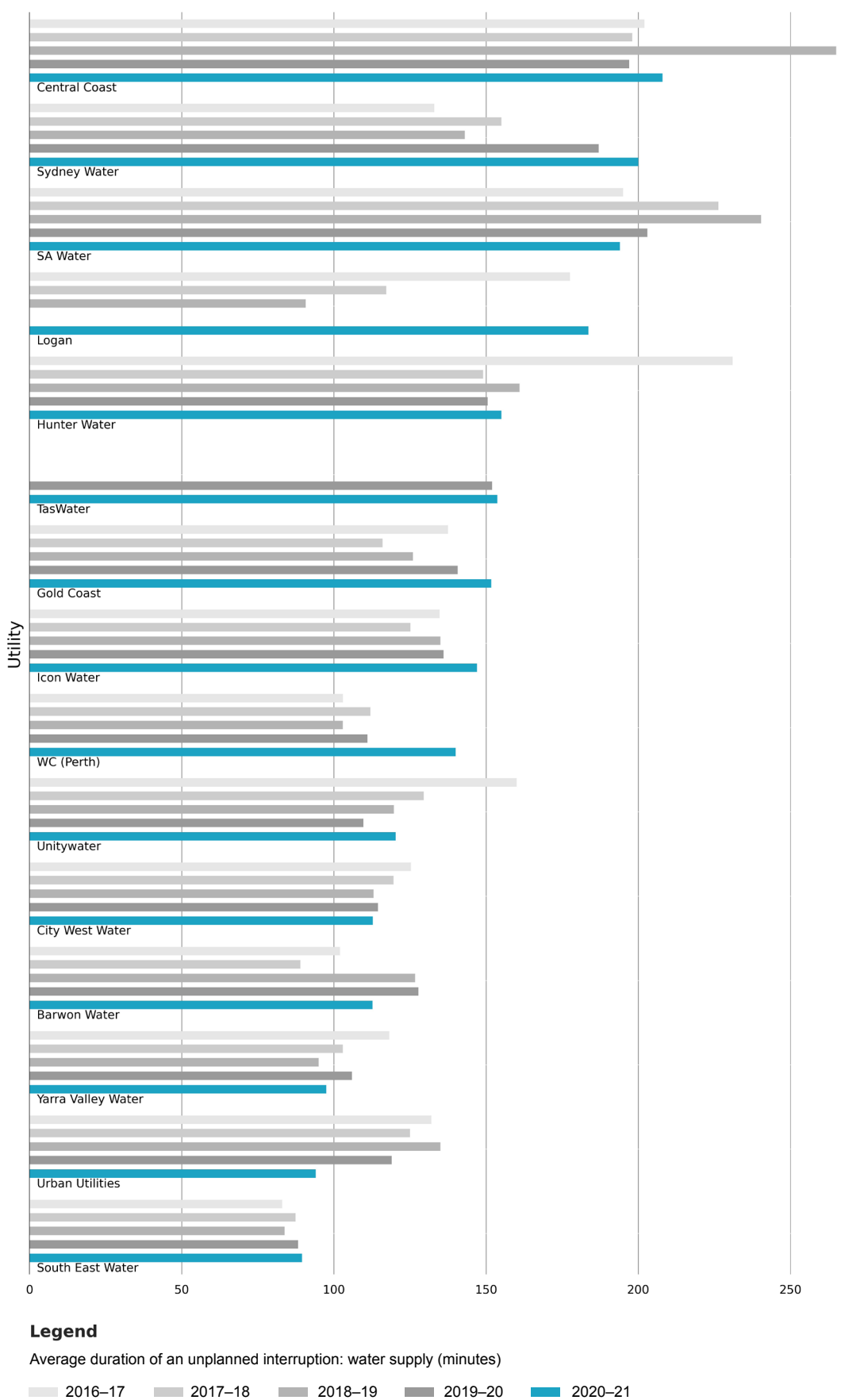


Figure 6.1 Average duration of an unplanned interruption: water (minutes) – Major utility group

6.1.2 Results and analysis – Major utility group

Figure 6.1 presents a ranked breakdown of the average duration of an unplanned interruption for the Major utility group from 2016–17 to 2020–21. The figure highlights the large year-to-year variation in the indicator that can result from a single major mains break.

Central Coast Council reported the highest (208 minutes) and South East Water Ltd reported the lowest (89.5 minutes) average duration of unplanned interruptions in 2020–21.

Water Corporation – Perth reported highest percentage increase in average duration of an unplanned interruption water (26.1%) compared with 2019–20. This result was caused by an increase in the number of burst mains in 2020–21 that incurred a relatively long repair time compared to that of a planned service.

6.2 Number of water and sewerage complaints per 1,000 properties – C13

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

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

Total water and sewerage complaints data for all utilities reporting in 2020–21 are presented in Table A11, Appendix A.

6.2.1 Key findings

Table 6.2 presents a summary of total water and sewerage complaints by utility size group. Nationally, there was a 6% increase in the median number of complaints. Queanbeyan–Palerang Regional Council reported the highest total number of water and sewerage complaints per 1,000 properties for 2020–21 in all size groups (103) while Shoalhaven City Council reported the lowest (0.06).

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	23.1	0.6	5	8	4.2	4.1	-2
	Logan	WC (Perth)					
Large	59.2	0.06	5	7	3	4	33
	P&W (Darwin)	Shoalhaven					
Medium	103	0.4	10	9	12	15.9	33
	Queanbeyan	Coffs Harbour					
Small	97.8	0.4	8	11	6.5	4.5	-31
	P&W (Alice Springs)	WC (Albany)					
All utility groups (national)	103	0.06	28	35	4.7	5	6
	Queanbeyan	Shoalhaven					

Note: The median number of water and sewerage complaints per 1,000 properties for each year is calculated for all non-bulk reporting utilities that provide both reticulated water supply and wastewater services in that year.

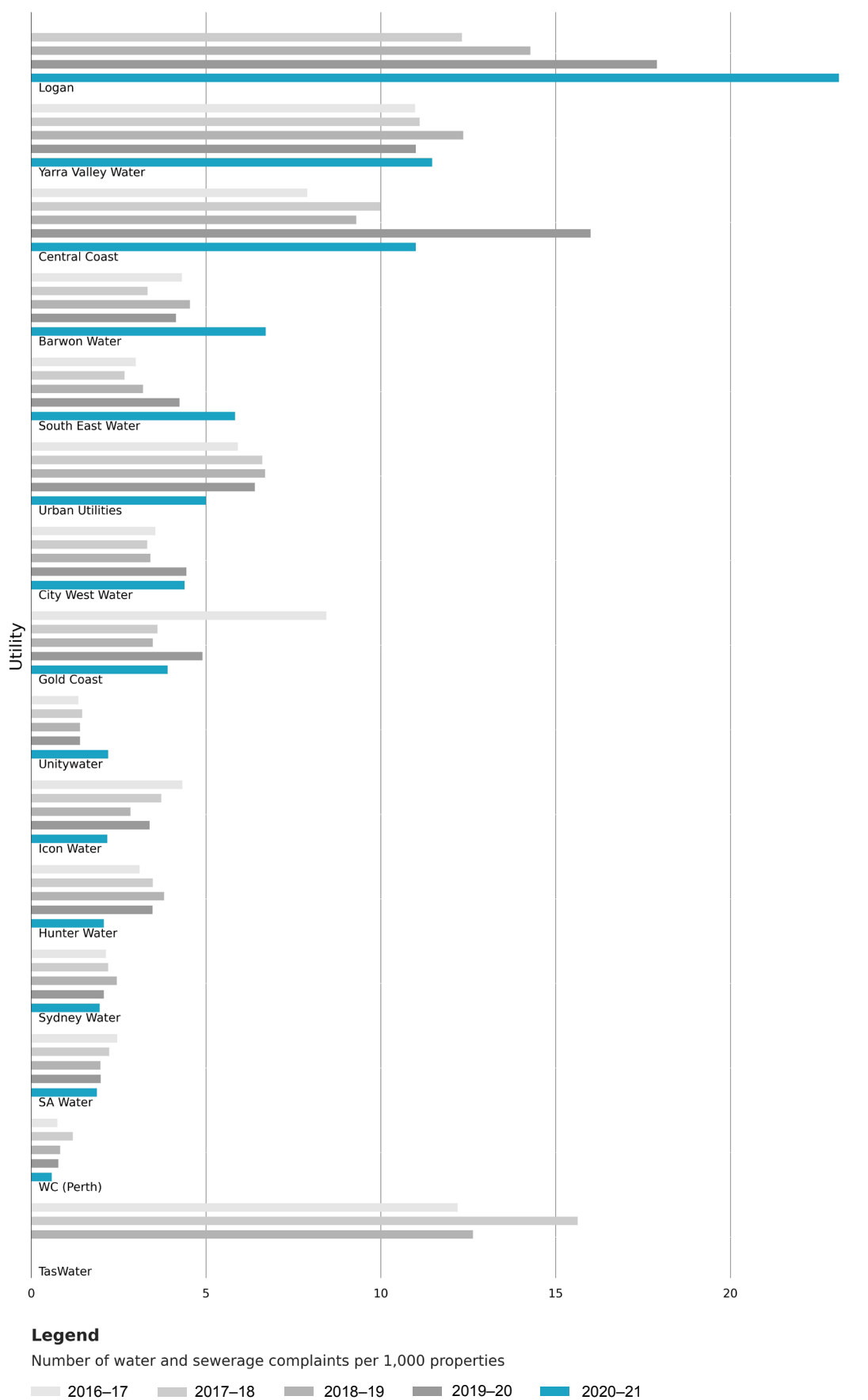


Figure 6.2 Total complaints: water and sewerage (per 1,000 properties) – Major utility group

6.2.2 Results and analysis – Major utility group

Figure 6.2 shows a ranked breakdown of the total water and sewerage complaints from 2016–17 to 2020–21 for the Major utility group.

In a similar result to the previous year, Logan City Council reported the highest number (23.1) and Water Corporation – Perth reported the lowest number (0.6) of total complaints per 1,000 properties for 2020–21. Barwon Water reported the highest percentage increase (63.4%) and Hunter Water Corporation reported the largest percentage decrease (40.0%) in this size group compared to the previous year.

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

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

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

Data on the percentage of calls answered by an operator within 30 seconds for all utilities reporting in 2020–21 are presented in Table A12, Appendix A.

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2020–21 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	92.1	39.5	5	8	73.7	66.6	-10
	TasWater	Gold Coast					
Large	98.8	46.2	4	5	81.6	78.5	-4
	North East Water	Central Highlands Water (Vic)					
Medium	99	0	7	6	85.5	83.5	-2
	East Gippsland Water	Tamworth					
Small	97	48.4	2	3	74.5	73.5	-1
	Westernport Water	Western Downs					
All size groups (national)	99	0	18	22	78.2	78	-0.3
	East Gippsland Water	Tamworth					

Note: Median percentage of calls answered by an operator within 30 seconds for each year is calculated for all utilities reporting data in that year.

6.3.1 Key findings

Nationally, the median percentage of calls answered within 30 seconds (78%) was very similar to the previous year. All groups reported a decrease in the percentage of calls answered by an operator within 30 seconds, the highest percentage decrease (10%) being in the Major utility group. In 2020–21, East Gippsland Water reported the best performance with the highest percentage of calls answered by an operator within 30 seconds (99%) across all size groups.

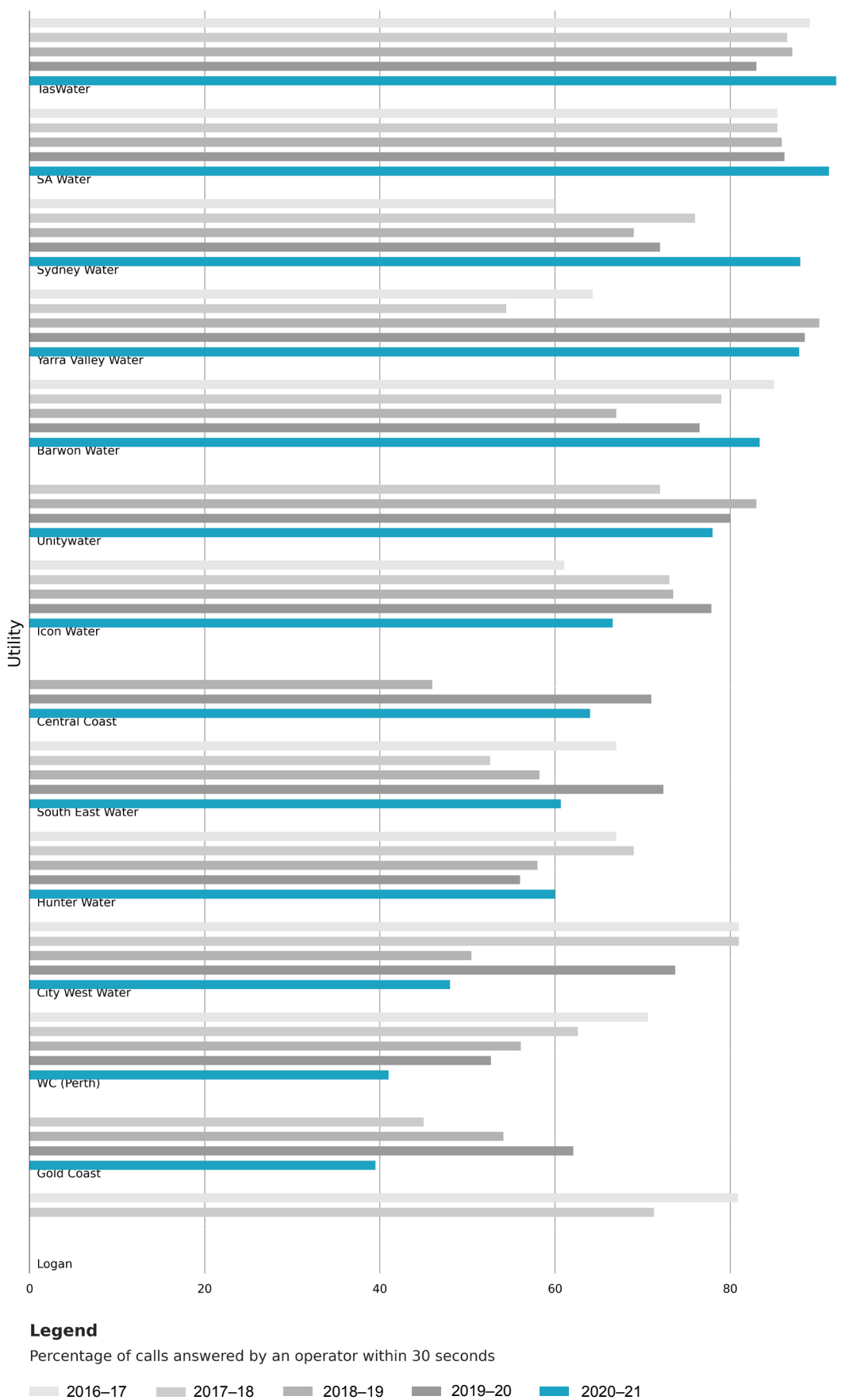


Figure 6.3 Percentage of calls answered by an operator within 30 seconds – Major utility group

6.3.2 Results and analysis – Major utility group

Figure 6.3 shows a ranked breakdown of the percentage of calls answered by an operator within 30 seconds from 2016–17 to 2020–21 for the Major utility group.

Sydney Water reported the biggest increase (22.2%) in the percentage of calls answered by an operator within 30 seconds from 2019–20 to 2020–21. TasWater reported the best performance with the highest percentage of calls answered by an operator within 30 seconds (92.1%) in the Major utility group.

7 Asset

7.1 Number of water main breaks, bursts and leaks per 100 km of water mains – A8

The number of water main breaks, bursts and leaks per 100 km of water mains (A8) is the total number of breaks, bursts and leaks in all distribution system mains⁷, excluding breaks associated with headworks and transfer mains. It provides an indication of both customer service and the condition of the network. The number of main breaks is influenced by various factors, including:

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

Data on the number of water main breaks, bursts and leaks per 100 km of water mains for all utilities reporting in 2020–21 are presented in Table A13, Appendix A.

7.1.1 Key findings

Figure 7.1 shows a decrease in the national median number of main breaks in 2020–21, following 2 years of modest increases between 2018–19 and 2019–20.

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

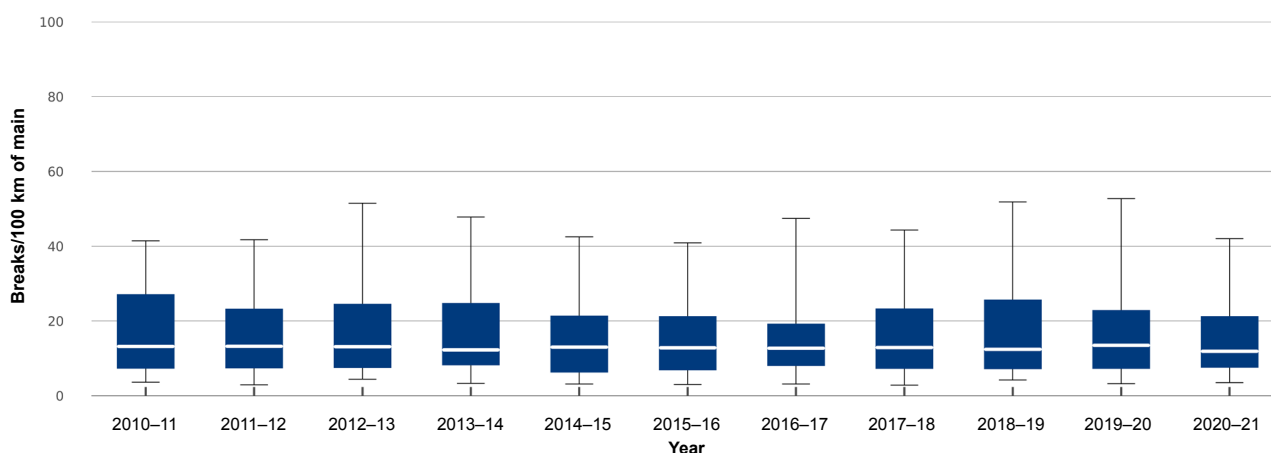


Figure 7.1 Number of water main breaks, bursts and leaks per 100 km of water mains

⁷ The figure includes both potable and non-potable water mains.

Table 7.1 Overview of results: Number of water main breaks, burst and leaks per 100 km of water mains (mains breaks/100 km)

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	51.9	3.5	1	14	25.1	20.2	-20
	TasWater	Unitywater					
Large	21.8	2.7	5	7	13.2	13.9	5
	Townsville	WC (Mandurah)					
Medium	42	4.3	11	11	12.3	11.3	-8
	Eurobodalla	Albury					
Small	48.2	3.5	13	12	11.5	10.8	-6
	Byron	Bathurst					
All utility groups (national)	51.9	2.7	30	44	13.5	12	-11
	TasWater	WC (Mandurah)					

Note: The median for water main breaks, burst and leaks per 100 km of water mains in each year was calculated using data from all utilities (dual-service and single-service providers) reporting data against A8 in that year.

7.1.2 Results and analysis – Major utility group

Figure 7.2 presents a ranked breakdown of the water main breaks for each utility in the Major utility group from 2016–17 to 2020–21. The figure highlights both the variance within the utility group and a broad downward trend for some utilities (for example, Central Coast Council and Yarra Valley Water Corporation).

All major utilities except TasWater reported a decrease in water main breaks, bursts and leaks from 2019–20 to 2020–21. For TasWater, the high number of breaks has been driven, in part, by delays in the delivery of water mains renewals at the start of 2020–21. A large number of assets are also nearing the end of their useful lives, leading to one-off dispersed failures. As it did in 2019–20, City West Water again reported the largest percentage decrease (41.8%).

7.2 Number of sewer mains breaks and chokes – A14 and property connection sewer breaks and chokes – A15 per 1,000 properties

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

- Some utilities have a very long property connection (from the customer's sanitary drain to the middle of a road), while others have a very short or no property connection (that is, the sanitary drain may connect straight to the sewer main, which runs down an easement at the back of the property).
- Some utilities do not own⁸ 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.

⁸ For such utilities, the property owner is responsible for the property's sewer connections.

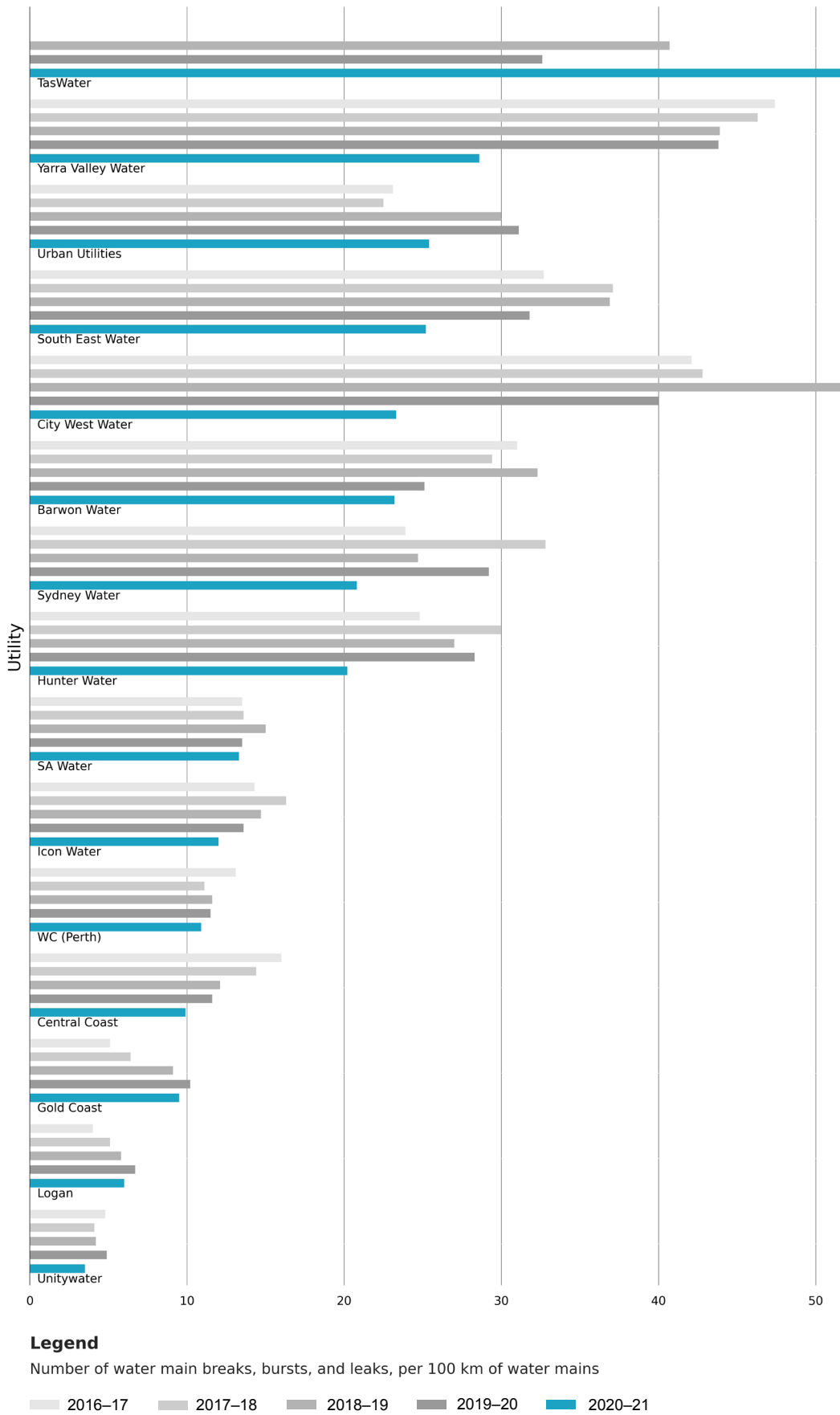


Figure 7.2 Water main breaks, bursts and leaks per 100 km of water mains – Major utility group

The performance of a sewerage system is influenced by:

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

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

Data on sewer mains breaks and chokes for all utilities reporting in 2020–21 are presented in Table A14, Appendix A. Property connection sewer breaks and chokes for all utilities reporting in 2020–21 are presented in A15, Appendix A.

7.2.1 Key findings

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

Table 7.3 presents a summary of the property connection sewer breaks and chokes per 1,000 properties by utility group.

In 2019–20, there was a national median of 15.8 sewer main breaks and chokes per 100 km of sewer main, which was a 12% decrease from 2019–20 (Table 7.2). There was a 3% increase in the sewer breaks and chokes per 1,000 properties (Table 7.3). The overall increase in sewer breaks and chokes was due to a 24% increase in property connection sewer breaks and chokes for the Small utility group; all other utility groups reported a decrease in the range of 6% to 24%.

Table 7.2 Overview of results: Number of sewer mains breaks and chokes per 100 km of sewer main (breaks and chokes/100 km)

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	56.6	3.8	4	11	33	30	-9
	TasWater	Gold Coast					
Large	54.4	1.5	4	8	13.5	13.9	3
	Townsville	Gippsland Water					
Medium	116	1	8	13	16	14	-13
	Queanbeyan	Tweed					
Small	277	3.4	15	9	13.7	15.6	14
	Goulburn Mulwaree	WC (Geraldton)					
All size groups (national)	277	1	31	41	18	15.8	-12
	Goulburn Mulwaree	Tweed					

Note: The median number of sewer mains breaks (per 100 km of sewer main) in each year is calculated using data from all utilities (dual-service and single-service providers) reporting data against A14 in that year.

Table 7.3 Overview of results: Number of property connection sewer breaks and chokes per 1,000 properties (breaks and chokes/1,000 properties)

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	28	0.2	2	12	4	3.5	-13
	SA Water	Sydney Water					
Large	7.2	0.5	4	7	2.9	2.2	-24
	Townsville	Coliban Water					
Medium	35.5	0.03	10	10	3.6	3.4	-6
	GWMWater	Port Macquarie Hastings					
Small	61.4	0	11	7	4.6	5.7	24
	Essential Energy	Kal-Boulder (S)					
All utility groups (national)	61.4	0	27	36	3.3	3.4	3
	Essential Energy	Kal-Boulder (S)					

Note: The median number of property connection sewer breaks and chokes per 1,000 properties in each year is calculated using data from all utilities (dual-service and single-service providers) reporting data against A15 in that year.

7.2.2 Results and analysis – Major utility group

Figure 7.3 shows a ranked breakdown of the sewer mains breaks and chokes (per 100 km of sewer main) for each Major utility from 2016–17 to 2020–21 and Figure 7.4 shows a ranked breakdown of property connection sewer breaks and chokes per 1,000 properties.

Only 4 of the 15 Major utilities reported an increase in sewer mains breaks and chokes per 100 km sewer main, and only 2 reported an increase in sewer breaks and chokes per 1,000 properties from 2019–20 to 2020–21. TasWater reported the largest percentage increase (37.4%) in breaks and chokes per 100 km of sewer main compared with 2019–20 (Figure 7.3). The overall decrease in sewer main breaks and chokes is consistent with the return to average to above-average rainfall for much of eastern Australia in 2020–21, leading to wetter soil conditions and a decreased risk of breaks and chokes.

7.3 Real losses: service connections – A10

‘Real’ losses (A10) are leakages and overflows from potable water mains, service reservoirs, and service connections before the customer meter (L/service connection/day). This indicator excludes metering errors, unauthorised consumption (apparent losses), and unbilled authorised consumption (for example, water used for firefighting). Performance of this indicator may be influenced by the condition of mains, infrastructure, and water pressure.

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

Real loss data for all utilities reporting in 2020–21 are presented in Table A16, Appendix A.

7.3.1 Key findings

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

The national median across all size groups decreased by 4% from 2019–2020 to 2020–21, to 68 L/service connection/day.

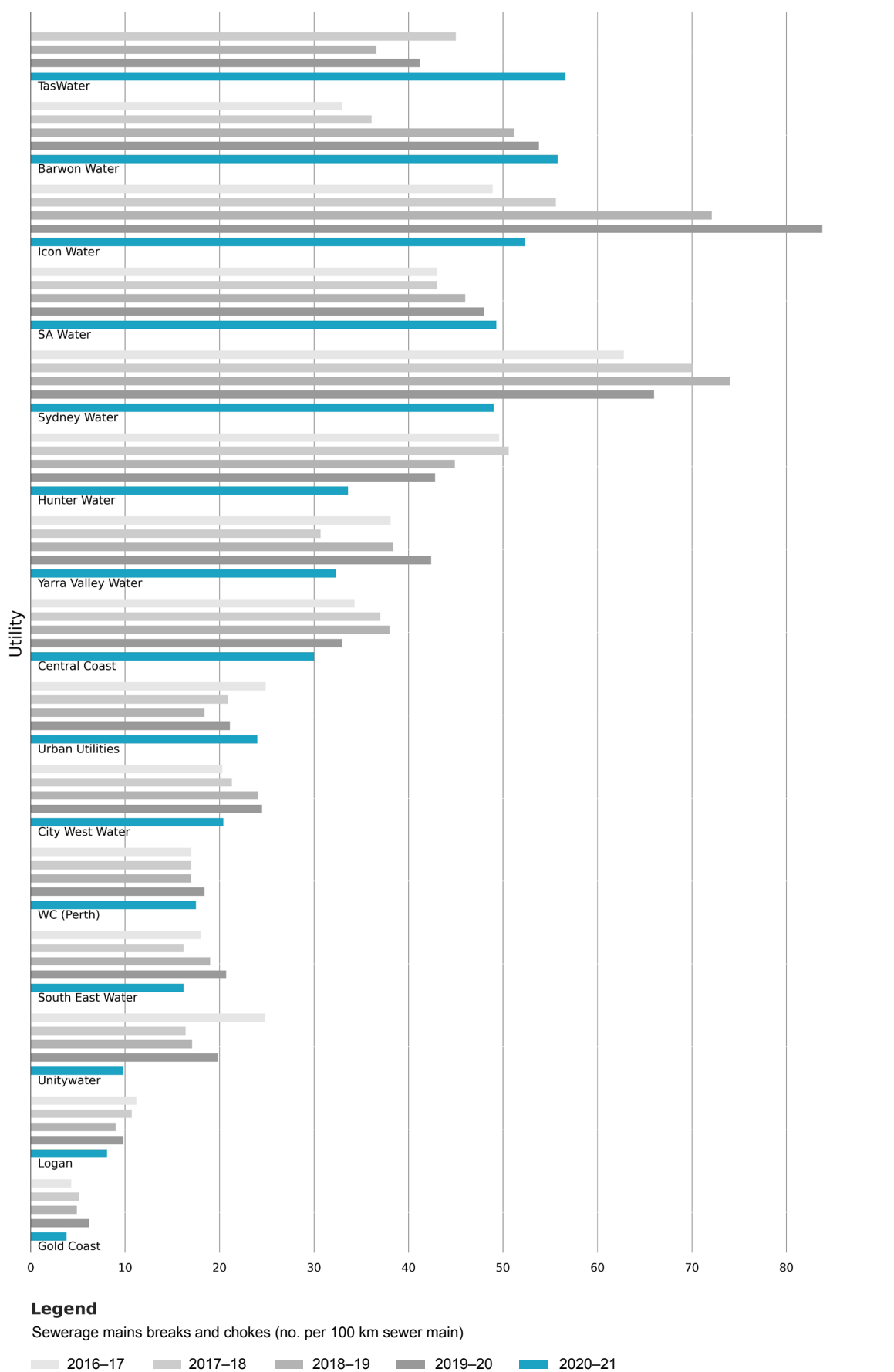


Figure 7.3 Sewer mains breaks and chokes per 100 km of sewer main – Major utility group

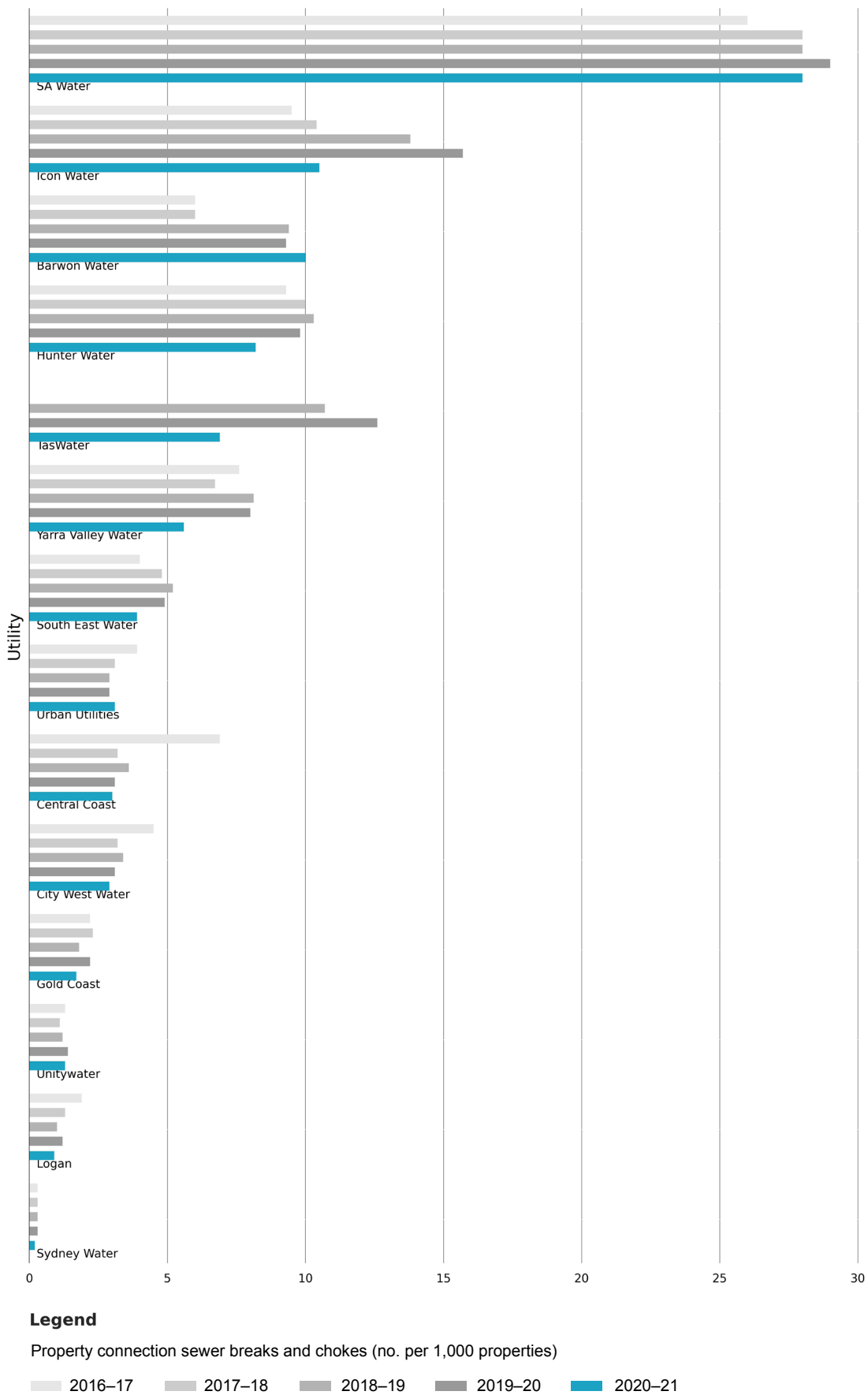


Figure 7.4 Property connection sewer breaks and chokes per 1,000 properties – Major utility group

As in 2019–20, Cassowary Coast Regional Council reported the highest real losses among the utilities (372.5 L/service connection/day in 2020–21); however, this was a 21.1% decrease from the previous year. Western Water reported the highest percentage increase in real losses since 2019–20; however, their 2020–21 result was well below their long-term average.

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

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	272	24	4	11	68	64	-6
	TasWater	Barwon Water					
Large	297	18.4	6	7	71	52	-27
	P&W (Darwin)	Redland City					
Medium	228.1	0	9	11	73.5	61.6	-16
	Mackay	Lower Murray Water					
Small	372.5	11	9	14	88.2	106.5	21
	Cassowary Coast	Westernport Water					
All utility groups (national)	372.5	0	28	43	71	68	-4
	Cassowary Coast	Lower Murray Water					

Note: The median real losses (L/service connection/day) for each year are calculated using data from all utilities (dual-service and single-service providers) reporting data against A10 in that year.

Figure 7.5 shows a box-and-whisker plot of the real losses for all utilities reporting A10 for a given reporting year from 2010–11 to 2020–21. The figure highlights the consistency of the estimated loss values – this is in part an artefact of the broad use of consistent assumptions in the estimation of the losses.

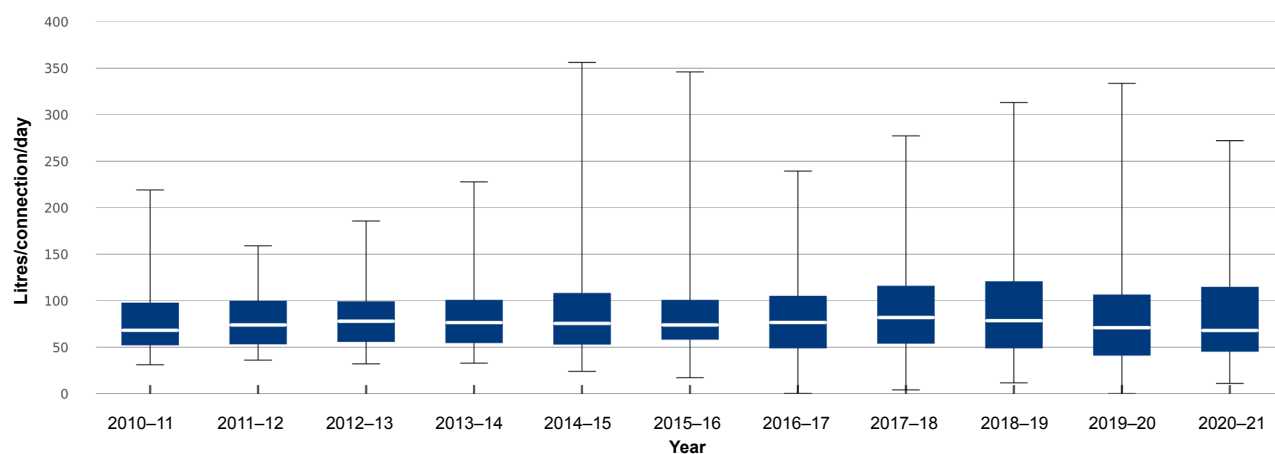


Figure 7.5 Real losses (L/service connection/day)

7.3.2 Results and analysis – Major utility group

Figure 7.6 presents a ranked breakdown of the real losses per annum for each Major utility from 2016–17 to 2020–21. Four utilities reported an increase in real losses between 2019–20 and 2020–21. City West Water reported the highest percentage increase (19.9%), from 39.2 L/service connection/day in 2019–20 to 47 L/service connection/day in 2020–21).

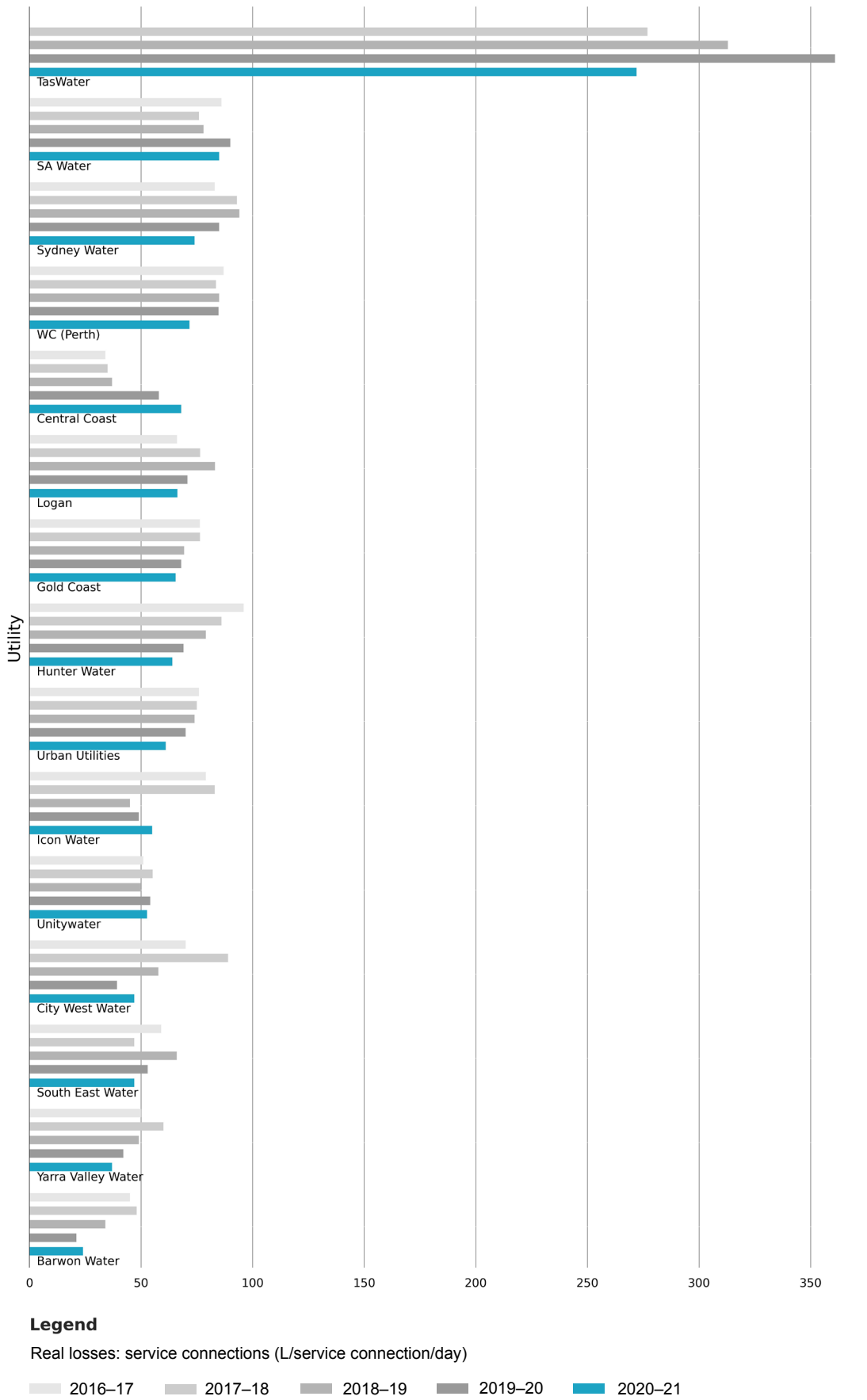


Figure 7.6 Real losses: service connections (L/service connection/day) – Major utility group

8 Environment

8.1 Total net greenhouse gas emissions per 1,000 properties – E12

The total net greenhouse gas (GHG) emissions per 1,000 properties indicator (E12) reports the contribution of a utility's operations to greenhouse gas emissions (t CO₂ equivalent/1,000 properties). Utilities' calculations are required to refer to the National Greenhouse Accounts (NGA) Factors issued by the Department of Industry, Science, Energy and Resources and must also be updated annually. Greenhouse gas emissions are reported in net terms – any quantity of carbon sequestered through activities such as the purchase of carbon offsets is deducted.

The NGA outline 3 distinct types of emissions factors that may need to be calculated to estimate the full greenhouse impact of an organisation's activities:

- direct emission factors (Scope 1), which calculate the quantity of carbon dioxide equivalent (CO₂ equivalent) emitted per unit of activity at the point of emission release
- indirect emission factors (Scope 2), which calculate the greenhouse impact of purchasing and consuming electricity (that is, the impact of burning fuels – coal or gas – at the power station)
- various emission factors (Scope 3), including the impact of various activities – disposal of waste, employee business travel, and the transportation of products.

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

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

Total net GHG emissions data for 2020–21 are presented in Table A17, Appendix A.

8.1.1 Key findings

Table 8.1 presents a summary of the total net GHG emissions by utility size group.

Table 8.1 Overview of results: Total net greenhouse gas emissions per 1,000 properties (t CO₂ equivalent/1,000 properties)

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2019–20 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	695	23	6	9	228	196	-14
	WC (Perth)	City West Water					
Large	1,170	165	5	8	433	387	-11
	Goulburn Valley Water	Townsville					
Medium	913	0	5	14	428	404	-6
	Wingecarribee	Mackay					
Small	882	255	15	7	385	406	5
	P&W (Alice Springs)	Lismore					
All size groups (national)	1,170	0	31	38	385	370	-4
	Goulburn Valley Water	Mackay					

Note: The median total net GHG emissions for each year is calculated using data from all utilities supplying both water and wastewater services reporting data for E12 for that year.

The median total net GHG emissions decreased by 4% for all size groups, which was a similar result to the previous year.

8.1.2 Results and analysis – Major utility group

The Major utility group reported a 14% decrease in median net GHG emissions from 2019–20 to 2020–21. Icon Water Limited reported the highest percentage decrease (40.9%) and TasWater reported the highest percentage increase (15.6%).

As in previous years, Water Corporation – Perth is the highest net GHG emitter per property in the Major utility group with 695 t CO₂ equivalent/1,000 properties in 2020–21, and City West Water is the lowest total net GHG emitter with 23 t CO₂ equivalent/1,000 properties in 2020–21.

9 Health

9.1 Percentage of population for whom microbiological compliance was achieved – H3

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

Compliance is assessed against the *Australian Drinking Water Guidelines 2011*⁹ or licence conditions imposed on the utility by their regulator. Typically, utilities record very high compliance; however, unforeseen events may deliver a lower compliance result, and the cause of non-compliance is not always traceable.

Microbiological compliance data for 2020–21 are presented in Table A18, Appendix A.

9.1.1 Key findings

Table 9.1 presents a summary of the percentage of population for which microbiological compliance was achieved by utility size group.

In 2020–21, nationwide and across all utility groups, all utilities achieved 100% microbiological compliance except South East Water Ltd (99.9%), Unitywater (99.9%), Central Highlands Water (99.8%), Goulburn Valley Water (99.5%), and Central Gippsland Water (99%).

Table 9.1 Overview of results: Percentage of population for which microbiological compliance was achieved

Utility group	Range		No. utilities with increase/decrease from 2019–20		Median		Change in median from 2020–21 (%)
	High	Low	Increase	Decrease	2019–20	2020–21	
Major	100	99.9	0	2	100	100	0
	Multiple utilities	Multiple utilities					
Large	100	99	1	3	100	100	0
	Multiple utilities	Gippsland Water					
Medium	100	100	0	0	100	100	0
	Multiple utilities	Multiple utilities					
Small	100	100	3	0	100	100	0
	Multiple utilities	Multiple utilities					
All size groups (national)	100	99	4	5	100	100	0
	Multiple utilities	Gippsland Water					

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

9.1.2 Results and analysis – Major utility group

All utilities in the Major utility group reported achieving microbiological compliance for 100% of the population, with the exception of South East Water Ltd and Unitywater, both of which reported 99.9% compliance.

⁹ www.nhmrc.gov.au/guidelines/publications/eh52, updated January 2022

Appendix A Individual utility group tables

- Tables A1 to A18 present a summary of key indicators by utility group for the period 2016–17 to 2020–21.
- Utilities are sorted in descending order based on their percentage changes in value from 2020–21 within each utility size group.

Table A1 W12 – Average annual residential water supplied (kL/property) by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
Central Coast	161	169	158	156	159	1.9
Yarra Valley Water	148	151	155	148	149	1.0
SA Water	166	190	198	190	192	0.7
South East Water	150	150	149	150	150	0.4
WC (Perth)	223	219	219	227	227	0.0
Unitywater	157	156	157	156	155	-0.4
Sydney Water	206	215	199	189	186	-1.4
Barwon Water	158	163	171	161	159	-1.6
Urban Utilities	154	153	156	162	158	-2.5
Hunter Water	172	181	175	156	151	-3.4
Gold Coast	168	161	164	175	167	-4.6
City West Water	147	142	146	146	139	-4.7
Logan	154	145	150	148	139	-6.0
TasWater	179	193	191	193	179	-7.6
Icon Water	190	197	204	202	176	-12.9
Median	161	163	164	161	159	
Mean	169	172	173	171	166	
Large						
Redland City	172	164	169	174	184	6.0
Gippsland Water	166	168	177	161	164	2.1
Shoalhaven	151	157	146	155	155	0.2
WC (Mandurah)	221	216	212	220	220	0.0
Coliban Water	185	201	210	195	194	-0.7
Western Water	179	186	196	182	178	-2.2
Goulburn Valley Water	242	264	285	261	254	-2.7
Central Highlands Water (Vic)	150	157	161	151	147	-2.8
Cairns	251	253	254	257	250	-2.8
P&W (Darwin)	361	368	380	373	360	-3.5
Townsville	243	242	314	363	342	-5.8
North East Water	198	208	224	214	200	-6.5
Toowoomba	155	152	163	162	147	-9.4
Median	185	201	210	195	194	
Mean	206	210	222	221	215	
Medium						
Clarence Valley	162	155	159	115	164	42.6
Tamworth	230	291	247	141	159	12.8

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Bundaberg	234	218	243	261	284	8.9
Queanbeyan	150	167	158	171	184	7.6
Port Macquarie Hastings	152	172	160	144	154	6.9
MidCoast Council	144	142	155	144	149	3.5
South Gippsland Water	120	118	119	115	118	2.7
Gladstone	224	132	239	251	253	0.6
Wannon Water	136	144	147	141	139	-1.7
Fraser Coast	201	164	186	191	186	-2.7
Tweed	178	176	177	177	172	-2.8
Eurobodalla	124	123	121	121	117	-3.3
Dubbo	300	386	337	207	198	-4.3
Fitzroy River Water	345	343	375	383	365	-4.7
East Gippsland Water	148	157	160	153	145	-5.2
GWMWater	210	316	249	241	224	-7.1
Coffs Harbour	167	170	154	151	140	-7.3
Lower Murray Water	428	490	519	520	477	-8.2
Albury	204	237	252	246	218	-11.4
Wingecarribee	190	216	206	218	177	-18.8
Mackay	175	180	187	215	168	-21.8
Riverina Water (W)	298	311	343	338	264	-21.9
Median	184	174	186	184	174	
Mean	205	219	222	211	202	
Small						
Kempsey	141	159	147	146	175	19.9
Bathurst	231	254	194	144	156	8.3
Central Highlands	445	487	443	430	465	8.1
Westernport Water	84	85	91	89	93	5.1
Southern Downs	158	157	152	100	104	3.9
WC (Geraldton)	298	289	279	286	291	1.8
Cassowary Coast	251	237	219	220	224	1.5
Armidale		214	226	141	141	0.0
Byron	156	199	200	200	199	-0.5
Busselton (W)	275	294	265	261	258	-1.0
Gympie	170	171	158	169	166	-1.7
Orange	173	186	166	163	160	-1.8
WC (Australind/Eaton)	288	288	283	289	283	-2.3
WC (Albany)	176	176	169	169	164	-2.7
Ballina	192	179	183	173	168	-2.9
Lismore	155	147	148	127	123	-3.1
Aqwest–Bunbury (W)	248	242	240	245	236	-3.8
Western Downs	181	188	204	201	193	-4.2
P&W (Alice Springs)	418	448	457	451	432	-4.3
Livingstone	281	296	317	349	328	-5.8
WC (Kal–Boulder) (W)	279	280	284	300	279	-6.8
Whitsunday	238	319	268	304	276	-9.0

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Bega Valley	150	149	145	163	148	-9.2
Essential Energy	242	277	275	277	250	-9.7
Goulburn Mulwaree	156	149	150	153	136	-11.1
Goldenfields Water (W)	261	287	305	288	230	-20.1
Snowy Monaro					125	
Median	231	225	212	201	193	
Mean	226	237	229	225	215	

Table A2 W26 – Total recycled water supplied (ML), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
Yarra Valley Water	4,107	2,601	2,473	2,427	2,851	17.5
WC (Perth)	9,568	12,100	9,817	20,681	22,579	9.2
SA Water	23,890	29,421	32,312	26,400	28,565	8.2
Gold Coast	8,256	7,439	7,712	7,306	7,466	2.2
City West Water	2,581	2,605	2,739	2,931	2,597	-11.4
Urban Utilities	4,188	4,037	4,776	4,532	3,909	-13.7
TasWater	4,691	5,605		6,093	5,224	-14.3
Barwon Water	5,541	5,655	5,998	4,683	3,951	-15.6
South East Water	3,233	7,433	8,073	6,825	5,569	-18.4
Sydney Water	38,339	42,833	44,020	46,919	37,669	-19.7
Central Coast	724	1,042	674	825	631	-23.5
Logan	738	461	625	789	582	-26.2
Hunter Water	5,384	4,923	3,862	4,651	3,206	-31.1
Unitywater	1,461	1,030	1,160	1,292	772	-40.2
Icon Water	4,404	77	60	75	27	-64.0
Median	4,404	4,923	4,319	4,651	3,909	
Mean	7,807	8,484	8,879	9,095	8,373	
Large						
Cairns	2,184	2,119	1,926	533	1,731	224.8
Central Highlands Water (Vic)	1,104	1,593	1,680	1,628	1,934	18.8
WC (Mandurah)	168	226	239	220	244	10.9
Gippsland Water	2,169	2,291	2,054	1,969	2,128	8.1
North East Water	2,391	8,432	7,955	8,093	8,443	4.3
P&W (Darwin)	541	451	488	0	0	0
Townsville	1,719	1,283	1,367	1,383	1,358	-1.8
Goulburn Valley Water	5,698	314	390	307	270	-12.1
Toowoomba	2,854	1,743	2,597	2,105	1,809	-14.1
Redland City	105	89	94	121	100	-17.8
Coliban Water	9,739	1,509	1,510	1,411	1,093	-22.5
Shoalhaven	1,576	2,289	2,185	2,218	1,642	-26.0
Western Water	9,073	7,244	7,627	7,748	5,334	-31.2
Median	2,169	1,593	1,680	1,411	1,642	
Mean	3,025	2,276	2,316	2,134	2,007	
Medium						
GWMWater	4,416	2,147	2,569	0	2,698	
Queanbeyan	158	70	70	70	376	437.1
South Gippsland Water	136	108	111	122	194	59.0
Albury	4,655	3,885	2,457	3,297	5,173	56.9
Gladstone	2,899	3,166	3,174	2,494	3,812	52.8
East Gippsland Water	2,933	2,774	1,139	1,072	1,346	25.6
Lower Murray Water	3,759	387	483	408	477	16.9
Wagga Wagga (S)	5,923	5,008	4,986	4,819	5,188	7.7
Fitzroy River Water	801	755	717	735	748	1.8
Bundaberg	452	352	533	585	531	-9.3

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Tweed	824	852	879	874	777	-11.1
Clarence Valley	329	376	376	386	332	-14.0
Wannon Water	1,656	1,779	2,008	1,725	1,454	-15.7
Fraser Coast	4,893	4,739	5,591	6,918	4,880	-29.5
Dubbo	2,327	3,043	2,448	2,159	1,483	-31.3
Port Macquarie Hastings	481	400	440	610	384	-37.0
Coffs Harbour	1,229	1,650	965	1,281	774	-39.6
Wingecarribee	187	179	186	171	86	-49.7
Tamworth	4,188	4,060	4,563	3,622	1,818	-49.8
MidCoast Council	1,033	1,290	1,432	1,398	685	-51.0
Eurobodalla	186	228	239	433	190	-56.1
Mackay	2,602	4,263	4,263	4,034	446	-88.9
Median	1,229	1,290	965	1,072	748	
Mean	2,094	1,887	1,801	1,692	1,539	
Small						
Goulburn Mulwaree	1,843	1,618	1,533	237	338	42.6
Lismore	8	6	15	17	21	23.5
Kal-Boulder (S)	946	955	773	1,126	1,378	22.4
Whitsunday	460	403	358	317	386	21.9
WC (Albany)	2,145	2,172	2,081	2,085	2,357	13.0
P&W (Alice Springs)	1,078	1,146	1,001	927	1,019	9.9
Westernport Water	299	85	109	76	83	9.2
Ballina	701	623	782	688	748	8.7
WC (Busselton) (S)	221	247	287	254	272	7.1
WC (Geraldton)	220	214	248	210	224	6.7
Bathurst	0	674	691	762	788	3.4
WC (Australind/Eaton)	1,181	714	733	721	740	2.6
Orange	786	2,020	3,074	2,723	2,677	-1.7
Southern Downs	1,524	1,298	1,279	894	863	-3.5
Byron	661	629	642	516	493	-4.5
Gympie	118	108	111	97	93	-4.7
Central Highlands	1,619	1,621	1,857	1,939	1,817	-6.3
WC (Bunbury) (S)	114	139	124	127	115	-9.4
Essential Energy	704	662	484	617	499	-19.1
Livingstone	786	789	1,480	1,047	836	-20.1
Western Downs	1,097	1,073	1,075	1,105	754	-31.7
Armidale		1,263	1,188	846	484	-42.8
Bega Valley	535	680	628	762	407	-46.6
Kempsey	123	158	145	149	75	-49.7
Snowy Monaro					87	
Median	701	677	712	705	493	
Mean	746	804	862	760	702	

Table A3 P8 – Typical annual bill (\$), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
Barwon Water	1,054	1,059	1,078	1,049	1,134	8.1
South East Water	1,086	1,069	998	1,005	1,016	1.1
Urban Utilities	1,325	1,331	1,346	1,411	1,413	0.1
Unitywater	1,609	1,518	1,503	1,516	1,504	-0.8
Yarra Valley Water	1,100	1,112	1,105	1,074	1,060	-1.3
City West Water	995	973	983	990	976	-1.4
WC (Perth)	1,479	1,534	1,593	1,632	1,598	-2.1
Logan	1,692	1,651	1,656	1,628	1,587	-2.5
TasWater	1,177	1,212	1,240	1,227	1,191	-2.9
Gold Coast	1,683	1,634	1,638	1,698	1,647	-3.0
Icon Water	1,212	1,224	1,175	1,189	1,100	-7.5
Hunter Water	1,127	1,180	1,196	1,180	1,090	-7.6
Sydney Water	1,158	1,180	1,136	1,141	1,022	-10.4
Central Coast	1,324	1,317	1,268	1,054	903	-14.3
SA Water	1,218	1,303	1,332	1,301	1,079	-17.1
Median	1,212	1,224	1,240	1,189	1,100	
Mean	1,283	1,286	1,283	1,273	1,221	
Large						
Redland City	1,619	1,525	1,549	1,552	1,680	8.2
Townsville	1,598	1,602	1,605	1,616	1,629	0.8
Cairns	1,390	1,411	1,392	1,392	1,398	0.4
Gippsland Water	1,382	1,388	1,392	1,344	1,331	-1.0
Shoalhaven	1,208	1,233	1,231	1,251	1,231	-1.6
Coliban Water	1,392	1,430	1,430	1,369	1,343	-1.9
WC (Mandurah)	1,658	1,706	1,755	1,787	1,749	-2.1
Central Highlands Water (Vic)	1,289	1,301	1,298	1,251	1,217	-2.7
P&W (Darwin)	1,916	1,905	1,917	1,887	1,831	-3.0
Goulburn Valley Water	943	969	978	924	895	-3.1
Toowoomba	1,477	1,492	1,603	1,696	1,630	-3.9
North East Water	918	936	976	955	915	-4.2
Western Water	1,020	1,043	1,045	1,036	973	-6.1
Median	1,390	1,411	1,392	1,369	1,343	
Mean	1,370	1,380	1,398	1,389	1,371	
Medium						
Queanbeyan	1,538	1,619	1,706	1,465	1,947	32.9
Clarence Valley	1,699	1,675	1,682	1,574	1,698	7.9
South Gippsland Water	1,021	1,029	1,031	1,017	1,062	4.4
Tamworth	1,482	1,573	1,512	1,364	1,406	3.1
Port Macquarie Hastings	1,518	1,592	1,561	1,549	1,595	3.0
Gladstone	1,614	1,537	1,703	1,747	1,796	2.8
Fraser Coast	1,709	1,638	1,580	1,584	1,601	1.1
Bundaberg	1,510	1,493	1,525	1,516	1,520	0.3
Eurobodalla	1,743	1,754	1,758	1,769	1,770	0.1

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Fitzroy River Water	1,304	1,328	1,366	1,397	1,392	-0.4
Dubbo	1,639	1,837	1,751	1,501	1,495	-0.4
Mackay	1,469	1,501	1,530	1,547	1,540	-0.5
MidCoast Council	1,766	1,842	1,936	1,872	1,863	-0.5
East Gippsland Water	1,269	1,276	1,219	1,207	1,193	-1.2
Wannon Water	1,141	1,148	1,144	1,128	1,100	-2.5
Coffs Harbour	1,494	1,491	1,478	1,555	1,516	-2.5
Tweed	1,574	1,571	1,612	1,623	1,581	-2.6
GWMWater	1,383	1,430	1,401	1,389	1,346	-3.1
Wingecarribee	1,384	1,426	1,408	1,437	1,376	-4.2
Lower Murray Water	967	1,013	1,036	1,026	982	-4.3
Albury	1,210	1,266	1,270	1,239	1,160	-6.4
Median	1,494	1,501	1,525	1,501	1,516	
Mean	1,449	1,478	1,486	1,453	1,473	
Small						
Armidale		1,288	1,330	1,073	1,302	21.3
Byron	1,943	1,946	1,856	1,884	2,004	6.4
Central Highlands	1,846	1,952	1,977	2,003	2,126	6.1
Whitsunday	1,742	1,810	1,730	1,702	1,800	5.8
Bathurst	1,204	1,286	1,225	1,126	1,183	5.1
Kempsey	1,634	1,740	1,787	1,948	2,033	4.4
Gympie	1,353	1,358	1,236	1,268	1,300	2.5
Westernport Water	1,184	1,208	1,211	1,159	1,180	1.8
Ballina	1,635	1,608	1,631	1,599	1,627	1.8
Orange	1,210	1,245	1,212	1,210	1,212	0.2
Cassowary Coast	1,710	1,708	1,733	1,656	1,658	0.1
Western Downs	1,462	1,459	1,482	1,449	1,443	-0.4
Bega Valley	1,884	1,873	1,876	1,977	1,952	-1.3
WC (Geraldton)	1,863	1,920	1,960	2,004	1,978	-1.3
Lismore	1,732	1,745	1,863	1,791	1,766	-1.4
Goulburn Mulwaree	1,460	1,413	1,393	1,390	1,362	-2.0
WC (Albany)	1,670	1,739	1,790	1,811	1,764	-2.6
WC (Australind/Eaton)	1,817	1,865	1,915	1,956	1,899	-2.9
Essential Energy	1,360	1,426	1,398	1,387	1,344	-3.1
P&W (Alice Springs)	2,035	2,066	2,074	2,044	1,973	-3.5
Southern Downs	1,582	1,608	1,605	1,522	1,458	-4.2
Livingstone	1,813	1,719	1,670	1,751	1,523	-13.0
Snowy Monaro					1,564	
Median	1,670	1,714	1,700	1,679	1,627	
Mean	1,626	1,636	1,634	1,623	1,628	

Table A4 P7 – Annual bill based on 200 kL (\$), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
Urban Utilities	1,513	1,519	1,535	1,559	1,580	1.3
Unitywater	1,788	1,781	1,775	1,780	1,781	0.1
Logan	1,892	1,877	1,846	1,842	1,840	-0.1
Gold Coast	1,817	1,797	1,788	1,787	1,779	-0.4
Barwon Water	1,157	1,148	1,135	1,130	1,121	-0.8
Icon Water	1,229	1,233	1,171	1,178	1,159	-1.6
TasWater	1,200	1,221	1,250	1,234	1,214	-1.6
City West Water	1,224	1,225	1,160	1,185	1,164	-1.8
Yarra Valley Water	1,344	1,342	1,286	1,277	1,254	-1.8
WC (Perth)	1,428	1,488	1,547	1,565	1,532	-2.1
South East Water	1,301	1,302	1,180	1,203	1,138	-5.4
Hunter Water	1,194	1,225	1,255	1,286	1,211	-5.8
Sydney Water	1,146	1,147	1,137	1,166	1,054	-9.6
Central Coast	1,417	1,390	1,368	1,196	989	-17.3
SA Water	1,337	1,338	1,340	1,334	1,102	-17.4
Median	1,337	1,338	1,286	1,277	1,212	
Mean	1,399	1,402	1,385	1,381	1,343	
Large						
Redland City	1,632	1,643	1,655	1,692	1,741	2.9
Toowoomba	1,590	1,608	1,706	1,745	1,770	1.4
Townsville	1,598	1,602	1,605	1,616	1,629	0.8
Western Water	1,053	1,097	1,096	1,085	1,091	0.6
North East Water	922	917	923	920	917	-0.3
Cairns	1,327	1,347	1,325	1,337	1,330	-0.5
Gippsland Water	1,453	1,456	1,442	1,427	1,408	-1.3
Shoalhaven	1,298	1,311	1,324	1,330	1,309	-1.6
P&W (Darwin)	1,587	1,565	1,556	1,543	1,518	-1.6
Coliban Water	1,428	1,430	1,407	1,382	1,359	-1.7
Central Highlands Water (Vic)	1,396	1,394	1,384	1,357	1,332	-1.8
WC (Mandurah)	1,611	1,669	1,726	1,738	1,700	-2.2
Goulburn Valley Water	891	890	874	851	826	-2.9
Median	1,428	1,430	1,407	1,382	1,359	
Mean	1,368	1,379	1,386	1,386	1,379	
Medium						
Queanbeyan	1,748	1,752	1,873	2,362	2,824	19.6
South Gippsland Water	1,174	1,177	1,179	1,167	1,220	4.5
Gladstone	1,566	1,649	1,622	1,632	1,666	2.1
Port Macquarie Hastings	1,655	1,675	1,681	1,722	1,746	1.4
Fitzroy River Water	1,175	1,200	1,201	1,210	1,226	1.3
Tamworth	1,436	1,430	1,439	1,458	1,472	1.0
Wingecarribee	1,398	1,396	1,396	1,404	1,417	0.9
Dubbo	1,459	1,453	1,466	1,486	1,499	0.9
Eurobodalla	2,027	2,040	2,049	2,063	2,080	0.8

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
MidCoast Council	1,955	2,042	2,104	2,076	2,079	0.1
Coffs Harbour	1,591	1,577	1,616	1,706	1,707	0.1
Mackay	1,507	1,517	1,523	1,533	1,532	-0.1
Clarence Valley	1,795	1,789	1,787	1,791	1,789	-0.1
Bundaberg	1,477	1,477	1,472	1,471	1,467	-0.3
East Gippsland Water	1,385	1,374	1,339	1,325	1,314	-0.8
Fraser Coast	1,710	1,706	1,606	1,642	1,626	-1.0
Lower Murray Water	806	807	806	799	791	-1.0
Albury	1,205	1,182	1,168	1,152	1,134	-1.6
GWMWater	1,375	1,376	1,348	1,329	1,308	-1.6
Wannon Water	1,281	1,273	1,273	1,241	1,213	-2.3
Tweed	1,645	1,643	2,499		3,036	
Median	1,477	1,477	1,472	1,478	1,499	
Mean	1,494	1,502	1,545	1,528	1,626	
Small						
Armidale		1,154	1,267	1,296	1,565	20.8
Bathurst	1,143	1,173	1,241	1,253	1,286	2.6
Ballina	1,657	1,667	1,673	1,664	1,706	2.5
Gympie	1,387	1,391	1,287	1,294	1,322	2.2
Whitsunday	1,583	1,584	1,593	1,614	1,645	1.9
Goulburn Mulwaree	1,592	1,562	1,536	1,525	1,547	1.4
Byron	1,987	1,949	1,952	1,984	2,007	1.2
Bega Valley	2,031	2,024	2,042	2,091	2,112	1.0
Western Downs	1,453	1,431	1,392	1,422	1,435	0.9
Orange	1,277	1,280	1,297	1,302	1,311	0.7
Essential Energy	1,280	1,280	1,259	1,245	1,252	0.6
Kempsey	1,766	1,842	1,924	2,092	2,101	0.4
Central Highlands	1,383	1,367	1,529	1,573	1,578	0.3
Southern Downs	1,659	1,683	1,697	1,735	1,736	0.1
Cassowary Coast	1,667	1,677	1,723	1,639	1,636	-0.2
Lismore	1,905	1,943	2,072	2,089	2,081	-0.4
Westernport Water	1,449	1,452	1,441	1,422	1,409	-0.9
Livingstone	1,604	1,634	1,670	1,684	1,657	-1.6
P&W (Alice Springs)	1,587	1,565	1,556	1,543	1,518	-1.6
WC (Geraldton)	1,640	1,710	1,766	1,791	1,759	-1.8
WC (Albany)	1,726	1,794	1,865	1,887	1,852	-1.9
WC (Australind/Eaton)	1,619	1,659	1,713	1,736	1,700	-2.1
Snowy Monaro					1,816	
Median	1,604	1,609	1,632	1,626	1,645	
Mean	1,590	1,583	1,613	1,631	1,654	

Table A5 F16 – Total capital expenditure: water and wastewater (\$000s), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
TasWater	110,619	161,377	113,103	130,328	164,601	26.3
Gold Coast	75,678	63,104	78,939	113,764	139,432	22.6
Urban Utilities	206,407	232,303	276,490	313,480	330,370	5.4
Unitywater	124,233	136,655	101,126	131,194	136,085	3.7
Sydney Water	673,886	822,986	894,571	912,560	922,079	1.0
City West Water	95,362	114,910	128,007	155,649	155,304	-0.2
Yarra Valley Water	249,535	295,454	322,089	340,704	332,862	-2.3
Hunter Water	82,544	85,307	105,977	151,669	147,150	-3.0
WC (Perth)	464,259	495,224	474,939	405,194	371,371	-8.3
South East Water	177,042	157,443	213,623	264,370	238,608	-9.7
Icon Water	97,968	92,001	90,764	103,819	87,233	-16.0
Barwon Water	88,869	69,195	83,439	78,693	65,846	-16.3
SA Water	283,968	383,928	567,601	574,045	479,420	-16.5
Logan	64,415	86,948	104,336	136,206	86,562	-36.4
Central Coast	63,898	26,146	27,814			
Median	110,619	136,655	113,103	153,659	159,952	
Mean	190,579	214,865	238,855	272,262	261,209	
Large						
Redland City	15,827	6,291	2,373	3,747	9,777	160.9
Toowoomba	30,670	26,015	34,122	27,428	49,586	80.8
Gippsland Water	32,810	41,336	40,674	46,009	56,390	22.6
Coliban Water	23,686	21,354	20,905	27,641	31,100	12.5
Central Highlands Water (Vic)	20,085	18,240	23,429	18,950	20,705	9.3
North East Water	9,401	19,044	14,710	24,364	25,485	4.6
Western Water	74,169	65,665	72,116	84,349	86,946	3.1
WC (Mandurah)	22,696	19,368	16,453	16,598	16,958	2.2
Shoalhaven	63,278	131,805	41,570	24,610	24,944	1.4
P&W (Darwin)	23,733	47,625	34,479	20,802	20,568	-1.1
Goulburn Valley Water	35,708	29,303	33,282	38,625	38,099	-1.4
Cairns	35,230	37,970	49,305	46,539	44,042	-5.4
Townsville	54,653	82,268	55,398	60,577	50,757	-16.2
Median	30,670	29,303	34,122	27,428	31,100	
Mean	33,996	42,022	33,755	33,865	36,566	
Medium						
Dubbo	4,801	1,345	248	0	70	
Port Macquarie Hastings	28,009	20,156	32,158	4,008	18,361	358.1
MidCoast Council	9,857	16,117	11,336	5,275	16,294	208.9
Eurobodalla	17,268	20,957	15,626	14,010	23,178	65.4
Lower Murray Water	5,288	13,163	13,523	9,738	14,650	50.4
Fraser Coast	22,857	20,379	22,994	21,391	30,347	41.9
Gladstone	23,972	27,915	15,742	13,853	19,175	38.4
Bundaberg	33,904	28,198	9,883	17,389	22,940	31.9
Tweed	7,312	8,695	9,915	12,447	15,662	25.8
Fitzroy River Water	17,455	17,822	15,702	11,003	12,677	15.2

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Wingecarribee	16,603	17,495	17,048	16,553	18,766	13.4
Tamworth	16,568	10,775	8,053	22,147	21,086	-4.8
South Gippsland Water	5,700	30,924	17,261	21,847	20,638	-5.5
GWMWater	7,153	16,817	20,185	14,237	11,807	-17.1
Mackay	11,788	12,809	21,075	25,252	17,508	-30.7
East Gippsland Water	11,875	8,748	11,396	17,474	11,500	-34.2
Wannon Water	19,652	19,660	21,686	28,898	18,249	-36.9
Coffs Harbour	5,752	7,352	9,920	6,283	3,109	-50.5
Queanbeyan	57,823	12,638	10,392	13,358	4,423	-66.9
Albury	9,805	5,617	10,475	7,743		
Clarence Valley	3,676	4,503	8,196	6,927		
Median	11,875	16,117	13,523	13,853	17,508	
Mean	16,053	15,337	14,420	13,802	15,813	
Small						
Orange	0	0	1,915	0	644	
Bega Valley	2,468	761	12,103	2,303	8,069	250.4
Central Highlands	5,706	17,302	10,886	4,270	9,771	128.8
Kempsey	9,284	8,547	5,769	3,857	7,959	106.4
WC (Australind/Eaton)	7,166	6,125	5,684	4,955	8,496	71.5
Goulburn Mulwaree	15,006	23,604	8,122	7,303	11,400	56.1
Westernport Water	6,202	4,826	4,821	6,783	9,445	39.2
WC (Albany)	14,381	21,101	6,774	9,328	12,187	30.6
Essential Energy	5,966			8,062	9,662	19.8
Southern Downs	3,813	8,839	8,273	8,036	9,627	19.8
Armidale		3,229	2,375	0	0	0
Ballina	3,861	16,813	18,622	8,171	8,135	-0.4
Lismore	11,836	21,865	11,618	8,227	7,737	-6.0
P&W (Alice Springs)	7,076	6,750	6,533	8,844	8,053	-8.9
Gympie	5,432	3,216	4,679	5,198	4,693	-9.7
WC (Geraldton)	10,452	9,579	12,862	19,164	14,348	-25.1
Bathurst	15,553	8,726	9,541	11,538	7,987	-30.8
Livingstone	5,894	7,094	14,379	5,381	3,540	-34.2
Cassowary Coast	8,682	12,116	8,863	15,076	7,184	-52.3
Whitsunday	7,009	10,045	5,680	26,105	11,918	-54.3
Western Downs	17,080	4,627	4,375	26,105	5,613	-78.5
Byron	2,808	1,939	5,434	3,031		
Median	7,009	8,547	6,774	7,670	8,069	
Mean	7,889	9,386	8,062	98,715	7,927	

Table A6 F28 – Capital expenditure: water (\$/property), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
TasWater	343	503	346	347	488	40.8
Sydney Water	128	101	101	144	167	16.3
City West Water	148	146	163	160	165	3.3
South East Water	49	56	67	78	80	2.1
Gold Coast	67	63	55	80	77	-4.0
Urban Utilities	123	162	159	180	173	-4.4
Yarra Valley Water	104	131	158	163	154	-5.6
Logan	225	278	239	179	160	-10.4
Unitywater	135	94	79	136	120	-11.7
SA Water	229	318	439	529	466	-11.8
WC (Perth)	314	329	326	274	240	-12.2
Barwon Water	394	239	250	251	203	-19.1
Icon Water	187	158	180	255	200	-21.7
Hunter Water	129	198	271	201	112	-44.3
Central Coast	262	18	92	8		
Median	148	158	163	179	166	
Mean	189	186	195	199	200	
Large						
Toowoomba	212	231	367	267	576	115.6
Redland City	22	17	10	10	16	57.8
Shoalhaven	373	307	711	170	216	27.3
North East Water	138	220	147	223	282	26.4
Townsville	399	409	177	305	384	26.1
Cairns	274	344	354	287	295	2.8
Western Water	459	178	399	339	340	0.4
Goulburn Valley Water	374	314	307	326	325	-0.1
Coliban Water	217	178	142	204	200	-2.2
Central Highlands Water (Vic)	184	169	190	122	98	-19.6
P&W (Darwin)	249	282	268	250	197	-21.1
Gippsland Water	207	331	220	257	168	-34.8
WC (Mandurah)	137	215	225	246	141	-42.5
Median	217	231	225	250	216	
Mean	250	246	270	231	249	
Medium						
Port Macquarie Hastings	351	258	429	56	320	472.6
MidCoast Council	200	338	154	46	194	324.2
Queanbeyan	88	154	78	77	185	139.5
Gladstone	414	813	173	105	240	129.8
Eurobodalla	168	418	261	193	375	94.2
Lower Murray Water	85	278	211	156	232	48.3
Bundaberg	101	156	121	422	598	41.9
Tweed	124	115	175	224	282	26.1
Tamworth	396	204	201	675	835	23.7

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Mackay	127	236	222	142	169	18.4
Wannon Water	260	213	146	172	184	6.7
South Gippsland Water	186	1426	487	532	554	4.1
Dubbo	143	43	8	0	0	0.0
Fitzroy River Water	308	287	265	214	199	-7.0
Fraser Coast	467	310	312	354	319	-9.9
Wingecarribee	307	342	374	409	352	-13.8
East Gippsland Water	251	227	279	541	386	-28.7
GWMWater	105	406	486	362	216	-40.4
Coffs Harbour	53	166	109	99	39	-60.4
Albury	266	132	241	175		
Clarence Valley	99	133	163	180		
Median	186	236	211	180	240	
Mean	214	317	233	244	299	
Small						
Orange	0	0	71	0	35	
Bega Valley	118	22		54	352	553.5
WC (Australind/Eaton)	291	380	246	173	482	178.8
Central Highlands	179	101	110	222	593	167.7
WC (Albany)	442	443	130	224	527	135.2
Kempsey	330	306	284	152	238	56.1
Goulburn Mulwaree	292	296	276	313	439	40.3
Westernport Water	194	150	135	203	279	37.8
Gympie	153	152	190	190	250	31.3
WC (Geraldton)	268	418	562	538	666	23.8
Essential Energy	226	0		672	763	13.6
Armidale		140	120	0	0	0.0
Southern Downs	302	603	656	476	445	-6.5
Lismore	265	303	201	299	266	-11.0
Whitsunday	226	252	329	740	655	-11.5
Livingstone	172	292	139	109	93	-14.6
P&W (Alice Springs)	326	524	416	576	489	-15.1
Byron	54	142	218	142	111	-21.8
Bathurst	699	364	281	542	374	-31.0
Ballina	89	260	218	196	124	-36.8
Cassowary Coast	488	686	520	766	344	-55.0
Western Downs	1,484	353	250	740	247	-66.6
Median	265	294	232	223	348	
Mean	314	281	268	333	353	

Table A7 F29 – Capital expenditure: wastewater (\$/property), by utility size group , 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
Gold Coast	244	189	257	365	462	26.6
Hunter Water	217	150	153	404	471	16.6
Unitywater	292	368	256	282	308	9.2
Urban Utilities	232	226	296	324	348	7.3
TasWater	224	315	221	307	317	3.2
Yarra Valley Water	231	255	251	260	252	-3.3
WC (Perth)	259	272	242	205	193	-6.1
Sydney Water	226	323	351	309	283	-8.4
City West Water	67	106	109	160	144	-10.4
South East Water	196	156	214	264	225	-14.9
Icon Water	379	373	338	305	256	-16.0
Barwon Water	204	223	294	247	201	-18.5
SA Water	175	219	357	239	149	-37.6
Logan	388	535	697	1,019	571	-44.0
Central Coast	215	179	117			
Median	226	226	256	293	270	
Mean	237	259	277	335	298	
Large						
Redland City	272	95	31	55	161	190.9
WC (Mandurah)	399	213	126	101	225	123.5
Gippsland Water	302	291	395	426	665	56.3
P&W (Darwin)	159	525	312	97	147	52.0
Central Highlands Water (Vic)	128	108	163	162	208	28.7
Coliban Water	113	117	146	167	212	27.3
Toowoomba	369	223	211	197	194	-1.6
Western Water	811	918	725	904	854	-5.5
Goulburn Valley Water	276	210	286	357	336	-6.0
Cairns	230	185	320	339	297	-12.2
Shoalhaven	1,054	2,547	155	381	328	-13.9
North East Water	54	168	151	264	210	-20.2
Townsville	284	637	539	457	227	-50.4
Median	276	213	211	264	225	
Mean	342	480	274	300	313	
Medium						
Dubbo	93	21		0	4	
Port Macquarie Hastings	576	434	665	76	259	239.8
MidCoast Council	54	64	158	103	234	128.0
Fraser Coast	179	274	342	227	514	126.6
GWMWater	147	152	184	100	182	81.9
Eurobodalla	758	674	572	555	845	52.3
Fitzroy River Water	255	281	234	133	202	51.5
Lower Murray Water	83	128	214	147	218	48.4
Wingecarribee	645	641	584	496	686	38.3

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Tweed	104	155	135	163	198	21.8
Gladstone	635	281	416	465	540	16.1
Bundaberg	1,176	1,024	224	133	116	-12.5
South Gippsland Water	112	105	394	578	468	-18.9
Coffs Harbour	184	127	291	146	80	-45.3
Mackay	159	45	254	442	221	-49.9
Wannon Water	234	285	415	573	269	-53.0
East Gippsland Water	305	169	232	210	93	-55.8
Tamworth	363	290	176	327	82	-74.9
Queanbeyan	2,682	440	402	447	9	-98.0
Albury	114	93	183	142		
Clarence Valley	104	111	331	130		
Median	184	169	273	163	218	
Mean	427	276	320	266	275	
Small						
Kempsey	539	465	237	194	500	157.6
Byron	213	40	331	153	362	135.9
Bega Valley	62	36	617	133	269	102.1
Southern Downs	45	224	46	256	500	95.1
Central Highlands	370	1,644	967	146	256	76.1
Goulburn Mulwaree	1,067	1,797	456	319	537	68.3
Essential Energy	395			112	182	62.8
Westernport Water	206	155	164	208	278	33.4
Ballina	171	860	1,083	360	432	20.1
P&W (Alice Springs)	270	18	119	147	173	17.5
Armidale		208	124	0	0	0.0
Orange	0	0	39	0	0	0.0
Lismore	627	1,303	757	310	306	-1.3
WC (Australind/Eaton)	366	126	248	265	204	-23.3
Bathurst	253	162	296	137	91	-33.7
Livingstone	362	307	1,205	372	214	-42.4
WC (Albany)	586	1,117	365	432	241	-44.1
Cassowary Coast	384	516	333	803	360	-55.2
Gympie	312	110	182	202	89	-56.1
Western Downs	22	64	171	1,317	317	-76.0
Whitsunday	308	531	73	1,317	205	-84.4
WC (Geraldton)	429	120	157	710	104	-85.4
Median	312	208	248	256	249	
Mean	333	467	379	376	255	

Table A8 F13 – Combined operating cost: water and wastewater (\$/property), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
SA Water	694	686	719	652	673	3.2
Gold Coast	1,242	1,231	1,229	1,249	1,256	0.6
Unitywater	1,063	1,059	1,079	1,051	1,025	-2.4
Yarra Valley Water	921	898	891	881	850	-3.5
South East Water	911	883	891	895	862	-3.7
WC (Perth)	626	628	564	631	603	-4.4
TasWater	1,052	938	1,006	1,019	971	-4.7
City West Water	1,154	1,072	1,103	1,055	1,004	-4.8
Logan	1,081	1,156	1,196	1,229	1,168	-5.0
Hunter Water	612	667	675	695	646	-7.1
Urban Utilities	1,222	1,213	1,271	1,294	1,197	-7.4
Sydney Water	718	695	741	743	677	-8.9
Icon Water	1,036	1,043	1,014	965	873	-9.6
Barwon Water	683	697	715	717	634	-11.6
Central Coast	647	635	682	762		
Median	921	898	891	895	867	
Mean	911	900	918	923	889	
Large						
Redland City	871	988	1,064	987	1,128	14.2
Western Water	928	870	891	876	915	4.5
Shoalhaven	842	817	923	998	996	-0.2
Cairns	704	722	724	714	712	-0.3
Coliban Water	849	854	913	920	893	-2.9
Goulburn Valley Water	947	928	920	1,002	958	-4.4
Central Highlands Water (Vic)	895	993	1,058	1,029	979	-4.9
P&W (Darwin)	1,026	963	912	1,215	1,147	-5.6
Gippsland Water	1,220	1,275	1,287	1,281	1,209	-5.6
North East Water	938	915	884	940	887	-5.6
Toowoomba	649	787	825	990	918	-7.0
WC (Mandurah)	630	652	597	645	598	-7.3
Townsville	1,078	1,049	1,119	1,401	1,281	-8.6
Median	895	915	913	990	958	
Mean	891	909	932	1,000	971	
Medium						
Gladstone	1,097	1,612	1,311	1,321	1,997	51.2
East Gippsland Water	1,108	965	931	861	1,041	20.9
Tamworth	1,008	1,059	1,054	1,067	1,236	15.8
Queanbeyan	1,448	1,425	1,284	1,258	1,356	7.8
South Gippsland Water	978	922	1,136	1,030	1,101	6.8
Lower Murray Water	850	790	757	727	772	6.2
Coffs Harbour	1,026	1,050	1,029	905	958	5.8
Dubbo	1,078	948	1,024	990	1,044	5.4
Eurobodalla	1,107	1,108	1,114	1,176	1,229	4.6

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Bundaberg	711	860	851	844	853	1.1
Fitzroy River Water	686	679	693	675	681	0.8
Wannon Water	985	1,012	990	974	966	-0.8
Wingecarribee	932	934	936	978	970	-0.8
Tweed	1,039	1,040	1,064	1,107	1,084	-2.1
MidCoast Council	1,054	1,026	1,245	1,051	1,028	-2.1
Port Macquarie Hastings	928	1,006	935	1,025	988	-3.7
Fraser Coast	980	1,050	929	819	785	-4.3
GWMWater	1,023	1,039	993	806	731	-9.3
Mackay	956	1,048	1,210	1,153	1,020	-11.5
Albury	701	724	786	862		
Clarence Valley	844	857	820	729		
Median	985	1,012	993	978	1,020	
Mean	978	1,007	1,004	969	1,044	
Small						
Central Highlands	1,211	946	785	743	1,022	37.6
Gympie	428	354	277	563	726	29.0
Southern Downs	828	1,105	1,209	1,460	1,668	14.3
Cassowary Coast	606	1,075	1,049	685	738	7.7
WC (Geraldton)	635	647	648	659	693	5.2
Lismore	1,207	1,139	1,215	1,231	1,280	4.0
Western Downs	907	806	980	989	1,011	2.2
Byron	1,435	1,570	1,778	1,817	1,854	2.0
WC (Albany)	748	757	689	708	713	0.7
Bega Valley	1,375	1,402	1,444	1,543	1,542	-0.1
Orange	859	837	898	854	838	-1.9
Ballina	1,347	1,285	1,359	1,419	1,380	-2.7
Bathurst	1,172	1,274	1,190	1,348	1,288	-4.4
Westernport Water	1,026	1,046	1,027	1,043	982	-5.8
Whitsunday	1,204	1,406	1,726	1,703	1,600	-6.0
WC (Australind/Eaton)	815	716	690	707	662	-6.4
Kempsey	1,049	1,049	1,280	1,215	1,134	-6.7
Livingstone	1,866	869	1,232	1,295	1,154	-10.9
P&W (Alice Springs)	1,356	1,234	1,220	1,581	1,370	-13.4
Goulburn Mulwaree	786	789	778	1,081	840	-22.3
Armidale		1,163	1,226	1,466	1,113	-24.1
Essential Energy	1,756			4,068	1,821	-55.2
Median	1,049	1,049	1,190	1,223	1,123	
Mean	1,077	1,022	1,081	1,281	1,156	

Table A9 F8 – Revenue from community service obligations ratio, by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
Icon Water	0.0334	0.0199	0.0157	0.0176	0.0251	42.6
South East Water	0.046	0.043	0.041	0.0439	0.0488	11.2
Yarra Valley Water	0.0525	0.05	0.0464	0.0487	0.0539	10.7
City West Water	0.0333	0.0344	0.0338	0.0317	0.0339	6.9
WC (Perth)	0.0651	0.0622	0.0663	0.059	0.063	6.8
Barwon Water	0.0489	0	0.0448	0.0435	0.0455	4.6
Unitywater	0.0084	0.0082	0.008	0.008	0.008	0.0
Logan	0	0	0	0	0	0.0
Urban Utilities	0	0	0	0	0	0.0
Hunter Water	0.0449	0.0421	0.044	0.0522	0.0499	-4.4
Sydney Water	0.055	0.0505	0.0498	0.0511	0.0481	-5.9
SA Water	0.105	0.1063	0.0929	0.119	0.1103	-7.3
TasWater	0.0271	0.0247	0.0231	0.0578	0.0245	-57.6
Central Coast	1.3	0.013	0.013	0.013		
Median	0.0449	0.0247	0.0338	0.0435	0.0397	
Mean	0.1213	0.0303	0.0319	0.0364	0.0368	
Large						
P&W (Darwin)	0.0277	0.0265	0.023	0.0206	0.0346	68.0
Goulburn Valley Water	0.0567	0.0547	0.0533	0.054	0.0601	11.3
Coliban Water	0.042	0.0403	0.0407	0.0413	0.0456	10.4
Townsville	0.0102	0.0104	0.0145	0.015	0.016	6.7
Central Highlands Water (Vic)	0.0434	0.0553	0.05	0.0513	0.0536	4.5
North East Water	0.0649	0.0624	0.061	0.063	0.0626	-0.6
Shoalhaven	0.0131	0.0122	0.0126	0.012	0.011	-8.3
Gippsland Water	0.0433	0.0445	0.0415	0.0475	0.0427	-10.1
Cairns	0.0283	0.0286	0.0258	0.025	0.022	-12.0
Redland City	0.003	0.0033	0.0036	0.004	0.003	-25.0
Toowoomba	0	0	0	0.012	0.008	-33.3
WC (Mandurah)	0.1039	-0.4077	-0.1263	-0.2344	-0.1405	-40.1
Western Water	0.0425	0.0353	0.0295	0.0332	0.0074	-77.7
Median	0.042	0.0286	0.0258	0.025	0.022	
Mean	0.0368	-0.0026	0.0176	0.0111	0.0174	
Medium						
Bundaberg	0.0326	0.0359	0.0256	0.031	0.037	19.4
Gladstone	0	0	0	0.009	0.01	11.1
Wannon Water	0.0475	0.0477	0.0516	0.0474	0.0522	10.1
GWMWater	0.069	0.0652	0.065	0.0678	0.0721	6.3
East Gippsland Water	0.062	0.0625	0.0647	0.063	0.0639	1.4
Coffs Harbour	0.0089	0.0086	0.0081	0.004	0.004	0.0
Fitzroy River Water	0.0108	0.0112	0.0101	0.011	0.011	0.0
Queanbeyan	0.005	0.0039	0.0041	0.004	0.004	0.0
MidCoast Council	0.0118	0.0105	0.01	0.011	0.011	0.0
Mackay	0.0022	0.0021	0.0021	0.002	0.002	0.0
Fraser Coast	0.0042	0.009	0.0094	0.007	0.007	0.0

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Eurobodalla	0.0102	0.0091	0.0089	0.009	0.009	0.0
Dubbo	0.6	0.0048	0.011	0.005	0.005	0.0
Wingecarribee	0.0076	0.0065	0.0075	0.008	0.008	0.0
Port Macquarie Hastings	0.0111	0.008	0.0097	0.011	0.01	-9.1
Tweed	0.0106	0.0103	0.011	0.011	0.01	-9.1
South Gippsland Water	0.0603	0.0602	0.0567	0.0575	0.0514	-10.6
Tamworth	0.0082	0.0086	0.0082	0.009	0.008	-11.1
Lower Murray Water	0.0598	0.0554	0.0534	0.0591	0.0481	-18.6
Albury	0.0077	0.0074	0.0071	0.008		
Clarence Valley	0.0129	0.0116	0.0117	0.01		
Median	0.0108	0.0091	0.01	0.01	0.01	
Mean	0.0496	0.0209	0.0208	0.0212	0.0223	
Small						
Gympie	0.0424	0.022	0.022	0.007	0.024	242.9
Essential Energy	0.019			0.009	0.017	88.9
P&W (Alice Springs)	0.1427	0.1403	0.1388	0.1309	0.1581	20.8
WC (Geraldton)	-0.6526	-1.3171	-1.3687	-0.932	-1.0678	14.6
Lismore	0.0146	0.0094	0.0102	0.007	0.008	14.3
Westernport Water	0.0388	0.0327	0.0366	0.0337	0.0357	5.9
Bathurst	0.0059	0.0059	0.0064	0.007	0.007	0.0
Bega Valley	0.0093	0.8	0.009	0.008	0.008	0.0
Kempsey	0.0138	0.0114	0.0104	0.009	0.009	0.0
Central Highlands	0	0	0	0	0	0.0
Livingstone	0	0	0	0	0	0.0
Southern Downs	0	0	0	0	0	0.0
Whitsunday	0.0321	0.045	0.1096	0.093	0.089	-4.3
Orange	0.0084	0.0081	0.0086	0.009	0.008	-11.1
Goulburn Mulwaree	0.0072	0.0055	0.0066	0.007	0.006	-14.3
Byron	0.005	0.0054	0.0055	0.006	0.005	-16.7
Ballina	0.0106	0.0075	0.0081	0.009	0.007	-22.2
Armidale		0.0084	0.008	0.0098	0.007	-28.6
WC (Albany)	-0.0825	0.0385	-0.1791	-0.0842	-0.0533	-36.7
Western Downs	0.0482	0.5918	0	0.093	0.053	-43.0
WC (Australind/Eaton)	-0.011	0.1433	0.0199	-0.0315	-0.0059	-81.3
Cassowary Coast	0	0	0	0.018	0	-100.0
Median	0.0084	0.0084	0.008	0.0075	0.007	
Mean	-0.0166	0.0266	-0.0547	-0.0421	-0.0311	

Table A10 C15 – Average duration of an unplanned interruption: water (minutes), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
WC (Perth)	103	112	102.9	111	140	26.1
Unitywater	160	129.5	119.7	109.7	120.3	9.7
Icon Water	134.7	125.1	135	136	147	8.1
Gold Coast	137.5	116	126	140.7	151.7	7.8
Sydney Water	133	155	143	187	200	7.0
Central Coast	202	198	265	197	208	5.6
Hunter Water	231	149	161	150.5	155	3.0
South East Water	83	87.4	83.8	88.2	89.5	1.5
TasWater				152	153.7	1.1
City West Water	125.3	119.6	113	114.5	112.8	-1.5
SA Water	195	226.3	240.4	203	194	-4.4
Yarra Valley Water	118.2	102.9	95	105.9	97.5	-7.9
Barwon Water	102	89	126.7	127.8	112.7	-11.8
Urban Utilities	132	125	135	119	94	-21.0
Logan	177.6	117.2	90.7		183.6	
Median	133.8	122.3	126.3	131.9	147	
Mean	145.3	132.3	138.4	138.7	144	
Large						
Coliban Water	132	102.5	142.1	112.5	141.5	25.8
Redland City	114	148	113.8	110	135.1	22.8
WC (Mandurah)	71	65	71	64	62	-3.1
Townsville	77	70	84.2	103.1	98.8	-4.2
Central Highlands Water (Vic)	107.3	137.7	155.1	121.4	114	-6.1
North East Water	111.5	99.4	96	91.2	81	-11.2
Goulburn Valley Water	98.2	102.7	98.6	106.3	93.7	-11.9
Gippsland Water	87.4	85.2	93.4	90.8	69.3	-23.7
Western Water	214.8	90	72	121.3	79.4	-34.5
Cairns	65.1	49.3	44.5	76.9	45	-41.5
Shoalhaven	104	147	94	153	74	-51.6
P&W (Darwin)					139	
Toowoomba	648					
Median	105.7	99.4	94	106.3	87.3	
Mean	152.5	99.7	96.8	104.6	94.4	
Medium						
Queanbeyan	161	2		38	220	478.9
Tamworth		0	420	86	210	144.2
Fraser Coast	105.6	230.3	104.8	56.6	125	120.8
Riverina Water (W)	183	242	233	125	164	31.2
Eurobodalla	213	237	178	135	170	25.9
Mackay	66.5	63.6	19.1	19.6	23.3	18.9
Tweed	136	141	159	139	161	15.8
Coffs Harbour	120	120	207	177	189	6.8
Dubbo	162	129	142	123	125	1.6

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Clarence Valley	120			180	180	0.0
Port Macquarie Hastings	30	30	90	90	90	0.0
Albury	119	266	254	95	87	-8.4
South Gippsland Water	91	101	121	90	80	-11.1
Lower Murray Water	57	59	62	66.6	59	-11.4
Wannon Water	93.5	79.3	90.3	158	138.5	-12.3
Bundaberg	138	77	58	84	70	-16.7
GWMWater	94.4	103.4	115.1	102.9	83.9	-18.5
Gladstone	47.6	23.2	69.8	50	39	-22.0
Wingecarribee	120	270	341	245	185	-24.5
Fitzroy River Water	39.8	34.4	32.6	55.3	33.8	-38.9
East Gippsland Water	92	76	72	169	74	-56.2
Median	112.3	90.2	115.1	95	125	
Mean	109.5	114.2	145.7	108.8	119.4	
Small						
Southern Downs	87.1	102		90	246.5	173.9
Western Downs	61	53	90	23	37	60.9
Livingstone	25.7	19	16.3	18.3	28.6	56.3
Bega Valley	141	234	165	163	251	54.0
Armidale		135	127	98	131	33.7
Lismore	129	180	90	90	120	33.3
Westernport Water	109	108.6	85.9	58.4	71.8	22.9
WC (Australind/Eaton)	85	87	58.2	85	100	17.6
WC (Geraldton)	137	135	162.8	89	102	14.6
Central Highlands	30	30	30	30	30	0.0
Orange	135	135	141	240	240	0.0
Aqwest–Bunbury (W)	49	34	45	39	38	-2.6
Busselton (W)	63.5	93.7	66.3	147.5	130	-11.9
WC (Kal–Boulder) (W)	44	46	74.2	36	31	-13.9
Cassowary Coast	218	185	254	184	156	-15.2
Whitsunday	120	120	120	278.3	235	-15.6
WC (Albany)	121	147	123.6	173	145	-16.2
Kempsey	26	198	96	238	195	-18.1
Gympie	81.6	197.3	129	201	157.6	-21.6
Bathurst	120	120				
Byron	120	120	120			
Goldenfields Water (W)		258	235		152	
Goulburn Mulwaree	180	180				
Snowy Monaro					120	
Median	109	120	108	90	130	
Mean	99.2	126.9	111.5	120.1	129.4	

Table A11 C13 – Total complaints: water and sewerage (per 1,000 properties), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
Barwon Water	4.3	3.3	4.5	4.1	6.7	63.4
Unitywater	1.4	1.5	1.4	1.4	2.2	57.1
South East Water	3	2.7	3.2	4.2	5.8	38.1
Logan		12.3	14.3	17.9	23.1	29.1
Yarra Valley Water	11	11.1	12.4	11	11.5	4.5
City West Water	3.6	3.3	3.4	4.4	4.4	0.0
Sydney Water	2.1	2.2	2.4	2.1	2	-4.8
SA Water	2.5	2.2	2	2	1.9	-5.0
Gold Coast	8.4	3.6	3.5	4.9	3.9	-20.4
Urban Utilities	5.9	6.6	6.7	6.4	5	-21.9
WC (Perth)	0.8	1.2	0.8	0.8	0.6	-25.0
Central Coast	7.9	10	9.3	16	11	-31.3
Icon Water	4.3	3.7	2.8	3.4	2.2	-35.3
Hunter Water	3.1	3.5	3.8	3.5	2.1	-40.0
TasWater	12.2	15.6	12.6			
Median	4	3.5	3.5	4.2	4.2	
Mean	5	5.5	5.5	5.9	5.9	
Large						
Coliban Water	8.6	5.3	6.4	6.4	15.5	142.2
Redland City	2.6	3.2	3	2.4	4	66.7
Townsville	0.8	0.5	0.5	0.6	0.8	33.3
Western Water	3.3	3.3	2.6	3	3.6	20.0
P&W (Darwin)	85.1	68.4	60.4	50.9	59.2	16.3
Goulburn Valley Water	5.4	3.9	4.5	5.9	5.9	0.0
Toowoomba	4.1	3.2	3.2	2	1.9	-5.0
North East Water	2.9	3.4	3.8	5.8	5.4	-6.9
Cairns	3.6	2.4	2.1	3	2.6	-13.3
Central Highlands Water (Vic)	6.9	8.4	8.6	5.1	4.1	-19.6
Gippsland Water	10.9	8.7	14.2	9.2	6.9	-25.0
WC (Mandurah)	0.3	0.6	0.5	0.6	0.4	-33.3
Shoalhaven	1.8	2	0.9	1	0.06	-94.0
Median	3.6	3.3	3.2	3	4	
Mean	10.5	8.7	8.5	7.4	8.5	
Medium						
Gladstone	0.3	0.3	0	0	0.5	
Lower Murray Water	4.8	1.7	3.2	0.1	1.8	1700.0
Coffs Harbour	1.6	0.1	0.2	0.1	0.4	300.0
Wannon Water	5.3	6	4	3.4	6.5	91.2
South Gippsland Water	6.2	8.9	5.7	4.1	7.5	82.9
Port Macquarie Hastings	15.5	6	28.5	12	21	75.0
Tamworth	39.5	48	68.8	51	71	39.2
Queanbeyan	52	55	88.4	76	103	35.5
Fraser Coast	20.5	15.1	10.1	14.4	17.2	19.4

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Eurobodalla	2	4	11.9	22	26	18.2
Tweed	0	1	1	1	1	0.0
MidCoast Council	4.4	3	3.4	2	2	0.0
Mackay	57	93.4	60.9	70.8	68.9	-2.7
Fitzroy River Water	47.2	39.9	46	48.4	46	-5.0
Dubbo	18.3	17	15.2	21	17	-19.0
Wingecarribee	90	81	119	110	88	-20.0
East Gippsland Water	4	3.7	3.6	3.6	2.8	-22.2
Clarence Valley	0	19	42.7	115	88	-23.5
GWMWater	7.6	8.3	0.4	8.7	5.1	-41.4
Bundaberg	12.8	59.7	52.6	28.2	15.9	-43.6
Albury	11.2	2	1.2	2	1	-50.0
Median	7.6	8.3	10.1	12	15.9	
Mean	19.1	22.5	27	28.3	28.1	
Small						
Western Downs	9.2	2.8	0.2	0.3	1.9	533.3
Whitsunday	84.7	9.3	7.8	4.3	24.7	474.4
Byron	6.1	8	14.8	16	34	112.5
Armidale		10	22.1	20	36	80.0
WC (Geraldton)	1.5	2.3	2	0.8	1.3	62.5
Central Highlands	146	24.1	25.5	28.6	31.4	9.8
Gympie	5.5	5.2	0.5	1.1	1.2	9.1
Ballina	0.6	2	5.7	12	13	8.3
Lismore	0.5	2	5.4	3	3	0.0
Essential Energy	1	2	12.5	2	2	0.0
Bathurst	69.4	51	52.9	47	47	0.0
Cassowary Coast	16.6	10.3	14.4	13.1	12.8	-2.3
P&W (Alice Springs)	101.3	110.7	121.9	103.1	97.8	-5.1
Goulburn Mulwaree	0	69	80.2	76	72	-5.3
Orange	111.6	102	112.4	97	76	-21.6
WC (Australind/Eaton)	1.5	1.2	0.9	0.9	0.7	-22.2
Westernport Water	4.8	2.5	3.7	1.3	1	-23.1
Livingstone	61.6	3.3	3.3	4	2.9	-27.5
WC (Albany)	0.9	1.1	0.5	0.6	0.4	-33.3
Kempsey	1.1	1	6.3	9	5	-44.4
Bega Valley	7.5	11	6.9	8	4	-50.0
Southern Downs	95.6	5.4	6.9	4.9	1.8	-63.3
Median	6.1	5.3	6.9	6.5	4.5	
Mean	34.6	19.8	23	20.6	21.4	

Table A12 C14 – Percentage of calls answered by an operator within 30 seconds, by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
Sydney Water	60	76	69	72	88	22.2
TasWater	89.1	86.5	87.1	83	92.1	11.0
Barwon Water	85	79	67	76.5	83.4	9.0
Hunter Water	67	69	58	56	60	7.1
SA Water	85.4	85.4	85.9	86.2	91.2	6.0
Yarra Valley Water	64.3	54.4	90.2	88.5	87.9	-0.7
Unitywater		72	83	80	78	-2.5
Central Coast			46	71	64	-9.90
Icon Water	61.1	73.1	73.5	77.9	66.6	-14.5
South East Water	67	52.6	58.2	72.4	60.7	-16.2
WC (Perth)	70.6	62.6	56.1	52.7	41	-22.2
City West Water	81	81	50.5	73.7	48	-34.9
Gold Coast		45	54.1	62.1	39.5	-36.4
Logan	80.9	71.3				
Median	70.6	72	67	73.7	66.6	
Mean	73.8	69.8	67.6	73.2	69.3	
Large						
Gippsland Water	83.8	83.5	67.8	62.2	75.8	21.9
Townsville			47.7	47.7	49.1	2.9
Western Water	86	75	75.8	75.9	78	2.7
North East Water	90	96	98.4	98.6	98.8	0.2
Shoalhaven	98	98	98	98	98	0.0
Goulburn Valley Water	97.3	98.6	96.7	95.3	94.3	-1.0
Redland City			81	82	80	-2.4
Toowoomba		80	81	83	79	-4.8
Central Highlands Water (Vic)	89.4	79.7	70.7	62	46.2	-25.5
Coliban Water	91.8	86.5	83	81.2	54.1	-33.3
Median	90	85	81	81.6	78.5	
Mean	90.9	87.2	80	78.6	75.3	
Medium						
Albury	47	50	60	60	72	20.0
Port Macquarie Hastings	96	96	75	78	89	14.1
Lower Murray Water	94	95	94	89	93.6	5.1
Coffs Harbour	99	99	76	73	75	2.7
Dubbo	84		69	93	95	2.2
Mackay		97	97	97	98	1.0
Wannon Water	98.8	98.8	98.6	98.2	98.4	0.2
East Gippsland Water	99	99	99	99	99	0.0
GWMWater	92.3	91.4	90.9	92.9	92.8	-0.2
Gladstone		100	79.7	78.3	78	-0.4
South Gippsland Water	94	98.8	98.6	98.4	96.8	-1.6
Eurobodalla	68	65	66	65	62	-4.6
Tweed	50	50	69	72	68	-5.6

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Bundaberg		95	96	82	42.9	-47.7
Fitzroy River Water		80	75.9			
Tamworth					0	
Wagga Wagga (S)	94	94	92			
Wingecarribee	96	97	99		71	
Median	94	95.5	90.9	85.5	83.5	
Mean	85.5	87.9	84.5	84	77	
Small						
Gympie		72	78	71	73.5	3.5
Lismore	80	80	70	70	72	2.9
Bega Valley	50	50	70	90	90	0.0
Cassowary Coast			50	65	65	0.0
Kempsey	40	45		93	93	0.0
Westernport Water	99.7	98.2	98.7	97	97	0.0
Orange	77	76	72	73	70	-4.1
Whitsunday		84.4	86.6	85.1	81.2	-4.6
Western Downs		91	94	76	48.4	-36.3
Ballina	100	100	90			
Bathurst	100	100	100			
Essential Energy	78	78	60	63		
Goldenfields Water (W)		100	100			
Median	79	82.2	82.3	74.5	73.5	
Mean	78.1	81.2	80.8	78.3	76.7	

Table A13 A8 – Water main breaks, bursts and leaks (mains breaks per 100 km), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
TasWater			40.7	32.6	51.9	59.2
SA Water	13.5	13.6	15	13.5	13.3	-1.5
WC (Perth)	13.1	11.1	11.6	11.5	10.9	-5.2
Gold Coast	5.1	6.4	9.1	10.2	9.5	-6.9
Barwon Water	31	29.4	32.3	25.1	23.2	-7.6
Logan	4	5.1	5.8	6.7	6	-10.4
Icon Water	14.3	16.3	14.7	13.6	12	-11.8
Central Coast	16	14.4	12.1	11.6	9.9	-14.7
Urban Utilities	23.1	22.5	30	31.1	25.4	-18.3
South East Water	32.7	37.1	36.9	31.8	25.2	-20.8
Unitywater	4.8	4.1	4.2	4.9	3.5	-28.6
Hunter Water	24.8	30	27	28.3	20.2	-28.6
Sydney Water	23.9	32.8	24.7	29.2	20.8	-28.8
Yarra Valley Water	47.4	46.3	43.9	43.8	28.6	-34.7
City West Water	42.1	42.8	51.8	40	23.3	-41.8
Median	19.6	19.4	24.7	25.1	20.2	
Mean	21.1	22.3	24	22.3	18.9	
Large						
Redland City	3.1	3.1	4	3	3.9	30.0
WC (Mandurah)	4	2.8	4.8	2.3	2.7	17.4
P&W (Darwin)	11.2	10.7	9.8	12.7	14	10.2
Goulburn Valley Water	12.9	16.2	17	13.2	13.9	5.3
Cairns	10.5	23	20	20.1	20.6	2.5
Toowoomba	16.3	29	12.4	9.1	9.1	0.0
Gippsland Water	23	25.1	26.9	20.5	19.7	-3.9
Central Highlands Water (Vic)	18.2	25.4	20.9	19.7	16.8	-14.7
North East Water	13.7	10.3	11.9	13.7	11.2	-18.2
Coliban Water	28.7	28.5	25.8	26.4	21.5	-18.6
Townsville	33.5	18.3	21.7	27.6	21.8	-21.0
Western Water	12.3	12.2	12.1	10.4	8	-23.1
Shoalhaven	5.7	6.5	6.1	11.2	6.5	-42.0
Median	12.9	16.2	12.4	13.2	13.9	
Mean	14.9	16.2	14.9	14.6	13.1	
Medium						
Eurobodalla	10	9.1	28.1	17.2	42	144.2
Dubbo	7.8	9.7	7.8	5.4	12.9	138.9
Bundaberg	8	3.9	4.6	22	32.7	48.6
Wannon Water	9.6	8.3	5.2	5.1	7.3	43.1
Tamworth	5.5	6.8	10.1	3.7	4.7	27.0
Tweed	9.1	7.5	9.5	9.3	11.8	26.9
Albury	3.3	3.9	4.5	3.5	4.3	22.9
MidCoast Council	6.9	8.9	8.3	13.7	15.1	10.2
Riverina Water (W)	11.6	8.1	6	16.7	18.2	9.0
Queanbeyan	8.3	6.5	15.8	21.4	23.2	8.4

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Port Macquarie Hastings	1.8	4.2	5.7	7.9	8.5	7.6
Fitzroy River Water	16.2	12.3	11.2	10.8	10.3	-4.6
South Gippsland Water	29.5	34.3	32.7	24	22.2	-7.5
GWMWater	56.6	58.5	57.1	45.2	41.7	-7.7
East Gippsland Water	12.8	17.1	15.9	15.4	13.4	-13.0
Mackay	9.4	6.6	7.3	7.2	6.2	-13.9
Coffs Harbour	10	9.7	8.2	11	9.1	-17.3
Wingecarribee	15	8.1	14.6	8.3	6.3	-24.1
Lower Murray Water	28.6	26.2	33.4	26.4	19.6	-25.8
Fraser Coast	4.2	3.6	7	7.9	5.3	-32.9
Gladstone	6.7	10.8	98.5	63.7	10.8	-83.0
Clarence Valley	15.4	5.9	9.4	86.1	7.3	-91.5
Median	9.5	8.2	9.4	12.3	11.3	
Mean	13	12.3	18.2	19.6	15.1	
Small						
Byron	13.7	17.1	27.4	13.1	48.2	267.9
Western Downs	28	18.2	15.1	7.2	25.1	248.6
Bega Valley	9.5	13.1	5.7	4.7	11.6	146.8
Orange	7.3	8.7	6.3	7.4	10.9	47.3
Aqwest–Bunbury (W)	17.5	9.9	5.9	6.1	7.6	24.6
Livingstone	2.9	1	3.5	3.2	3.9	21.9
Whitsunday	10.4	19.4	20.4	16.2	19.5	20.4
WC (Albany)	10.9	15.1	9	11.5	13.5	17.4
Southern Downs	4.5	1.1	7.2	7.2	8.1	12.5
Gympie	11.1	9.8	9.8	9.8	10.6	8.2
Kempsey	12.6	5.1	10.6	5.5	5.9	7.3
Busselton (W)	7.1	9.7	9	7.4	7.9	6.8
Cassowary Coast	8.8	12.7	18.2	20.8	21.9	5.3
Westernport Water	18.2	20	21.2	11	10.5	-4.5
Bathurst	10.8	15	7.2	4.2	3.5	-16.7
Goldenfields Water (W)	16.3	15	16.7	18.5	15.1	-18.4
Central Highlands	48.6	42.1	37.7	33.9	24.9	-26.5
P&W (Alice Springs)	30.7	44.3	36.2	43.1	31	-28.1
Armidale		13.2	17.3	20.1	14.3	-28.9
WC (Australind/Eaton)	9.2	6.9	6.5	6.5	4.4	-32.3
WC (Geraldton)	27.4	32.5	28.6	22.6	14.9	-34.1
WC (Kal–Boulder) (W)	15.5	19.7	19.3	21.2	9.8	-53.8
Essential Energy	16.2	24.6	15.2	22.3	9.9	-55.6
Lismore	29.5	39.9	43.2	52.7	20.9	-60.3
Goulburn Mulwaree	19	19.7	8.2	14.4	4.7	-67.4
Ballina	10.1					
Snowy Monaro					8.9	
Median	12.6	15	15.1	11.5	10.8	
Mean	15.8	17.4	16.2	15.6	14.1	

Table A14 A14 – Number of sewer mains breaks and chokes per 100 km of sewer main (breaks and chokes/100 km), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
TasWater		45	36.6	41.2	56.6	37.4
Urban Utilities	24.9	20.9	18.4	21.1	24	13.7
Barwon Water	33	36.1	51.2	53.8	55.8	3.7
SA Water	43	43	46	48	49.3	2.7
WC (Perth)	17	17	17	18.4	17.5	-4.9
Central Coast	34.3	37	38	33	30	-9.1
City West Water	20.3	21.3	24.1	24.5	20.4	-16.7
Logan	11.2	10.7	9	9.8	8.1	-17.3
Hunter Water	49.6	50.6	44.9	42.8	33.6	-21.5
South East Water	18	16.2	19	20.7	16.2	-21.7
Yarra Valley Water	38.1	30.7	38.4	42.4	32.3	-23.8
Sydney Water	62.8	70	74	66	49	-25.8
Icon Water	48.9	55.6	72.1	83.8	52.3	-37.6
Gold Coast	4.3	5.1	4.9	6.2	3.8	-38.7
Unitywater	24.8	16.4	17.1	19.8	9.8	-50.5
Median	28.9	30.7	36.6	33	30	
Mean	30.7	31.7	34	35.4	30.6	
Large						
Redland City	4	3.6	2.3	2.7	13.9	414.8
Toowoomba	56.9	64.6	44.2	13.5	20.1	48.9
Goulburn Valley Water	9.1	6.1	10.3	13.8	14.9	8.0
Central Highlands Water (Vic)	19.3	19.1	20.5	19.2	19.7	2.6
Shoalhaven	8	11	3	3	3	0.0
Townsville	2.7	2.8	7.3	54.8	54.4	-0.7
Cairns	11.8	14.5	15.1	12.9	12.4	-3.9
Western Water	11.5	12.7	18.1	17.3	15.8	-8.7
WC (Mandurah)	10	7	11	8.5	6.8	-20.0
Coliban Water	40.5	29.8	20.5	22.3	17.8	-20.2
North East Water	11.8	10.3	10.3	13.9	10.6	-23.7
P&W (Darwin)	19	14.3	9.9	12.7	8.6	-32.3
Gippsland Water	8.4	9.1	7.8	6.9	1.5	-78.3
Median	11.5	11	10.3	13.5	13.9	
Mean	16.4	15.8	13.9	15.5	15.3	
Medium						
Tweed	1	0	0	0	1	
Port Macquarie Hastings	15	14	9	6	15	150.0
Queanbeyan	86	59	101	55	116	110.9
Wingecarribee	31	26	45	8	15	87.5
Albury	78	9	44	52	81	55.8
Mackay	3.8	2.2	3.5	3.1	4.6	48.4
Bundaberg	10.1	11.5	13.1	20.3	30.1	48.3
GWMWater	46.3	42.1	43	43.2	50.5	16.9

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
South Gippsland Water	110	13.4	36.6	13.3	12.5	-6.0
Coffs Harbour	95	84	82	88	82	-6.8
Tamworth	41	8	7	12	11	-8.3
Fitzroy River Water	28.1	17	21.7	18.3	16.5	-9.8
Wannon Water	18	12.5	12.1	9.2	8.1	-12.0
East Gippsland Water	5.9	7.6	6.9	8.1	7.1	-12.3
Dubbo	35.7	38	40	63	50	-20.6
MidCoast Council	20	22	24	27	21	-22.2
Fraser Coast	8.1	7.1	7.9	9.4	6.5	-30.9
Lower Murray Water	18	16	19	16	10.4	-35.0
Eurobodalla	25	33	37	29	13	-55.2
Gladstone	12.4	5.6	7.9	8.4	2	-76.2
Clarence Valley	31	36	64	66	11	-83.3
Wagga Wagga (S)	62	73			57	
Median	26.6	15	21.7	16	14	
Mean	35.5	24.4	29.7	26.4	28.2	
Small						
Goulburn Mulwaree	106.7	69	44	44	277	529.5
Whitsunday	8.9	15.5	17.6	7.6	32.2	323.7
Byron	7	7	8	13	42	223.1
Kempsey	10	22	5	12	33	175.0
Cassowary Coast	4.8	4.4	3.9	3	6.9	130.0
Westernport Water	4.1	6	6	3.6	5.4	50.0
Bathurst	91	55	49	36	44	22.2
WC (Bunbury) (S)	9.2	14	11	6.4	7.7	20.3
Essential Energy	120.7	122	115	143	167	16.8
Lismore	16	26	17	24	28	16.7
WC (Australind/Eaton)	7.4	9	7	6.3	7.1	12.7
Orange	78	83	90	40	45	12.5
Gympie	3	8.7	5.9	14.2	15.6	9.9
WC (Albany)	20.9	17	21	21.1	22.9	8.5
Livingstone	3.3	4.2	5.1	3.9	4.2	7.7
P&W (Alice Springs)	3.6	6.3	3.2	6.6	5.9	-10.6
Western Downs	4.8	2.8	4.4	4.7	4	-14.9
Armidale		49	51	58	47	-19.0
Bega Valley	14	27	18	18	14	-22.2
Kal-Boulder (S)	30	39	33	34	24.3	-28.5
WC (Geraldton)	7.1	12	9	5	3.4	-32.0
Southern Downs	12	0.3	34.2	64.4	30.8	-52.2
WC (Busselton) (S)	3.8	2	3	13.2	5.6	-57.6
Central Highlands	32.9	7.6	6.5	25.6	9.6	-62.5
Ballina	0	0				
Snowy Monaro					6	
Median	9.1	12	10	13.7	15.6	
Mean	25	24.4	23.7	25.3	35.5	

Table A15 A15 – Number of property connection sewer breaks and chokes (breaks and chokes/1,000 properties), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
Barwon Water	6	6	9.4	9.3	10	7.5
Urban Utilities	3.9	3.1	2.9	2.9	3.1	6.9
Central Coast	6.9	3.2	3.6	3.1	3	-3.2
SA Water	26	28	28	29	28	-3.4
City West Water	4.5	3.2	3.4	3.1	2.9	-6.5
Unitywater	1.3	1.1	1.2	1.4	1.3	-7.1
Hunter Water	9.3	10	10.3	9.8	8.2	-16.3
South East Water	4	4.8	5.2	4.9	3.9	-20.4
Gold Coast	2.2	2.3	1.8	2.2	1.7	-22.7
Logan	1.9	1.3	1	1.2	0.9	-25.0
Yarra Valley Water	7.6	6.7	8.1	8	5.6	-30.0
Icon Water	9.5	10.4	13.8	15.7	10.5	-33.1
Sydney Water	0.3	0.3	0.3	0.3	0.2	-33.3
TasWater			10.7	12.6	6.9	-45.2
	4.5	3.2	4.4	4	3.5	
Mean	6.4	6.2	7.1	7.4	6.2	
Large						
Townsville	4.2	3.2	5.5	5.4	7.2	33.3
Central Highlands Water (Vic)	2.2	3.8	4.9	4.6	5.6	21.7
P&W (Darwin)	0.8	2	1.4	1	1.2	20.0
North East Water	2.9	3	3	2.7	3.2	18.5
Gippsland Water	2.4	2.2	1.3	1.4	1.4	0.0
Cairns	2.2	2.7	2.7	2.3	2.2	-4.3
Western Water	4.8	4.2	4.9	3.9	3.6	-7.7
Redland City	1.3	1.1	1	1.1	1	-9.1
Goulburn Valley Water	2.3	5	4.6	7.5	5.8	-22.7
Shoalhaven	0.1	0	3.5	3.1	2.2	-29.0
Toowoomba	4.3	2.5	1	2.3	1.6	-30.4
Coliban Water	8.9	4.3	3.6	3.3	0.5	-84.8
Median	2.3	2.9	3.2	2.9	2.2	
Mean	3	2.8	3.1	3.2	3	
Medium						
Fraser Coast	2.7	2.8	2.3	1.5	3.4	126.7
Tamworth	8.6	10.2	5.4	2.9	6.3	117.2
Bundaberg	0.6	8.7	13.2	7.6	11	44.7
Eurobodalla	4.6	5.8	4.3	4.2	6	42.9
Mackay	1.7	2.2	0.6	1.2	1.7	41.7
East Gippsland Water	1.2	1.8	1.6	1.3	1.7	30.8
Tweed	1.2	0.8	0.3	0.4	0.5	25.0
GWMWater	29.2	35.1	34.9	33.1	35.5	7.3
Dubbo	6.1	6.9	7	8.6	8.9	3.5
Coffs Harbour	2.8	0.5	2	3	3.1	3.3
Fitzroy River Water	10.6	9.7	11.6	12.8	12.3	-3.9

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Wannon Water	3	3	3	2	1.9	-5.0
Wingecarribee	4.6	16.9	8.4	16.7	15	-10.2
Albury	10.7	4.5	4.1	2.7	2.3	-14.8
Wagga Wagga (S)	6.7	5	7.8	8.5	6.9	-18.8
Clarence Valley	5.9	20.4	5.7	4.2	3.4	-19.0
South Gippsland Water	64	3.7	10.1	5.1	4	-21.6
Lower Murray Water	6	7	8	9	7	-22.2
Port Macquarie Hastings	1.1	1	0.2	0.2	0.03	-85.0
Gladstone	1.2	0.6	1	1.5	0.1	-93.3
MidCoast Council			0			
Queanbeyan	1.1	0	0		2.2	
Median	4.6	4.5	4.2	3.6	3.4	
Mean	8.3	7	6	6.3	6.3	
Small						
Whitsunday	0.9	1.4	0.1	0.7	3	328.6
Bega Valley	1.5	4.4	2.2	0.8	1.9	137.5
Cassowary Coast	3.1	0.8	1	0.3	0.7	133.3
Western Downs	2.9	2	0.8	4.6	8.1	76.1
Bathurst	3.2	4.9	4.9	3	4.9	63.3
Livingstone	3.4	1.4	2.2	2.2	3.4	54.5
Orange	0.3	3.2	10.9	10	13.4	34.0
Central Highlands	1.1	10.2	10.3	8.6	10.9	26.7
Gympie		4	0.6	1.9	2.3	21.1
Lismore	5.9	21.3	9.5	8.9	9.7	9.0
Essential Energy	43.3	51.3	51.7	60	61.4	2.3
Kal-Boulder (S)	1	1.8	0	0	0	0.0
Westernport Water	2.3	3.3	4.4	1.8	1.5	-16.7
Goulburn Mulwaree	17.4	18	14.7	12.6	10.4	-17.5
Southern Downs	2.1	7.6	11.3	7.1	5.7	-19.7
Armidale		27.3	32.9	34.1	23.9	-29.9
Byron	11.3	9.6	14.9	16.8	10.9	-35.1
Kempsey	24.9	6.2	21	23.5	12.4	-47.2
P&W (Alice Springs)	2	1.3	0.9	4.1	1.3	-68.3
Median	2.9	4.4	4.9	4.6	5.7	
Mean	7.4	9.5	10.2	10.6	9.8	

Table A16 A10 – Real losses: service connections (L/service connection/day), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
City West Water	70	89	57.8	39.2	47	19.9
Central Coast	34	35	37	58	68	17.2
Barwon Water	45	48	34	21	24	14.3
Icon Water	79	83	45	49	55	12.2
Unitywater	51	55.2	49.8	54.1	52.7	-2.6
Gold Coast	76.3	76.4	69.3	68	65.5	-3.7
SA Water	86	76	78	90	85	-5.6
Logan	66.1	76.5	83.1	70.8	66.3	-6.4
Hunter Water	96	86	79	69	64	-7.2
South East Water	59	47	66	53	47	-11.3
Yarra Valley Water	50	60	49	42	37	-11.9
Urban Utilities	76	75	74	70	61	-12.9
Sydney Water	83	93	94	85	74	-12.9
WC (Perth)	87	83.6	85	84.7	71.7	-15.4
TasWater		277	313	361	272	-24.7
Median	73	76.4	69.3	68	64	
Mean	68.5	84	80.9	81	72.7	
Large						
Western Water	32	51	50	0.03	19	63,233.3
Goulburn Valley Water	104	118	100	80	107	33.7
Toowoomba	59.3	81	66.9	73.4	96.3	31.2
Central Highlands Water (Vic)	40	40	50	42	50	19.0
Cairns	7.9	21.4	46.3	31.3	34.8	11.2
P&W (Darwin)	143	222	142	276	297	7.6
Gippsland Water	90	80	90	71	70	-1.4
WC (Mandurah)	77	93.8	41.9	47.8	45.3	-5.2
North East Water	48	59	70	54	51	-5.6
Coliban Water	63	60	72	86	70	-18.6
Redland City	16.1	16.5	11.6	25.6	18.4	-28.1
Shoalhaven	107	64	71	74	52	-29.7
Townsville	143	306.4	342.9	333.7	152.9	-54.2
Median	63	64	70	71	52	
Mean	71.6	93.3	88.8	91.9	81.8	
Medium						
Riverina Water (W)	55.6	57	85	2	63	3,050.0
Mackay	130.3	189.9	186	111	228.1	105.5
GWMWater	112	72	119	0	0.1	75.0
Clarence Valley	46.9	43	126	30	47	56.7
Lower Murray Water	0.1	0	0	0	0	33.3
East Gippsland Water	48	55.8	27.8	43.1	56	29.9
Albury	46.2	63	44	19	23	21.1
South Gippsland Water	87	105	122.8	102.6	118.9	15.9
Tweed	90.9	104	137	96	109	13.5
Eurobodalla	54	52	51	50	50	0.0

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Wannon Water	84	70	70	70	70	0.0
Wingecarribee	107	117	95	77	76	-1.3
Tamworth	79	55	55	87	82	-5.7
Dubbo	51.3	4	86	121	106	-12.4
Fitzroy River Water	114.2	186	176	194.1	170	-12.4
Coffs Harbour	56	62	42	44	38	-13.6
Fraser Coast	89.1	80.7	54	62.1	53.1	-14.5
Bundaberg	50.6	215.5	133.7	163.6	135.4	-17.2
Port Macquarie Hastings	40	45	77	87	64	-26.4
Gladstone	239.3	47.8	50.8	96	60.3	-37.2
MidCoast Council	84	57	37	40	22	-45.0
Queanbeyan	0	101	92	142	27	-81.0
Median	67.5	62.5	81	73.5	61.6	
Mean	75.7	81	84.9	74.4	72.7	
Small						
Western Downs	65.4	170.5	52.1	6.7	118.7	1,671.6
Armidale		129	127	28	186	564.3
Southern Downs	66.5	27.8	29	35.4	106.5	200.8
WC (Australind/Eaton)	109	124.4	142.3	87.4	168.4	92.7
Goldenfields Water (W)	200.6	151	54	89	167	87.6
WC (Geraldton)	106	209.7	161.6	162.6	234.4	44.1
Gympie	147.8	133.2	185.4	113.7	131.9	16.0
Aqwest–Bunbury (W)	104	108	98	95	103	8.4
Ballina	89	57	100	116	117	0.9
Westernport Water	50	42	11	11	11	0.0
Kempsey	63	114	90	45	45	0.0
Lismore	38	103	96	78	75	-3.8
Byron	50	84	49	49	44	-10.2
Essential Energy	90.7	101	111	76	67	-11.8
P&W (Alice Springs)	153	118	92	246	208	-15.4
Cassowary Coast	463.9	458.8	461.8	472.4	372.5	-21.1
Busselton (W)	78	115	119	162	127	-21.6
Bega Valley	51	51	50	54	41	-24.1
Orange	106	112	113	39	29	-25.6
Whitsunday	101.8	144.7	251.4	323.1	220.1	-31.9
Livingstone	0	0	116.8	245	166.2	-32.2
WC (Kal–Boulder) (W)	88	102.4	78	120.6	79.6	-34.0
WC (Albany)	115	111	163.9	176.5	76.5	-56.7
Goulburn Mulwaree	67.3	95	119	40	12	-70.0
Central Highlands	271.4	253.7	200	261.9	78	-70.2
Bathurst	67.9	84	58	47		
Median	89	111.5	105.5	88.2	106.5	
Mean	109.7	123.1	120.4	122.3	119.4	

Table A17 E12 – Total net greenhouse gas emissions per 1,000 properties (t CO₂ equivalents/1,000 properties), by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
TasWater		179	196	218	252	15.6
Central Coast	505	436	449	472	533	12.8
Unitywater		199	212	228	245	7.5
South East Water	56	63	49	42	45	6.9
SA Water	272	302	426	340	345	1.4
Urban Utilities	168	183	182	178	180	1.2
WC (Perth)	828	754	510	701	695	-0.8
Sydney Water	176	173	180	175	169	-3.1
Gold Coast			246	250	236	-5.60
Logan		187	163	185	173	-6.3
Hunter Water	167	163	357	344	309	-10.3
City West Water	32	30	28	28	23	-15.3
Yarra Valley Water	44	43	40	35	26	-24.9
Barwon Water	263	257	267	267	176	-34.0
Icon Water	242	268	363	331	196	-40.9
Median	176	185	212	228	196	
Mean	250	231	245	253	240	
Large						
Cairns		256	254	228	247	8.5
Redland City		34	190	184	190	3.2
Shoalhaven	470	479	754	739	763	3.2
WC (Mandurah)	348	350	257	377	387	2.5
Toowoomba		501	633	617	624	1.1
Gippsland Water	546	543	617	483	480	-0.5
North East Water	750	697	653	619	599	-3.3
P&W (Darwin)	179	229	215	213	199	-6.7
Goulburn Valley Water	686	1004	1080	1290	1170	-9.3
Coliban Water	454	384	443	385	341	-11.6
Central Highlands Water (Vic)	230	208	236	200	175	-12.7
Western Water	440	512	558	529	460	-13.1
Townsville		294	368	433	165	-62.0
Median	454	384	443	433	387	
Mean	456	422	481	484	446	
Medium						
Clarence Valley	200	252	181	169	233	37.9
Queanbeyan	299	200	169	184	243	32.1
Wingecarribee	474	442	416	733	913	24.6
MidCoast Council	337	426	453	416	454	9.1
Mackay			0	0	0	0.0
Fitzroy River Water		475	445	562	559	-0.6
Coffs Harbour	489	459	386	428	419	-2.1
Tweed	457	730	420	413	391	-5.3
Tamworth	422	469	376	391	370	-5.4

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Lower Murray Water	542	643	624	578	540	-6.5
Port Macquarie Hastings	395	304	482	527	489	-7.2
South Gippsland Water	416	454	446	424	391	-7.6
GWMWater	426	477	566	473	436	-7.9
Dubbo	470	505	563	468	427	-8.8
East Gippsland Water	365	351	368	341	307	-9.9
Wannon Water	675	696	704	611	528	-13.6
Eurobodalla	381	530	500	495	404	-18.4
Albury	437	418	383	367	271	-26.2
Bundaberg			251	677	338	-50.1
Fraser Coast		0				
Median	424	456	420	428	404	
Mean	424	435	407	435	406	
Small						
Southern Downs				168	599	257.6
Armidale		436	423	326	719	120.6
Ballina	295	378	456	459	772	68.2
Bega Valley	399	417	413	284	476	67.6
Lismore	171	64	223	185	255	37.8
Goulburn Mulwaree	761	670	744	687	855	24.5
Kempsey	303	321	460	682	821	20.4
Cassowary Coast			412	290	319	10.3
Byron	138	385	383	386	417	8.0
Western Downs		334	472	475	509	7.1
Whitsunday		355	408	475	497	4.5
Bathurst	418	278	434	388	395	1.8
Central Highlands				291	296	1.5
Orange	450	596	482	668	672	0.6
P&W (Alice Springs)	577	822	859	878	882	-0.5
WC (Albany)	380	368	356	364	362	-0.6
WC (Australind/Eaton)	347	323	316	321	310	-3.4
Essential Energy	984	1220	835	368	354	-3.8
Westernport Water	383	399	394	384	367	-4.4
Livingstone				391	370	-5.4
WC (Geraldton)	351	331	332	343	322	-6.2
Gympie			434	405	362	-10.5
Median	381	378	423	385	406	
Mean	425	453	465	419	497	

Table A18 H3 – Percentage of population where microbiological compliance was achieved, by utility size group, 2016–17 to 2020–21

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Major						
Barwon Water	100	100	100	100	100	0.0
Central Coast	100	100	100	100	100	0.0
City West Water	100	100	100	100	100	0.0
Gold Coast		100	100	100	100	0.0
Hunter Water	100	100	100	100	100	0.0
Icon Water	100	100	100	100	100	0.0
Logan		100	100	100	100	0.0
SA Water	100	100	100	100	100	0.0
Sydney Water	100	100	100	100	100	0.0
TasWater	99.4	99.8	100	100	100	0.0
Urban Utilities	100	100	100	100	100	0.0
WC (Perth)	100	100	100	100	100	0.0
Yarra Valley Water	100	100	100	100	100	0.0
South East Water	100	100	100	100	99.9	-0.1
Unitywater		100	100	100	99.9	-0.1
Median	100	100	100	100	100	
Mean	100	100	100	100	100	
Large						
Coliban Water	100	99.5	100	94.3	100	6.0
Cairns		100	100	100	100	0.0
North East Water	100	100	100	100	100	0.0
P&W (Darwin)	100	100	100	100	100	0.0
Redland City		100	100	100	100	0.0
Shoalhaven	100	100	100	100	100	0.0
Toowoomba		100	100	100	100	0.0
Townsville		100	100	100	100	0.0
WC (Mandurah)	100	100	100	100	100	0.0
Western Water	99	100	100	100	100	0.0
Central Highlands Water (Vic)	100	99.7	100	100	99.8	-0.2
Goulburn Valley Water	100	100	100	100	99.5	-0.5
Gippsland Water	100	100	100	100	99	-1.0
Median	100	100	100	100	100	
Mean	99.9	99.9	100	99.6	99.9	
Medium						
Albury	100	100	100	100	100	0.0
Bundaberg		100	100	100	100	0.0
Wannon Water	99.9	100	100	100	100	0.0
Tweed	100	100	100	100	100	0.0
Tamworth	100	100	100	100	100	0.0
South Gippsland Water	100	100	99	100	100	0.0
Fitzroy River Water		100	100	100	100	0.0
Riverina Water (W)	100	100	100	100	100	0.0
Queanbeyan	100	100	100	100	100	0.0

Utility	2016–17	2017–18	2018–19	2019–20	2020–21	% Change from 2019–20
Port Macquarie Hastings	100	100	100	100	100	0.0
MidCoast Council	100	100	100	100	100	0.0
Mackay		100	100	100	100	0.0
Lower Murray Water	100	100	100	100	100	0.0
GWMWater	100	99.4	100	100	100	0.0
Gladstone		100	100	100	100	0.0
Fraser Coast		100	100	100	100	0.0
Eurobodalla	100	100	100	100	100	0.0
East Gippsland Water	100	100	100	100	100	0.0
Dubbo	100	100	100	100	100	0.0
Coffs Harbour	100	100	100	100	100	0.0
Clarence Valley	100	100	100	100	100	0.0
Wingecarribee	100	100	100	100	100	0.0
Median	100	100	100	100	100	
Mean	100	100	100	100	100	
Small						
Cassowary Coast		99.3	98.9	97.5	100	2.6
Gympie		100	100	98.6	100	1.4
Southern Downs		100	100	99.5	100	0.5
Aqwest–Bunbury (W)	100	100	100	100	100	0.0
Lismore	100	100	100	100	100	0.0
Westernport Water	100	100	100	100	100	0.0
Western Downs		72.5	100	100	100	0.0
WC (Kal–Boulder) (W)	100	100	100	100	100	0.0
WC (Geraldton)	100	100	100	100	100	0.0
WC (Australind/Eaton)	100	100	100	100	100	0.0
WC (Albany)	100	100	100	100	100	0.0
P&W (Alice Springs)	100	100	100	100	100	0.0
Orange	100	100	100	100	100	0.0
Livingstone		100	100	100	100	0.0
Kempsey	100	100	100	100	100	0.0
Armidale		100	100	100	100	0.0
Goulburn Mulwaree	100	100	100	100	100	0.0
Goldenfields Water (W)	100	100	100	100	100	0.0
Essential Energy	100	100	100	100	100	0.0
Central Highlands		100	100	100	100	0.0
Byron	100	100	100	100	100	0.0
Busselton (W)	100	100	100	100	100	0.0
Bega Valley	100	100	100	100	100	0.0
Bathurst	100	100	100	100	100	0.0
Ballina	100	100	100	100	100	0.0
Whitsunday		100	100	100	100	0.0
Snowy Monaro					100	
Median	100	100	100	100	100	
Mean	100	98.9	100	99.8	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 and useful, and enable meaningful comparisons between utilities over time.

The National Water Commission, the Water Services Association of Australia, and representative National Water Initiative (NWI) parties established the National Framework for Reporting on Performance of Urban Water Utilities Deed, which sets out how the parties will report on the performance of urban water utilities in accordance with the NWI. The deed requires parties to use all reasonable endeavours to ensure that a comprehensive audit of the data collected by each urban water utility under the National Performance Framework is undertaken at least once every 3 years.

The National Performance Framework 2013–14 auditing requirements and audit report template provide further detail about the requirements that a water utility must meet in order to report its results in the 2021 Urban NPR.

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

B1 2019–20 Indicator audit status summary

Table B1 Status of indicator audits undertaken within each jurisdiction

Jurisdiction	Audit activities
Australian Capital Territory	In July 2021, the Inspector General of Compliance assessed ACT's water metering frameworks, strategies, policies, procedures and measurement of operational performance. This assessment related to urban water reporting and the Environment, Planning and Sustainable Development Directorate reported that all requirements were met and no further audits have been confirmed.
New South Wales	<p>In the New South Wales metropolitan area, the most recent audit conducted on the NPR data was in late 2021. That audit covered a subset (one-third) of the indicators; this approach ensures that each indicator is audited once every 3 years as required. The next audit will be conducted in late 2022.</p> <p>In the New South Wales country area, the most recent audit conducted on the NPR data was in 2018–19. All the water utilities in regional NSW reporting to NPR will be requested to conduct an audit of the 2021–22 reporting year's data.</p>
Northern Territory	The Department of Treasury and Finance has not required the utilities providers, Power and Water – Alice Springs and Power and Water – Darwin, to audit their National Performance Reporting data. Some NPR indicators are audited at an aggregate level.
Queensland	The Department of Regional Development, Manufacturing and Water has not required service providers to audit their National Performance Reporting data.

Jurisdiction	Audit activities
South Australia	The most recent audit conducted on the NPR data was in October 2021 for 2020–21 data as it was an auditing year. Auditing is usually conducted every 3 years on the full set of indicators. The next audit will depend on auditing requirements following the NPR review.
Tasmania	TasWater's performance indicators are audited in 3 tranches over a 3-year period. In 2020–21, selected TasWater performance indicators were audited (year 2 of 3). An audit of selected performance indicators concluded in September 2021. The next round of audits will be conducted in September 2022.
Victoria	Victoria's annual audit program was deferred in 2019–20 as part of a commitment to reducing the burden on water businesses and their staff during that year in response to COVID. Prior to this the last audit was conducted in 2018–19. The Essential Service Commission's (ESC's) regular audit scope resumed in 2021, covering data for both the 2020–21 and 2019–20 reporting years. Most of the audit work was conducted remotely to comply with Victoria's COVID restrictions at the time. All ESC-reported data is now considered up to date from an audit perspective.
Western Australia	No Urban NPR data audits were undertaken in 2020–21 in Western Australia as it was not an auditing year. Auditing is conducted every 3 years. The last audit was conducted in 2018–19. The next round of audits is scheduled for 2022 on the 2021–22 reporting year data.

Appendix C Utilities reporting

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

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

Appendix D Urban performance indicators

Indicator category	Indicator subcategory	Indicator code	Indicator name
Assets	Water treatment plants	A1	Number of water treatment plants providing full treatment (plants)
Assets	Other water assets	A2	Length of water mains (km)
Assets	Other water assets	A3	Number of properties served per km of water main (properties/km)
Assets	Wastewater assets	A4	Number of wastewater treatment plants (plants)
Assets	Wastewater assets	A5	Length of sewer mains and channels (km)
Assets	Wastewater assets	A6	Number of properties served per km of sewer main (properties/km)
Assets	Water main breaks	A8	Number of water main breaks, bursts, and leaks, per 100 km of water mains (mains breaks/100 km)
Assets	Water losses	A9	Infrastructure leakage index (ILI)
Assets	Water losses	A10	Real losses: service connections (L/service connection/day)
Assets	Water losses	A11	Real losses: water mains (kL/km water main/day)
Assets	Wastewater breaks and chokes	A14	Number of sewer mains breaks and chokes per 100 km (breaks and chokes/100 km)
Assets	Wastewater breaks and chokes	A15	Number of property connection sewer breaks and chokes per 1,000 properties (breaks and chokes/1,000 properties)
Assets	Water main breaks	IA8	Number of water main breaks, bursts, and leaks (mains breaks)
Customers	Connected properties and population	C1	Population receiving services: water supply (population 000s)
Customers	Connected properties and population	C2	Number of connected residential properties: water supply (properties 000s)
Customers	Connected properties and population	C3	Number of connected non-residential properties: water supply (properties 000s)
Customers	Connected properties and population	C4	Total number of connected properties: water supply (properties 000s)
Customers	Connected properties and population	C6	Number of connected residential properties: wastewater (properties 000s)
Customers	Connected properties and population	C7	Number of connected non-residential properties: wastewater (properties 000s)
Customers	Connected properties and population	C8	Total number of connected properties: wastewater (properties 000s)
Customers	Water quality complaints	C9	Number of water quality complaints per 1,000 properties: water supply (complaints/1,000 properties)
Customers	Water service complaints	C10	Number of water service complaints per 1,000 properties (complaints/1,000 properties)
Customers	Wastewater service complaints	C11	Number of sewerage service complaints per 1,000 properties (complaints/1,000 properties)
Customers	Billing and account complaints	C12	Number of billing and account complaints per 1,000 properties: water supply and sewerage (complaints/1,000 properties)
Customers	Total water and wastewater complaints	C13	Number of water and sewerage complaints per 1,000 properties (complaints/1,000 properties)

Indicator category	Indicator subcategory	Indicator code	Indicator name
Customers	Connect time to a telephone operator	C14	Percentage of calls answered by an operator within 30 seconds (%)
Customers	Average duration of unplanned water supply interruptions	C15	Average duration of an unplanned interruption: water supply (minutes)
Customers	Water interruption frequency	C17	Number of unplanned interruptions per 1,000 properties: water supply (interruptions/1,000 properties)
Customers	Restrictions or legal action for non-payment of water bill	C18	Number of restrictions for non-payment of water bills per 1,000 properties (restrictions/1,000 properties)
Customers	Restrictions or legal action for non-payment of water bill	C19	Number of legal actions taken for non-payment of water bills per 1,000 properties (legal actions/1,000 properties)
Customers	Water quality complaints	IC9	Number of water quality complaints: water supply (complaints)
Customers	Water service complaints	IC10	Number of water service complaints (complaints)
Customers	Wastewater service complaints	IC11	Number of sewerage service complaints (complaints)
Customers	Billing and account complaints	IC12	Number of billing and account complaints: water supply and sewerage (complaints)
Customers	Total water and wastewater complaints	IC13	Number of water and sewerage complaints (complaints)
Customers	Water interruption frequency	IC17	Number of unplanned interruptions: water supply (interruptions)
Customers	Restrictions or legal action for non-payment of water bill	IC18	Number of restrictions for non-payment of water bills (restrictions)
Customers	Restrictions or legal action for non-payment of water bill	IC19	Number of legal actions taken for non-payment of water bills (legal actions)
Environment	Comparative wastewater treatment levels	E1	Percentage of wastewater only treated to a primary level (%)
Environment	Comparative wastewater treatment levels	E2	Percentage of wastewater only treated to a secondary level (%)
Environment	Comparative wastewater treatment levels	E3	Percentage of wastewater treated to a tertiary level (%)
Environment	Net greenhouse gas emissions	E8	Percentage of biosolids reused (%)
Environment	Net greenhouse gas emissions	E9	Net greenhouse gas emissions per 1,000 properties: water supply (t CO ₂ equivalents/1,000 properties)
Environment	Net greenhouse gas emissions	E9.1	Net greenhouse gas emissions per ML: water supply – bulk utility (t CO ₂ equivalents/ML)
Environment	Net greenhouse gas emissions	E10	Net greenhouse gas emissions per 1,000 properties: wastewater (t CO ₂ equivalents/1,000 properties)
Environment	Net greenhouse gas emissions	E10.1	Net greenhouse gas emissions per ML: wastewater – bulk utility (t CO ₂ equivalents/ML)
Environment	Net greenhouse gas emissions	E11	Net greenhouse gas emissions per 1,000 properties: other (t CO ₂ equivalents/1,000 properties)
Environment	Net greenhouse gas emissions	E11.1	Net greenhouse gas emissions per ML: other – bulk utility (t CO ₂ equivalents/ML)
Environment	Net greenhouse gas emissions	E12	Total net greenhouse gas emissions per 1,000 properties (t CO ₂ equivalents/1,000 properties)

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

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

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

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

Appendix E CPI indexation

Period	CPI-weighted average	Change from previous period	Change applied to values
2020–21	117.5	1.6	0.000
2019–20	115.7	1.3	1.016
2018–19	114.1	1.6	1.030
2017–18	112.3	1.9	1.046
2016–17	110.2	1.8	1.066
2015–16	108.3	1.4	1.085
2014–15	106.8	1.7	1.100
2013–14	105.0	2.6	1.119
2012–13	102.3	2.3	1.149
2011–12	100.0	2.4	1.175
2010–11	97.7	3.1	1.203
2009–10	94.8	2.4	1.239
2008–09	92.6	3.1	1.269
2007–08	89.8	3.3	1.308
2006–07	86.9	3.0	1.352
2005–06	84.4	3.2	1.392
2004–05	81.8	2.4	1.436
2003–04	79.9	2.4	1.471

Appendix F Jurisdictional summaries

Jurisdictional summaries are provided to document the institutional arrangements within each state and territory for the planning and management of water supply and wastewater services. These summaries are written by the states and territories and updated annually.

F1 Australian Capital Territory

F1.1 Introduction

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

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

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

The ICRC determines price directions for water utilities and regulates access agreements. A new price direction was issued in May 2018 for the next price path period up to 30 June 2023.¹⁰ An annual adjustment is made for water and sewerage services. Prices for water and sewerage services are increased in line with the consumer price index (CPI). The second factor is to incorporate the effect of any approved pass-through events on Icon Water's (formerly ACTEW Water) costs in prices in the following year. An industry panel adjustment mechanism is in place in order to share demand volatility risk between Icon Water and consumers.

F1.2 Water utilities in the ACT

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

In late 2011, the ACTEW Board approved the reintegration of the water and sewerage business into ACTEW. This change came into effect from 1 July 2012, when ACTEW resumed the management, operations, and maintenance of the ACT's water and sewerage assets and business. ActewAGL had previously undertaken this on behalf of ACTEW. The services were provided under the business name ACTEW Water. The change was carried out 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 the corporate name came into effect in May 2015.

Icon Water has 2 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% of ActewAGL through 2 subsidiary companies.

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

¹⁰ ICRC 2018, *Regulated water and sewerage services prices 2018–23*, Final Report, Canberra.

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

F1.3 Operation of water utilities

ACT Health regulates water quality under the territory's Public Health Act, in accordance with the *Australian Drinking Water Guidelines 2011*. Water quality testing was undertaken in accordance with these guidelines. Icon Water achieved 100% compliance with the Public Health (Drinking Water) Code of Practice (2007) in 2019–20.¹¹ Icon Water also published its *Annual drinking water quality report 2019–20* in accordance with the code in 2020.

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

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

F1.4 Performance reporting

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

The *Icon Water annual report to the ACT Government 2019–20* was provided to the ACT Government in September 2020.

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

F2 New South Wales

F2.1 Introduction

In New South Wales, urban water supply and sewerage services are provided by 3 state-owned water utilities, 93 local water utilities (LWUs)¹² and a number of privately owned utilities.

Various regulatory agencies have responsibility for the establishment and operation of the water utilities. The Independent Pricing and Regulatory Tribunal (IPART) is the licence-compliance and price regulator for the 3 major state-owned water utilities in New South Wales: Hunter Water Corporation, Sydney Water Corporation, and WaterNSW (bulk water services in metropolitan and regional New South Wales). IPART is also the licence-compliance regulator for private water utilities in NSW and the price regulator that determines the maximum prices that 2 regional LWUs – Central Coast Council and Essential Energy (Broken Hill) – and one private water utility (the Sydney Desalination Plant) can charge their customers for the provision of water and sewerage services.

The Department of Planning, Industry and Environment (DPIE) oversees and monitors water utility performance, and is the primary policymaker for all water utilities and regulator for the 93¹³ regional LWUs, which serve a total urban population of 2.05 million (with coverage of 98% for water supply and 96% for sewerage). The infrastructure current replacement cost for regional LWUs is \$31.1 billion and annual revenue is \$1.72 billion.

¹¹ Icon Water Limited 2020, *2019–20 Annual report to the ACT Government*, Canberra.

¹² In addition to 92 LWUs in regional New South Wales, Hawkesbury City Council provides sewerage services only within Sydney Water's area of operation.

¹³ The NSW *Local Government Act 1993* has been amended as a consequential amendment to the NSW Water Industry *Competition Amendment Act 2021*, enabling DPIE Water to be the primary regulator for Hawkesbury City Council's sewerage business. The amended provisions are expected to take effect in 2022.

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

The state's water utilities have obligations under Australian and New South Wales legislation, including the Australian Government's *Corporations Act 2001*, *Privacy Act 1988*, and *Water Act 2007*, and the following New South Wales legislation: *Water Management Act 2000*, *Water Act 1912*, *Protection of the Environment Operations Act 1997*, *Independent Pricing and Regulatory Tribunal Act 1992*, *Environmental Planning and Assessment Act 1979*, *State Owned Corporations Act 1989*, *Dams Safety Act 2015*, *Local Government Act 1993*, *Fisheries Management Act 1994*, *Public Health Act 2010*, *Fluoridation of Public Water Supplies Act 1957*, *Work Health and Safety Act 2011*, *Public Finance and Audit Act 1983*, *Water Industry Competition Act 2006*, *Hunter Water Act 1991*, *Sydney Water Act 1994*, and the *Water NSW Act 2014*.

F2.2 Establishment of water utilities

The 3 New South Wales state-owned utilities (Sydney Water Corporation, WaterNSW, and Hunter Water Corporation) are created by and derive their responsibilities and areas of operations from their respective Acts (the Sydney Water Act, the Water NSW Act, and the Hunter Water Act) and operate as major utilities under the Water Management Act.

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

F2.3 Operation of water utilities

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

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

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

Under the current Framework each LWU needs to prepare and implement a 30-year integrated water cycle management (IWCM) strategy and strategic business plan (SBP) in consultation with their community.

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

The New South Wales 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 New South Wales.

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

Proposed construction or modification of water or sewage treatment works or for the development of a water-recycling system in New South Wales requires approval under section 60 of the Local Government Act. This ensures that an independent and objective review of the proposed works is undertaken by the Department of Planning, Industry and Environment, where insights and expertise obtained from the department's involvement in overseeing the design and operation of these 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-risk or medium-risk trade waste discharge to the sewerage system requires a departmental concurrence under section 90(1) of the Local Government Act.

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

The department conducts operator-training courses for LWU water and sewage treatment works operators.

The annual performance of each of the LWUs activities and outcomes is publicly reported via the interactive performance monitoring data dashboard (<https://www.industry.nsw.gov.au/water/water-utilities/lwu-performance-monitoring-data>) and the NSW Water supply and sewerage benchmarking reports.

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

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

F2.4 Water utilities in New South Wales

Sydney Water Corporation, a statutory corporation wholly owned by the New South Wales Government, is Australia's largest water utility, with an area of operations covering almost 13,000 km². It provides drinking water, recycled water, wastewater services, and some stormwater services to more than 5 million people in Sydney, the Illawarra, and the Blue Mountains. Drinking water is sourced from a network of dams managed by WaterNSW, from the Hawkesbury River, and from the desalination plant at Kurnell before it is treated and delivered to customers.

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

Hunter Water Corporation is a wholly state-owned corporation providing drinking water, recycled water, wastewater and some stormwater services to almost 600,000 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.

Regional New South Wales currently has 93 LWUs. Ninety of these LWUs are either general purpose local government councils or county councils, which operate as financially separate to general council operations. Other LWUs operate as water supply authorities under the Water Management Act, including the Cobar Water Board, Essential Energy and WaterNSW for the Fish River Water Supply.¹⁴ The 93 regional LWUs in New South Wales range in area from 285 km² (Orange City Council) to over 50,000 km² (Central Darling Shire Council), while the population served ranges from 1,000 (Central Darling Shire Council) to over 300,000 (Central Coast Council). There are 29 LWUs that serve 10,000 or more connected properties.

Performance monitoring and reporting are considered important for public accountability and have been strongly endorsed by the New South Wales Government, IPART, and the Productivity Commission.¹⁵

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

With the exception of the pricing and financial indicators, IPART audits one-third of the auditable NWI indicators each year. The audit is conducted concurrently with the annual operating licence audits. The Audit Office of NSW, or other qualified auditors, audits the pricing and financial NWI indicators once every 3 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.

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

- The audit of the 30 NWI financial performance indicators is affected by the annual independent audit of the financial statements of each of the 93 regional LWUs.
- All the auditable non-financial performance indicators are independently audited every 3 years for each of the 29 regional NSW utilities that are required to report nationally.

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

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

Private water utilities

In New South Wales, private utilities can also provide water and sewerage services if licensed under the Water Industry Competition Act (WIC Act). The WIC Act is designed to encourage competition in the supply of water and wastewater services and facilitate private sector delivery of recycled water infrastructure. The Act sets out a licensing and compliance framework and establishes strict rules to ensure drinking water meets Australian standards, recycled water is 'fit for purpose', and all services are delivered safely, reliably and with minimal environmental impacts.

¹⁴ Councils exercising water supply and/or sewerage functions do so under the Local Government Act, including under a division generally administered by the minister responsible for water. Central Coast Council exercises its functions under both the Local Government Act and as a water supply authority under the Water Management Act. The Cobar Water Board, Essential Energy and WaterNSW (for the Fish River Water Supply) carry out their functions under the Water Management Act.

¹⁵ Productivity Commission 2011, *Australia's urban water sector*, Report No. 55, Final Inquiry Report, Canberra.

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

The WIC Act commenced operation on 8 August 2008. There are now 21 private water schemes licensed to operate in NSW. As at June 2021, these schemes were providing services to 7,190 drinking water customers, 11,102 recycled water customers, and 9,786 sewerage customers. Comprehensive reforms of the licensing framework were recently enacted, including:

- narrowing the focus of regulation on higher-risk utility-like schemes such as large-scale drinking water production, recycling and sewerage schemes or those servicing 30 or more residential or small business customers
- separating the licensing of operators and retailers from the approval of individual schemes so operators do not need to apply for a new licence for each scheme they operate
- requiring more rigorous assessment of the financial viability of proposed schemes to check their longevity and affordability and minimise the risk of last-resort events
- strengthening customer protection by introducing a deemed standard customer contract and new operator-of-last-resort arrangements to protect customers if an operator should fail financially.

The reforms will come into effect in late 2022 once the supporting regulations have been revised in line with the amendments to the Act.

F3 Northern Territory

F3.1 Introduction

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

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

- to promote the safe and efficient provision of water supply and sewerage services
- to establish and enforce standards of service in water supply and sewerage services
- to facilitate the provision of financially viable water supply and sewerage services
- 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 programs and emergency directions issued by the Chief Health Officer (Department of Health).

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

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

- that the licensee monitors and reports to the Utilities Commission on compliance with the licence
- 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 water in the territory. This Act provides for the investigation, allocation, use, control, protection, management, and administration of water resources, and for related purposes. The Water Act also allows for the issue of waste discharge licences and water extraction licences by the Controller of Water Resources (Department of Environment, Parks and Water Security [NT]).

F3.2 Operation of water utilities

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

While Power and Water Corporation has primary responsibility for providing safe drinking water, several 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, Parks and Water Security and the Northern Territory Environment Protection Authority (NT EPA) also have roles in protecting water quality, including the regulation and management of water resources and the regulation of pollution control.

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

A condition of the waste discharge licences issued to Power and Water Corporation is the submission to the NT 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 NT EPA on pollution incidents under the NT *Waste Management and Pollution Control Act 1998*.

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

F3.3 Water utilities in the Northern Territory

In the Northern Territory, 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 5 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 are reviewed and/or signed off at the senior management level. NPR data are signed off at the senior management level. Some NPR indicators are audited at an aggregate level.

F4 South Australia

F4.1 Introduction

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

The Essential Services Commission (the Commission) is the independent economic regulator of water and sewerage retail services in the state. The Commission's primary objective is to protect 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.

The Department for Environment and Water is responsible for the management of the state's water resources through administering the *Landscape South Australia Act 2019*; it also has a role in policy development relevant to the Water Industry Act.

Regional landscape boards are responsible for developing water allocation plans for prescribed water resource areas as required by the Landscape South Australia Act.

The Office of the Technical Regulator, which sits within the Department for Energy and Mining, has the following main functions:

- development of technical standards in connection with the water industry
- monitoring and regulating technical standards with respect to water and sewerage installations and associated equipment, products and materials (including on the customer's side of any connection point) and plumbing
- providing advice in relation to safety or technical standards in the water industry to the Commission at its request, and in the plumbing industry
- fulfilling any further function assigned to the Technical Regulator under the Act.

SA Health ensures that drinking water is delivered to consumers according to the requirements of the *Safe Drinking Water Act 2011* and the Safe Drinking Water Regulations 2012.

Under the Act, all drinking water providers must:

- register as a drinking water provider
- implement a risk management plan
- provide water quality results to consumers
- carry out audits and inspections.

The South Australian Public Health (Wastewater) Regulations 2013 detail the legislative requirements for wastewater systems, including on-site wastewater systems, relating to:

- manufacture
- installation
- operation
- maintenance.

Under the *Environment Protection Act 1993*, the SA Environment Protection Authority licences:

- ‘wastewater treatment facilities’ designed to treat waste for more than 1,000 persons per day outside water protection areas
- ‘wastewater treatment facilities’ designed to treat waste for more than more than 100 persons per day inside water protection areas
- works that involve the discharge of treated or untreated sewage to marine waters.

F4.2 Water utilities in South Australia

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

SA Water Corporation is a government entity and, as the state’s main supplier of urban water, is required 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 822,200 connections, servicing around 99% of the state’s drinking water customers. SA Water Corporation also provides sewerage services to approximately 642,200 connections, servicing around 87% of the state’s sewerage customers.

F4.3 Operation of water utilities

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

The Commission made its final revenue determination for the *South Australian Water Corporation Act 1994* in June 2020, setting maximum allowed revenues for drinking water and sewerage retail services for the 4-year period from 1 July 2020 to 30 June 2024. SA Water Corporation and the South Australian Government are responsible for setting specific prices (such as supply and usage charges for residential and non-residential customers); however, those prices must comply with the Commission’s allowed revenues.

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

Pursuant to Part 4 of the Essential Services Commission Act, 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 several operational service standards relating to customer service, service interruptions, and new connections.

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

F4.4 Performance reporting

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

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

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

F5 Tasmania

F5. Introduction

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

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

Industry regulators for the sector are the Tasmanian Economic Regulator (TER), responsible for licensing, price regulation, and service standards; the Director, Environment Protection Authority (EPA) Tasmania, responsible for regulating wastewater treatment plants; the Director of Public Health, responsible for regulating water quality and fluoridation; and the Secretary of the Tasmanian Department of Primary Industries, Parks, Water and Environment¹⁶, responsible for water licence allocations and regulating dam safety.

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

F5.2 Water utilities in Tasmania

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

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

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

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

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

¹⁶ On 1 December 2021, the Tasmanian Department of Primary Industries, Parks, Water and Environment changed its name to the Department of Natural Resources and Environment Tasmania.

F5.3 Operation of water utilities

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

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

EPA Tasmania administers and enforces the provisions of the Environmental Management and Pollution Control Act, which is principally concerned with the prevention, reduction, and remediation of environmental harm. The Director of Public Health is responsible for drinking water quality and safety through the application of drinking water quality guidelines and for the fluoridation of drinking water through the application of a code of practice. The Dam Safety Regulator monitors TasWater's performance against its dam safety regulatory obligations and guideline requirements to ensure that the dams TasWater is responsible for do not pose an unacceptable level of risk to the public.

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

Price reform of the industry is designed to transition customers to a single set of tariffs across the whole state by the statutory due date of 1 July 2020 (that is, customers are required to be paying the same price for the same service by this date). However, at the end of 2020–21, a small number of customers are still to be transitioned to consistent pricing. Price reform has also introduced 2-part pricing for water (a fixed charge based on the size of the connection and a variable charge reflecting metered water consumption) and sewerage charges based on the assessed equivalent tenements (that is, the estimated demand placed on the system) of each property.

F5.4 Performance reporting

One of the TER's functions is to monitor and report on the state of the Tasmanian water and sewerage industry.¹⁷ The performance indicators reported upon are based on the National Performance Reporting (NPR) Framework with some additional Tasmanian based measures, as set out in the TER's *Tasmanian Water and Sewerage Industry Performance and Information Reporting Guideline*.

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

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

Independent audits of TasWater's performance indicators are conducted at least once every 3 years as required by the NPR Audit Handbook. As a result, TasWater's performance indicators are audited in 3 tranches over a 3-year period. The tranche 1 audit was conducted in 2019–20, tranche 2 in 2020–21, and tranche 3 in 2021–22.

The TER's approach to regulatory reporting is set out in its *Regulatory Reporting Guideline Version 5*. Its approach to managing noncompliance is outlined in its *Compliance Enforcement Policy Version 3*.

F6 Queensland

F6.1 Introduction

Regulation of the urban water sector is undertaken by a number of Queensland Government departments with the aim of providing 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.

¹⁷ The TER's annual water and sewerage state of the industry reports are available from www.economicregulator.tas.gov.au.

F6.2 Water utilities in Queensland

There are 192 registered service providers in Queensland. Most are private entities and water boards that supply non-potable water for irrigation, commercial or stock and domestic purposes.

Drinking water services are provided to communities by:

- 4 bulk water entities (Seqwater, SunWater, Gladstone and Mount Isa Water Board)
- 2 distributor-retailers in South East Queensland (SEQ) (Urban Utilities, Unitywater)
- 3 local governments in SEQ (City of Gold Coast, Logan City Council and Redland City Council)
- 66 local governments outside SEQ
- 8 private providers.

Despite the large number of drinking water service providers, 95% of connected properties receive water and sewerage services from the 22 service providers that report for the National Performance Reporting Framework. The remaining 5% of connected properties receive services from 62 small and very small service providers. In general, the communities these providers supply services to are very small and often geographically isolated.

This variation in scale means that there are significant differences in capacity and capability across the urban water sector in Queensland.

In addition to drinking water and sewerage service provision, there are 173 registered recycled water schemes in Queensland. Most of these schemes are managed by a local government (although a small number of recycled water schemes are run by a private entity).

F6.3 Operation of water utilities

Water and sewerage service provision is regulated by the *Water Supply (Safety and Reliability) Act 2008* (Water Supply Act). The purpose of the Water Supply Act is to provide for the safety and reliability of water supply across Queensland. The Department of Regional Development, Manufacturing and Water (RDMW) is the water supply regulator under Water Supply Act.

The powers and obligations for service provision, performance reporting, drinking water management, and recycled water management apply to registered service providers according to the services provided.

To protect public health, RDMW closely monitors and regulates drinking water in Queensland.

Drinking water service providers are required to have an approved drinking water quality management plan and must comply with the plan and any conditions placed upon the plan. Water quality monitoring and reporting are integral components of the plan. Drinking water service providers are responsible for ensuring the safe supply of drinking water to the community and managing incidents that compromise drinking water quality.

The *Public Health Act 2005* and the Public Health Regulation 2018 include provisions relating to drinking water quality. As the administrator of the Public Health Act and the Public Health Regulation, Queensland Health has:

- set specific standards for drinking water quality in the Public Health Regulation
- the power to respond when drinking water supplied by a provider may present a risk to public health or be considered unsafe.

In addition to these provisions, Queensland Bulk Water Supply Authority (Seqwater) also has specific powers and obligations under the *Water Act 2000*, and SEQ services providers (Urban Utilities, Unitywater, City of Gold Coast, Logan City Council and Redland City Council) have powers and obligations under the *South-East Queensland Water (Distribution and Retail Restructuring) Act 2009*.

Other Acts that regulate one or more aspects of service provision include the:

- *Water Act 2000* (managed by RDMW)
- *Public Health Act 2005* (managed by Queensland Health)
- *Water Fluoridation Act 2008* (managed by Queensland Health)
- *Environmental Protection Act 1994* (managed by the Department of Environment and Science)
- *Local Government Act 2009* (managed by the Department of State Development, Infrastructure, Local Government and Planning)
- *Planning Act 2016* (managed by the Department of State Development, Infrastructure, Local Government and Planning)
- *Plumbing and Drainage Act 2018* (managed by the Department of Energy and Public Works)
- *Queensland Competition Authority Act 1997* (managed by Queensland Treasury).

F6.4 Performance reporting

Urban water service providers are required to report on their performance under the Queensland Government Key Performance Indicator (KPI) Framework in the Water Supply Act. The KPI Framework captures almost all drinking water and sewerage service providers in Queensland and requires them to monitor and report on key performance indicators and publish an annual performance report. Larger providers (those with over 10,000 connections) are also required to report for the National Performance Reporting framework.

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 (DH, regarding water quality), the Victorian Environment Protection Authority (EPA, regarding environmental performance), and the Essential Services Commission (ESC, regarding price regulation and service standards).

Reporting and compliance obligations are imposed by Victorian legislation including the *Water Act 1989*, the *Water Industry Act 1994*, the *Financial Management Act 1994*, the *Safe Drinking Water Act 2003*, and the *Environment Protection Act 1970*. In addition, regulatory instruments such as the Statement of Obligations (2015), the Water Industry Regulatory Order 2014, and the State Environment Protection Policy (SEPP) (Waters of Victoria) also impose some compliance and reporting obligations.

F7.2 Establishment of water utilities

The Victorian water sector is made up of 19 water utilities¹⁸ constituted under the Victorian Water Act. The key aspects of the frameworks governing drinking water quality, environmental protection, price regulation, and consumer protection are the same across all 19 water utilities.

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

¹⁸ From 1 July 2021, following the end of the reporting period, there are 18 water utilities in Victoria due to the formation of Greater Western Water from City West Water and Western Water.

F7.3 Operation of water utilities

Apart from DELWP, 4 other agencies jointly oversee the regulation of water utility operation in Victoria.

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

The DH oversees governance of water quality under the Safe Drinking Water Act and the Safe Drinking Water Regulations 2005. This provides a framework for drinking water quality that includes risk management obligations, a set of standards for key water quality parameters, and information disclosure requirements for water utilities. The Regulations establish an auditing framework.¹⁹ Under the legislation, the DH is required to publish an annual water quality report that is tabled in parliament by the Victorian Minister for Health.

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

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

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

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

- make price determinations
- regulate standards and conditions of service and supply
- 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 4 water utilities in metropolitan Melbourne: Melbourne Water, City West Water, South East Water Ltd, and Yarra Valley Water Corporation. The 3 retailers (City West Water, South East Water Ltd, and Yarra Valley Water Corporation) deliver retail water supply and sewerage services to customers in the Melbourne metropolitan area. The 3 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 Gippsland Water, Central Highlands Water, Coliban Water, East Gippsland Water, Goulburn Valley Water, GWMWater (Grampians Wimmera Mallee Water), Lower Murray Water, North East Water, South Gippsland Water, Wannon Water, Western Water²⁰, and Westernport Water).

¹⁹ Details of the drinking water regulatory framework, the audit arrangements and the annual drinking water quality report are available at <https://www.health.vic.gov.au/water/drinking-water-quality-annual-reports>.

²⁰ While Western Water provides its own bulk and retail services, it also draws on Melbourne Water's bulk water services, as do Barwon Water, Central Gippsland Water, South Gippsland Water 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, 2 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.

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

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

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

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

In accordance with the Water Act, each water utility must submit an annual corporate plan that provides a statement of corporate intent, lists expected activities, and provides a financial forecast for the following 5 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 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 5 years.²¹ They include details about proposed revenue requirements and tariffs and pricing structures and are assessed by the Essential Services Commission. The process requires extensive customer engagement by the water utilities and the ESC.

²¹ Goulburn–Murray Water's price determination came into effect on 1 July 2020 for a 4-year period, and North East Water's 8-year price determination will be in place until 30 June 2026.

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 are audited under those arrangements.

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

F8 Western Australia

F8.1 Introduction

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

Reporting and compliance obligations are imposed by Australian Government legislation including the *Corporations Act 2001* and the *Privacy Act 1988*, and by Western Australian legislation including the *Water Services Act 2012*, the *Metropolitan Water Supply, Sewerage and Drainage Act 1909*, the *Health (Miscellaneous Provisions) Act 1911* (which is being replaced by the new *Public Health Act 2016* over the next 3 to 5 years), the *Environmental Protection Act 1986*, and the *Planning and Development Act 2005*.

F8.2 Establishment of utilities

In Western Australia's legislative framework, water utilities are referred to as 'water service providers'.

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

F8.3 Operation of water utilities

The ERA and other agencies jointly oversee the operation of water service providers in Western Australia.

The Department of Health sets standards for drinking water quality and regulates the public health aspects of water supply (both potable and non-potable), pursuant to the Health (Miscellaneous Provisions) Act 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 has recently introduced new standards that regulate the public health aspects of sewerage services pursuant to the Health (Miscellaneous Provisions) Act.

The licence terms and conditions for service providers that supply drinking water require them to enter into a memorandum of understanding with the Department of Health for compliance with the health-related criteria in the Australian Drinking Water Guidelines.

The licence terms and conditions for service providers that provide sewerage services to more than 400 connections require them to enter into a memorandum of understanding with the Department of Health for compliance with the required public health standards.

Each memorandum of understanding is reviewed every 3 years, unless agreed otherwise.

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

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

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

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

The Water Services Act requires licensees to arrange for an operational audit and a review of asset management system effectiveness at least once every 2 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.

The Water Services Code of Conduct (Customer Service Standards) 2018 prescribes the customer service standards applicable to water and sewerage licensees. The Code is administered by the ERA in consultation with the Water Code Consultative Committee comprising representatives from industry, consumer representative organisations and government.

F8.4 Water utilities in Western Australia

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

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

management between the 2 organisations. The Water Corporation is the principal supplier of water, sewerage and drainage services to hundreds of thousands of homes, businesses, and farms, and provides bulk water to farms and growers' cooperatives for irrigation. Its services, projects, and activities span more than 2.5 million km². It has regional offices in Perth, Bunbury, Albany, Karratha, Geraldton, Northam, and Kalgoorlie.

Aqwest and Busselton Water are government trading enterprises operating under the WA Water Corporations Act.

The Aqwest licence permits the supply of potable water to the regional centre of Bunbury, 160 km south of Perth.

The Busselton Water licence permits the supply of potable water to the regional centre of Busselton, approximately 200 km south of Perth, and the Busselton–Capel and Blackwater groundwater areas. Busselton Water also supplies bulk water to the Water Corporation in Dunsborough.

The state-owned corporations (Aqwest, 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 550 km east of Perth in the Goldfields district. The non-potable water supplied to customers is sourced from recycled effluent.

There are also several small licensed or exempted water service providers in the state. The licensed service providers include Aquasol, Aqua Ferre (Muchea) (trading as Muchea Water), Athena Water Solutions, Hamersley Iron, Lancelin South, Moore River Water Services, the Rottnest Island Authority, Robe River Mining Company, Peel Water, TMC Witchcliffe, WA Sewage, Water West North Dandalup, and 3 small regional local governments.²²

F8.5 Performance reporting

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

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

The ERA publishes performance data provided by licensed urban service providers that do not report under the Urban NPR and 3 of WA's largest rural water service providers.²³ Most of the urban performance indicators are consistent with those of the NPR. Except for the licensees that report under the Urban NPR, licensees are not subject to the data audit requirements of the NPRs. For those licensees not reporting under the NPR, confirmation of the accuracy of the performance data they report to the ERA is assessed in the operational audits.

²² Since 2017, the WA Minister for Water has exempted 18 small regional local government sewerage and/or non-potable water suppliers from being licensed. The exemption is for a period of 5 years.

²³ The data are available from the ERA, <https://www.erawa.com.au/water/water-licensing/water-sewerage-and-irrigation-performance-data-2019-onwards>

