



WATER PERFORMANCE REPORT

Performance of Victorian urban water and sewerage businesses 2015-16

December 2016



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PERFORMANCE OVERVIEW 2015-16

In 2015-16, Victoria's 2.6 million water customers generally continued to receive good levels of service from the state's 16 urban water businesses. Water quality was high and supply reliability remained steady.

Customers of North East Water again had the lowest typical annual water bills (\$885), followed by Goulburn Valley Water (\$925) and City West Water (\$944). At the other end of the range, GWMWater's customers continued to have the highest typical water bill (\$1359) followed by Coliban Water (\$1342) and Gippsland Water (\$1249). Typical water prices increased with inflation, with rises in average consumption pushing the calculated typical bill slightly higher. (More details in chapter 3 of this report.)

Household water consumption increased across the state, which is typical for a drier summer such as that experienced in 2015-16. The statewide average household consumption was 167 kilolitres, 5 per cent higher than 159 kilolitres in 2014-15. Average consumption in Melbourne increased 3 per cent to 154 kilolitres per household, while in regional Victoria it increased 8 per cent to 202 kilolitres.

Reliability of water supply was steady for most businesses, with the overall time off water supply slightly improved from last year. North East Water and Wannon Water were the best performers in this area. While the sewer blockage rate increased for most businesses, as is typical in drier periods, the sewer spill rate was generally lower. North East Water and Lower Murray Water reported the best sewer reliability for their customers this year, while Coliban Water continued to deliver the least reliable sewer service. (See chapter 5)

The Energy and Water Ombudsman (Victoria) reported a 3 per cent increase in the number of complaints related to Victoria's water businesses this year. Water businesses reported a 17 per cent increase in total complaints received, with 12 899 complaints in 2015-16, a rate of 0.49 complaints per 100 customers — this

follows 10 764 complaints in 2014-15, which was the lowest annual number reported by water businesses. The 2015-16 figure was on par with previous years. (See chapter 4)

The number of residential customers who had their water supply restricted for nonpayment of water bills increased slightly, up by 106 to 4779, including 1137 concession customers. While the metropolitan businesses Yarra Valley Water and South East Water both reported small decreases in restrictions this year, a number of regional businesses reported significant increases in customer supply restrictions. Coliban Water more than tripled the number of customers it restricted this year, including concession customers. By contrast, City West Water and East Gippsland Water both retained their policy not to restrict the water supply of customers for non-payment of bills. The highest restriction rates were recorded by Coliban Water (one in every 164 customers) and North East Water (one in every 189 customers). (Chapter 3)

Payment instalment plans are an effective way to help customers manage their payments and avoid accumulation of debt. The overall number of residential customers on instalment payment plans declined by seven per cent this year, the second year of decline after several years of steady increase in uptake by customers across most water businesses. Only five businesses reported increases this year. The use of instalment plans ranged from 2.6 per cent of residential customers (Westernport Water) to 18.6 per cent (Coliban Water).

Yarra Valley Water and City West Water are among those who reported fewer instalment plans in 2015-16. However, the overall number of metropolitan water customers accessing hardship programs has increased. In particular more customers are now accessing government assistance in the form of Utility Relief Grants and concessions. Further details about longer term trends and water businesses' analysis of these trends are included in our separate report on hardship measures.¹

Net greenhouse gas emissions from Victoria's water industry have been fairly steady over recent years, with the exception of Melbourne Water due to the failure of a

¹ Essential Services Commission 2016, *Review of hardship measures taken by metropolitan water businesses 2015-16*, December.

methane gas collection cover at its Western Treatment Plant in December 2014.² A replacement cover will be in place before the 2017-18 reporting year. (Chapter 7)

This year's report identifies that of the 100 largest capital projects listed by Victoria's water businesses for completion during the 2013 to 2018 pricing period, only 45 projects are considered to be on time. To date, 37 projects have been completed (29 on schedule) and of the remaining 61 projects, 16 are tracking on schedule, with 47 either delayed or deferred (21 into the next pricing period). The business's explanations for these delays are listed in chapter 8, and the Commission will continue to report on the progress of these projects. The Commission has adopted a new pricing framework for the upcoming 2018 water price review that provides a greater incentive for businesses to provide better project forecasts in their pricing submissions.

This year we asked the water businesses to include comments along with their reported data to explain key movements in reported figures. Our intention was to provide an opportunity for the businesses to provide clear explanations for their good and poor performance outcomes, as well as pre-empt the queries we would inevitably ask them. While businesses did provide comments with their data, we found that many of these did not clearly or fully explain the reasons for the performance, and we still needed to make further enquiries to attain a satisfactory explanation to include in our report. Under the Commission's new pricing framework, businesses will be accountable and directly responsible for explaining their performance against their committed outcomes and the agreed output measures, along with their proposed actions for addressing performance shortfalls. We expect businesses will improve their efforts in this area in future.

The reported performance results show considerable variation can occur across businesses for a given performance indicator. This is to be expected given the diversity in operational conditions across the state. In reviewing the water performance data this year, we noted that East Gippsland Water and North East Water were among the best performers in a number of key areas.

² The failure of the methane cover resulted in a 41 per cent increase in Melbourne Water's greenhouse emissions in 2014-15. The corresponding 24 per cent increase in total emissions for the Victorian water businesses produced the highest reported figure of 918 026 tonnes. The 2015-16 figure was slightly higher at 925 013 tonnes while the cover is still being replaced, and is expected to return to previous levels once the repair is completed in 2016-17.

The Commission expects that businesses will continue to consider how their own performance compares with the best performers in a particular category, and to what extent they might improve their own performance. Prioritising performance improvement needs, and allocating resources accordingly, should be a key focus of the water businesses' customer engagement programs to inform their price submissions for the upcoming 2018 water price review.

More detailed information is available on our website

As well as this performance report, there is a summary fact sheet for each business and data spreadsheets for those who wish to interrogate the data further. These documents are available on our website at www.esc.vic.gov.au

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1 WHY WE DO THIS

1.1 THE COMMISSION'S ROLE

The Essential Services Commission (the Commission) is the economic regulator of the Victorian water sector. One of its regulatory functions is to monitor and to report publicly on the performance of Victorian water businesses.¹

Monitoring and reporting is important because it provides reliable and consistent information that can be used to:

- inform customers about the performance of their water business
- identify base line performance and provide incentives for water businesses to improve their own performance over time
- compare water businesses and thereby facilitate competition by comparison, which can encourage water businesses to further improve relative performance
- inform the decision making processes of regulated water businesses, regulatory agencies and Government.

This 2015-16 report is the Commission's twelfth annual report on the performance of all Victorian urban water businesses, which commenced for the 2004-05 period.

Performance reports assess the performance of:

- Three metropolitan retailers — City West Water, South East Water and Yarra Valley Water. Note reporting was done for these retailers between 1995 and 2004.
- 13 regional urban businesses — Barwon Water, Central Highlands Water, Coliban Water, East Gippsland Water, Gippsland Water, Goulburn Valley Water, Grampians

¹ Clause 18 of the *Water Industry Regulatory Order (WIRO) 2014*

Wimmera Mallee Water (GMMWater), Lower Murray Water, North East Water, South Gippsland Water, Wannon Water, Western Water and Westernport Water.

- Melbourne Water — the supplier of bulk water and sewerage services to the metropolitan retailers (and a number of regional water businesses).

This report does not include information on the rural water businesses that supply irrigation, drainage, diversion, storage operator and bulk water services.

1.2 THE COMMISSION'S ROLE IN REGULATING SERVICE STANDARDS

The Commission is responsible for regulating service standards and conditions of supply. In the urban sector, the framework comprises:

- A Customer Service Code (the Code) that imposes a consistent overarching framework for delivering services to both metropolitan and regional urban customers. The Commission monitors and enforces compliance by responding to and following up on issues or concerns raised by customers or other stakeholders about compliance matters. The Code is available on our website (www.esc.vic.gov.au).
- A separate Trade Waste Customer Service Code that establishes consistent trade waste management requirements for water businesses across Victoria.
- Flexibility for the businesses to propose their own service levels or targets, rather than having to meet a consistent performance standard across businesses. These service targets provide an important reference point for monitoring performance over the pricing period, and recognise the different operating environments each business faces.
- A requirement that each business maintain a Customer Charter that informs customers about its services, the respective rights and responsibilities of the business and its customers, and the service standards the business proposes to deliver over the regulatory period.

The Commission is not responsible for regulating or driving performance in the areas of water conservation, the environment and water quality, although some of these areas

are covered in our report. The Environment Protection Authority (EPA) Victoria is responsible for regulating environmental standards. The Department of Environment, Land, Water and Planning is responsible for water conservation measures, and the Department of Health and Human Services is responsible for drinking water quality standards.

1.3 WHERE WE SOURCE THE INFORMATION FROM

This report is based on two principal sources of information:

- performance data reported by the businesses against key performance indicators specified by the Commission, and comments from the businesses explaining their performance, and
- the findings of regulatory audits on the reliability of the performance indicator data reported by the businesses. Where data has not passed the audit requirements, it has been excluded from this report or qualified in our discussion.

Water businesses were invited to comment on various aspects of their performance, and these comments are incorporated into the report.

Some additional information is also sourced from other government departments and from the Energy and Water Ombudsman (Victoria) (EWOV).

1.4 THIS REPORT






This report focuses on performance indicators in a number of key areas for urban water businesses including:

- **usage, price trends and payment management** — including the size of household bills, consumption levels, and managing nonpayment of bills and customers facing hardship
- **customer responsiveness and service** — including customer complaints and call centre performance

- **network reliability** — including the reliability, responsiveness to faults and interruptions around water and sewer systems
- **water quality** — including drinking water quality and associated complaints
- **conservation and the environment** — including levels of effluent and biosolids reuse and recycling, and greenhouse gas emissions
- **historical performance** — including comparisons for all indicators and businesses with previous years' data
- **major project status** — summary report on the status of those major projects scheduled for completion during the 2013–18 pricing period.

Where appropriate, a brief summary introduces each performance indicator, usually followed by a chart or table displaying the data reported by each business. Further background information is located at the end of a section.

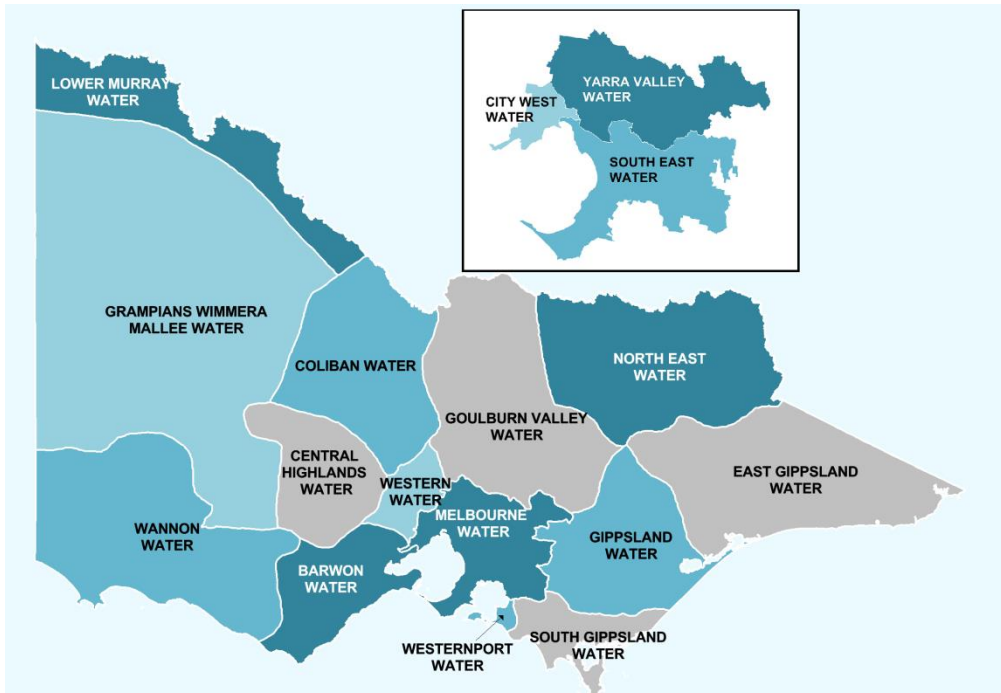
An indicator snapshot provides an overview of state, metropolitan and regional averages/totals, including the current and prior year value, percentage change and also an indicator of the size of the change (see table below). Depending on the indicator, an increase could be an improvement or deterioration in performance.

	Large arrow up - increase greater than 5 per cent
	Small arrow up - increase between 1 and 5 per cent
	No material change - percentage change plus or minus 1 per cent
	Small arrow down - decrease between 1 and 5 per cent
	Large arrow down - decrease greater than 5 per cent

2 OVERVIEW OF THE WATER INDUSTRY

The Victorian water businesses are diverse in terms of size, the services they provide and the environments in which they operate. A map of the Victorian water sector, showing urban water business boundaries, is provided in figure 2.1.

FIGURE 2.1 VICTORIAN WATER BUSINESSES 2015-16



2.1 METROPOLITAN BUSINESSES

In the metropolitan area, Melbourne Water provides wholesale services to the three metropolitan retailers. These services include:

- harvesting, storing and treating raw water supplies
- transmitting bulk water supplies
- operating the bulk sewerage service and treating the majority of sewage, including providing some recycled water
- managing rivers and creeks and major drainage systems in the Port Phillip and Westernport regions (municipal councils provide local drainage services).

The three metropolitan retailers supply water and sewerage services to almost 1.9 million customers (table 2.1). This represents about 73 per cent of the state's population and accounts for around 14 per cent of total metered water use in Victoria.

Their functions include:

- Distributing and supplying water to customers and operating the sewerage network from customer premises through to the trunk sewer network. The retail businesses also operate some small sewage treatment plants from which they may also provide recycled water.
- Providing a range of retail functions, including meter reading, customer billing, and handling call centre enquiries and complaints. The retailers also bill metropolitan customers for drainage services on behalf of Melbourne Water and parks charges on behalf of the Minister for Water.
- Providing trade waste services to commercial and industrial customers.

Each retailer services a specific geographic area and (unlike the gas or electricity industries) does not compete directly with other retailers for customers.

TABLE 2.1 METROPOLITAN WATER BUSINESSES — 2015-16 OVERVIEW

	Water customers (no.)	Sewerage customers (no.)	Length of water main (km)	Length of sewer main (km)
City West	429 233	425 764	4 939	4 239
South East	727 106	697 973	9 773	9 250
Yarra Valley	765 287	722 699	10 094	9 471
Melbourne Water	na	na	1 297	344

na Not applicable

Note: Water main includes both potable water and recycled water mains. Water customers excludes recycled water only customers.

2.2 REGIONAL BUSINESSES

Regional urban water businesses operate within geographically defined areas, providing services to regional cities and towns throughout Victoria. Their customer base is smaller than that of the metropolitan retailers, representing about 27 per cent of the state's population, and their customers are generally dispersed across broader geographical regions (table 2.2). Total water use in regional urban areas is about half that of the metropolitan areas, and accounts for around 7 per cent of total metered water use in Victoria.

Unlike the metropolitan sector, these businesses are generally vertically integrated, providing wholesale, distribution and retail services for both water and sewerage.

TABLE 2.2 REGIONAL WATER BUSINESSES — 2015-16 OVERVIEW

	Water customers (no.)	Sewerage customers (no.)	Length of water main (km)	Length of sewer main (km)
Barwon	151 418	135 561	4 096	2 546
Central Highlands	67 022	57 448	2 523	1 393
Coliban	73 228	66 088	2 237	1 915
East Gippsland	23 157	19 356	938	691
Gippsland	67 930	60 311	2 125	1 716
Goulburn Valley	57 236	50 348	1 826	1 271
GWMWater	31 613	25 565	1 239	681
Lower Murray	33 244	28 691	921	640
North East	49 576	44 780	1 595	1 189
South Gippsland	19 829	17 181	705	478
Wannon	42 466	36 146	1 960	930
Western	60 158	54 197	1 961	1 257
Westernport	15 972	14 439	451	357

Note: Water main includes both potable water and recycled water mains. Water customers excludes recycled water only customers.

3 USAGE, PRICE TRENDS AND PAYMENT MANAGEMENT

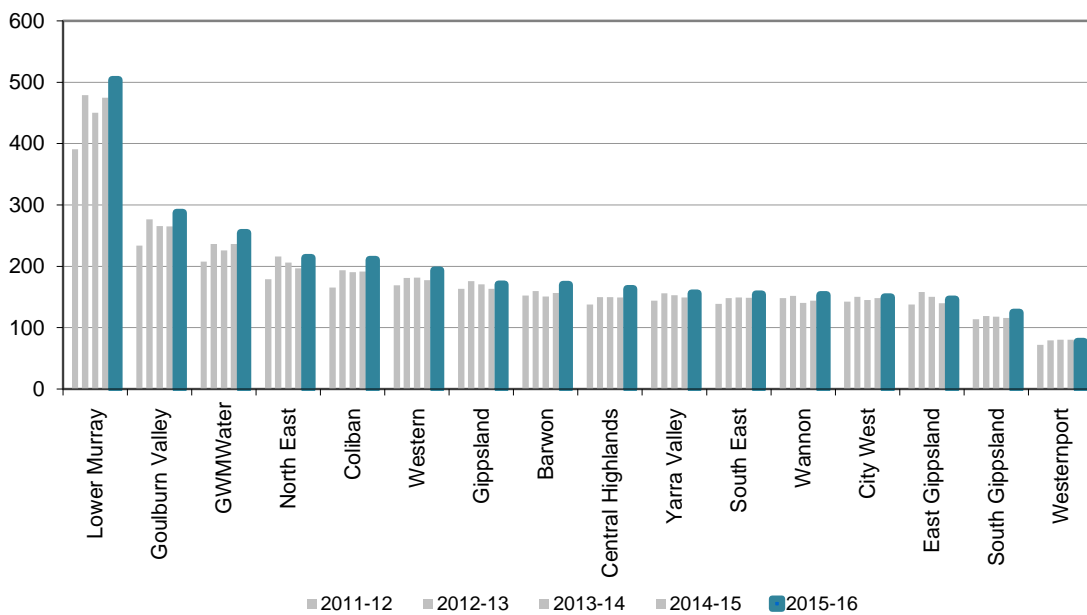
This chapter reports on:

- average annual household water consumption (**section 3.1**)
- average household bills for owner-occupiers and tenants (**section 3.2**)
- assisting with payment difficulties (**section 3.3**)
 - customer instalment payment plans
 - customers receiving government assistance through concession payments and the Utility Relief Grants Scheme
 - water businesses' own hardship grants schemes
- actions for nonpayment of bills (**section 3.4**)
 - restrictions of water supply
 - legal action and average debt levels at the time such action is taken.

3.1 AVERAGE ANNUAL HOUSEHOLD CONSUMPTION

Average household consumption is important in calculating a typical average water bill. Consumption patterns differ throughout the state in terms of climate, demographics, housing mix and any water restrictions that may be in place.

FIGURE 3.1 AVERAGE ANNUAL HOUSEHOLD CONSUMPTION
(kilolitres per household)



SNAPSHOT (Average consumption per household, kilolitres)

State-wide Average		4.6%	Metro Average		3.4%	Regional Average		7.6%
2015-16	167	↑	2015-16	154	↑	2015-16	202	↑
2014-15	159		2014-15	149		2014-15	188	

KEY OBSERVATIONS

- Weighted average¹ annual household consumption across Victoria increased from 159 kilolitres per household in 2014-15, to 167 kilolitres in 2015-16. This is about 17 per cent above the state's lowest average annual consumption of 143 kilolitres recorded in 2010-11 during the Millennium Drought. The increase in consumption in 2015-16 was higher in regional Victoria than it was in metropolitan Melbourne. Fifteen water businesses recorded increases in average household consumption and only one business (Westernport Water) recorded a decrease.
- Average annual household consumption remained higher in regional Victoria (202 kilolitres per household, up from 188 kilolitres in 2014-15), than in metropolitan Melbourne (154 kilolitres per household, up from 149 kilolitres in 2014-15).
- Average annual household consumption ranged from 77 kilolitres for Westernport Water's region (which has a large seasonal population) to 504 kilolitres in Lower Murray Water's region in the state's north west, which is generally hotter and drier and traditionally has the highest consumption in the state.
- Average annual consumption in Melbourne was very similar across the three metropolitan retail businesses, with 150 kilolitres for City West Water, 154 kilolitres for South East Water and 156 kilolitres for Yarra Valley Water.
- Of the 15 businesses that recorded an increase, the largest increases were recorded by Coliban Water and Central Highlands Water (both 10 per cent increases) and Western Water (9 per cent).

¹ A weighted average reflects the size of each water business and its relative contribution to the overall average.

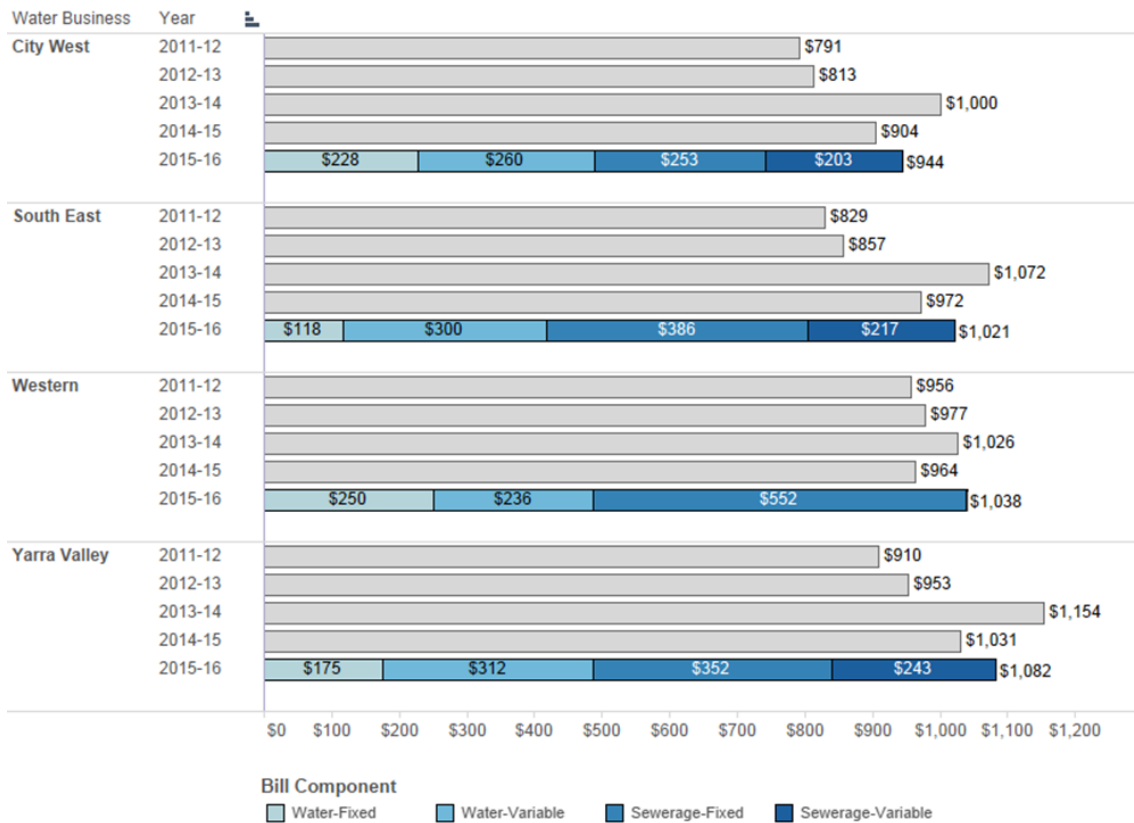
3.2 AVERAGE HOUSEHOLD BILLS

Average household bills shown for each year are in that year's dollars (that is, they are not adjusted for inflation), and calculated using that year's average annual household consumption and actual prices for each business.²

The three Melbourne metropolitan water businesses and Western Water have been grouped together in this section as greater metropolitan Melbourne, as they were for the 2013 water price review.

FIGURE 3.2 OWNER OCCUPIERS — AVERAGE HOUSEHOLD BILLS
(\$, nominal)

Greater metropolitan Melbourne



² There is an interactive bill estimator available to consumers on our website at www.esc.vic.gov.au where an indicative bill can be calculated for any annual water usage, and compared across all water businesses.

FIGURE 3.3 OWNER OCCUPIERS — AVERAGE HOUSEHOLD BILLS
(\$, nominal)

Regional businesses

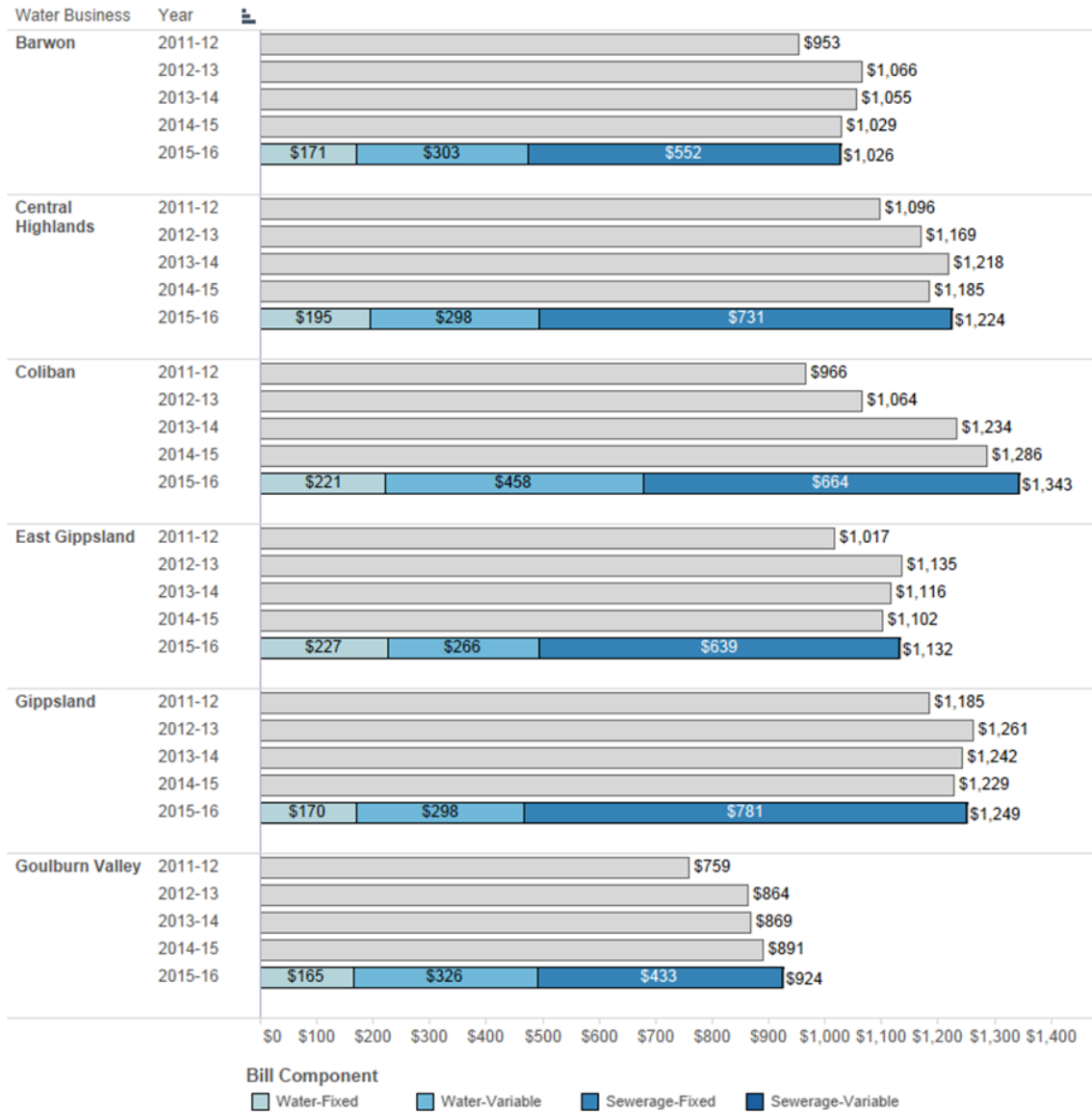
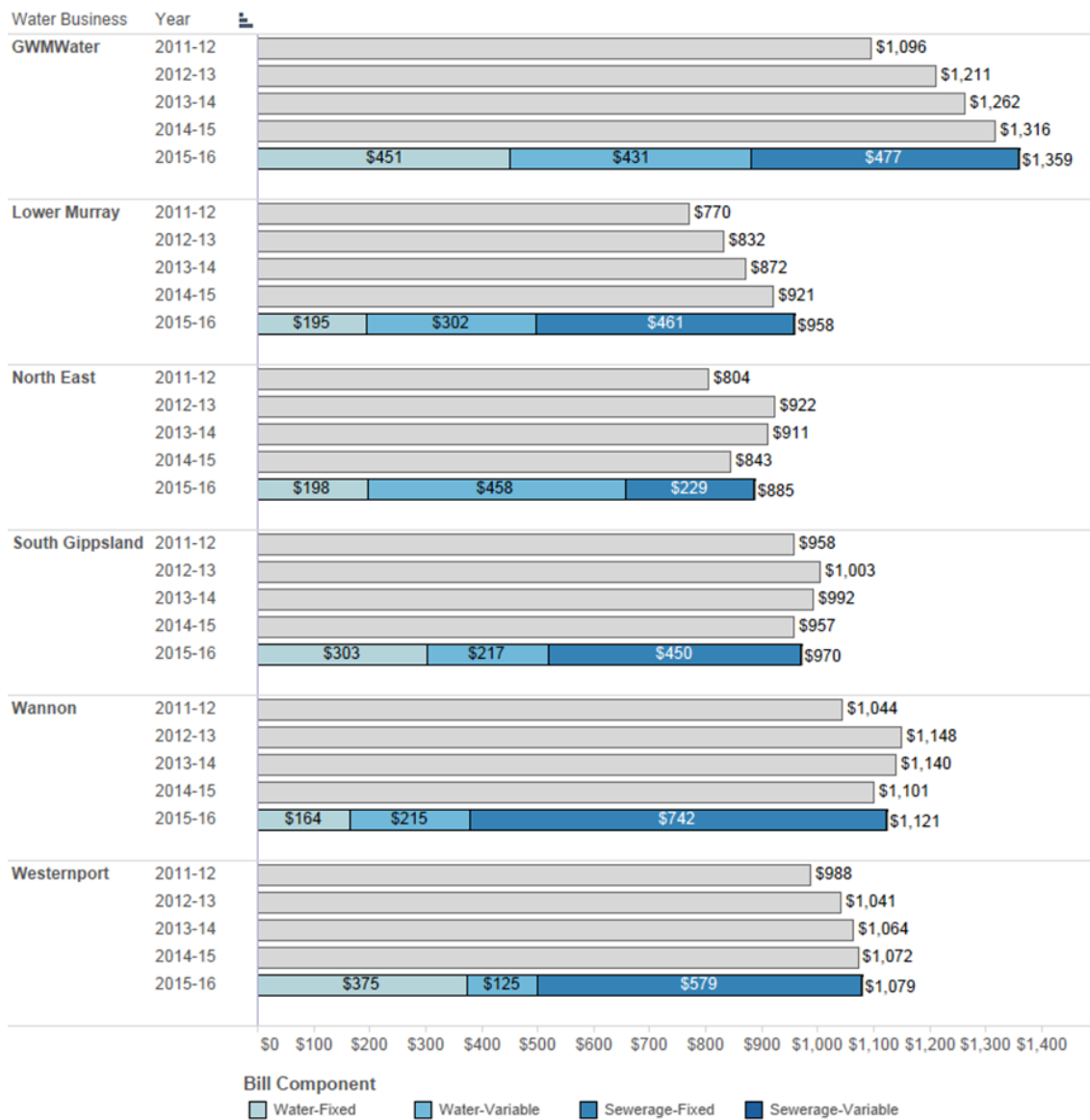


FIGURE 3.3 (CONT) OWNER OCCUPIERS — AVERAGE HOUSEHOLD BILLS
(\$, nominal)

Regional businesses (cont.)

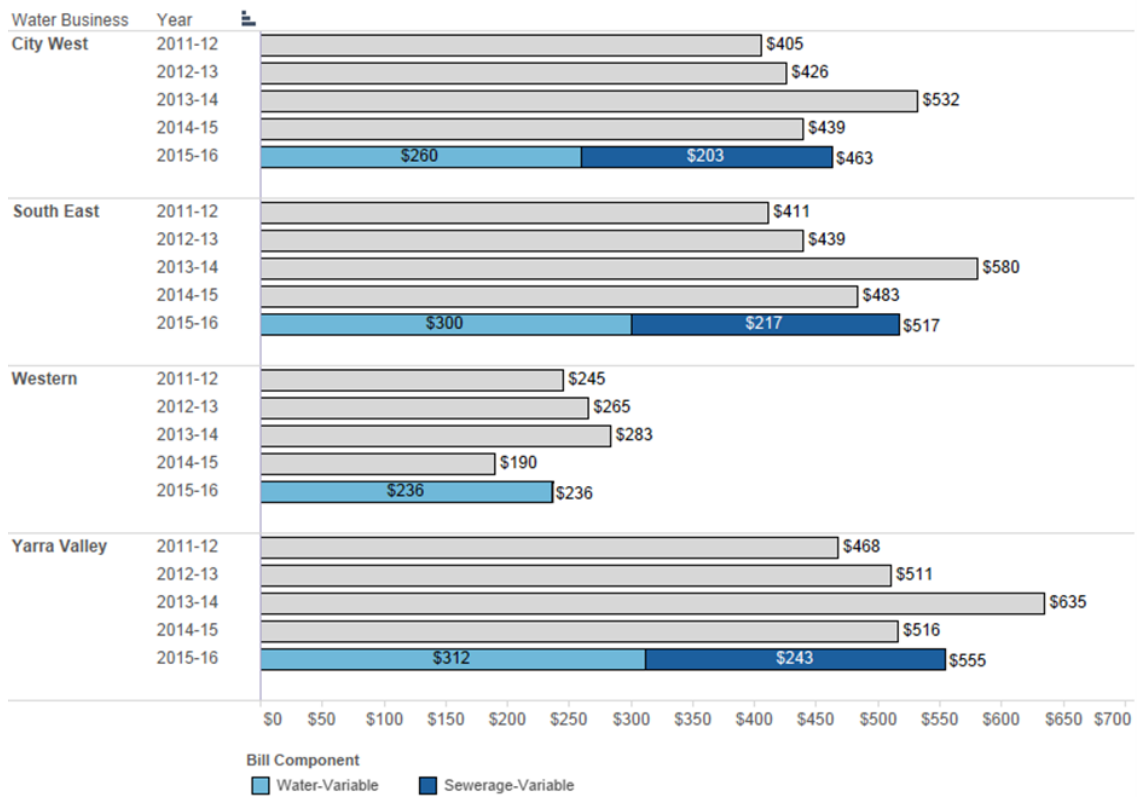


KEY OBSERVATIONS

- Statewide, average household bills for owner occupiers increased by \$42 (or 4 per cent), from \$1006 in 2014-15 to \$1048 in 2015-16. The average household bill across businesses ranged from \$885 to \$1359.
- Most regional businesses' 2015-16 tariffs were relatively flat in real terms, meaning the average bill increase was mostly due to higher average water consumption plus inflation. The metropolitan businesses had water tariff increases of about 3 per cent in real terms (5 per cent for Western Water), and 1 per cent for sewerage, so this also affected the calculated prices.
- As in 2014-15, North East Water (\$885) reported the lowest average water bill, followed by Goulburn Valley Water (\$925) and City West Water (\$944).
- Also as in 2014-15, GMMWater (\$1359) had the highest average water bill, followed by Coliban Water (\$1342) and Gippsland Water (\$1249).
- The metropolitan average household bill increased 5 per cent, from \$981 in 2014-15 to \$1029 in 2015-16. City West Water had the lowest increase of \$40 while Western Water had the largest increase of \$74 (and also the largest consumption increase of 9 per cent).
- The regional average household bill increased by 2 per cent, from \$1085 in 2014-15 to \$1111 in 2015-16.
 - All businesses recorded an increase in the average bill in nominal terms — with the exception of Barwon Water which recorded a \$2 decrease due to declining tariffs and a larger efficiency rebate in 2015-16
 - North East Water recorded the highest increase (5 per cent) followed by Coliban Water and Lower Murray Water (both 4 per cent) — noting that North East Water and Coliban Water were also among the largest average consumption increases.

FIGURE 3.4 TENANTS — AVERAGE HOUSEHOLD BILLS
(\$, nominal)

Greater metropolitan Melbourne³



³ The three Melbourne metropolitan water businesses and Western Water have been grouped together in this section as greater metropolitan Melbourne, as they were for the 2013 price review.

FIGURE 3.5 TENANTS — AVERAGE HOUSEHOLD BILLS
(\$, nominal)

Regional businesses

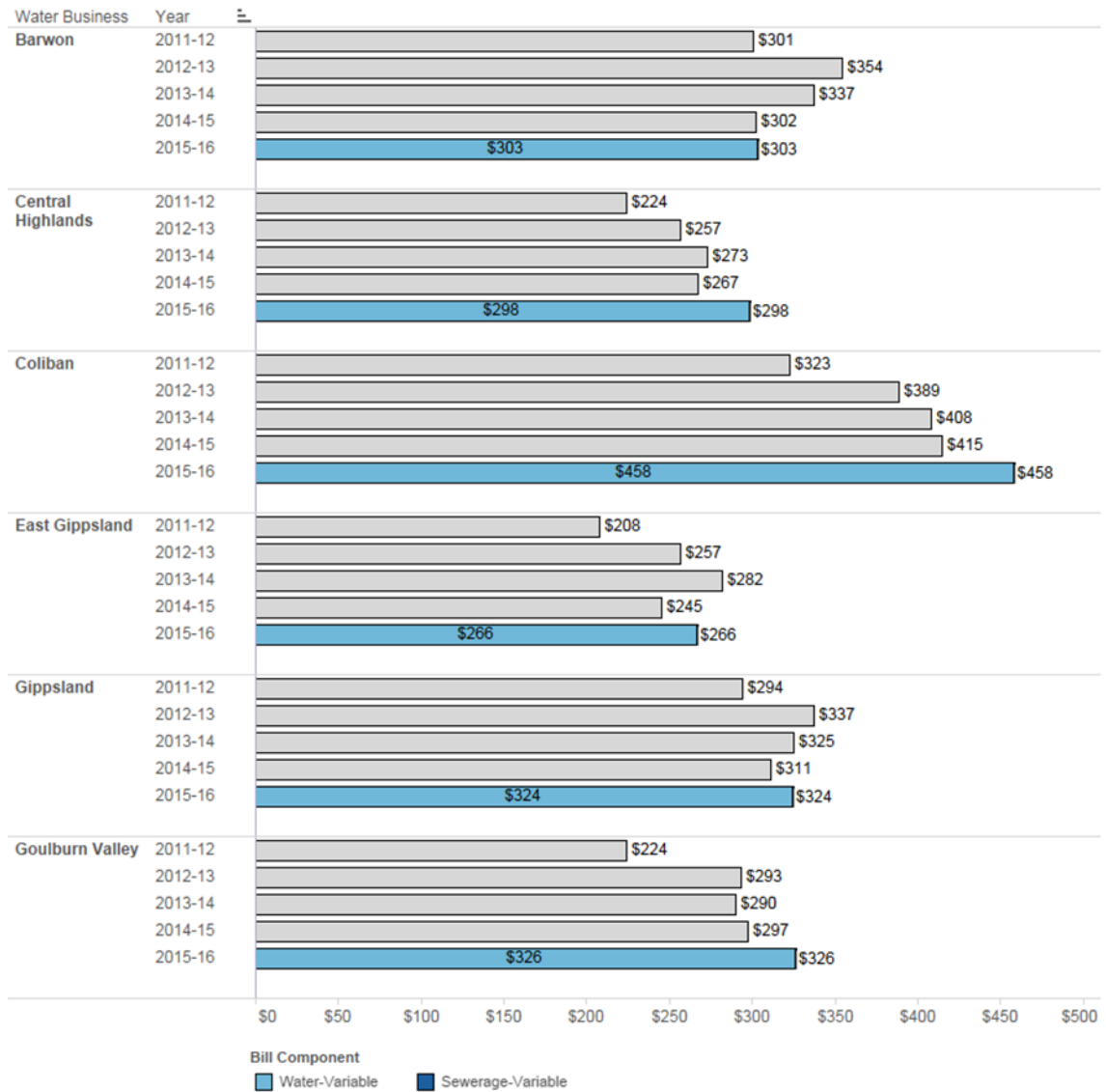
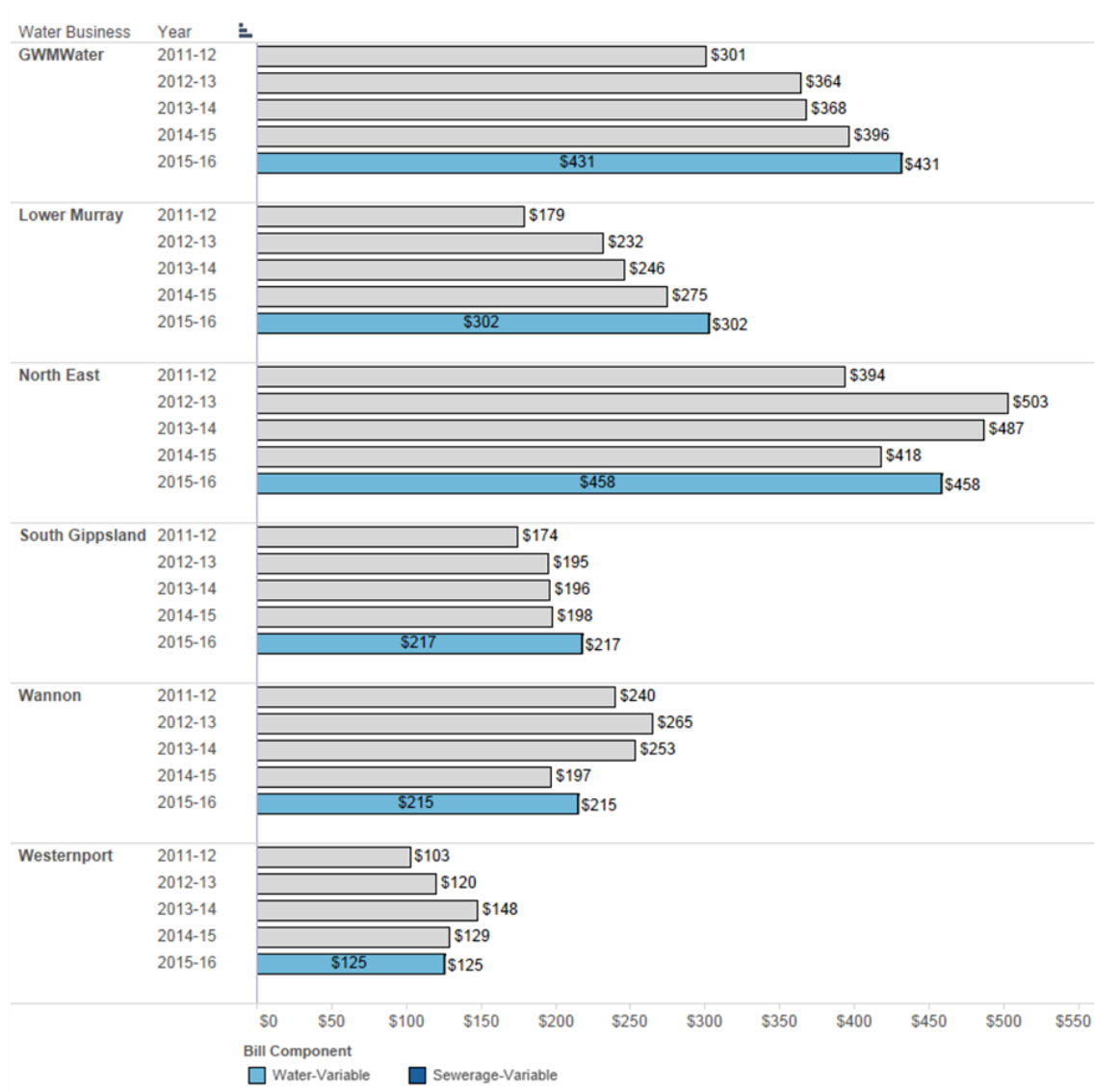


FIGURE 3.5 (CONT) TENANTS — AVERAGE HOUSEHOLD BILLS
(\$, nominal)

Regional businesses (cont.)



KEY OBSERVATIONS

- All water businesses across the state recorded increases in tenants' average household bills in 2015-16, with the exception of Westernport Water which recorded a minor decrease. Also, while Barwon Water's average bill increased slightly in nominal terms, the increase was less than inflation.
- The 2015-16 tariffs for the variable component of the water bills for which tenants are responsible were mostly flat in real terms for regional businesses. The changes in the average bill for the various businesses are all in line with the average consumption increases plus inflation. The metro businesses had a 3–5 per cent increase from 2014-15 tariffs.
- Tenants' average household bills ranged from \$125 (Westernport Water, which has a high proportion of fixed charges and low average consumption) to \$556 (Yarra Valley Water) in 2015-16.
- Tenants' average bills increased in 2015-16 by an average 7 per cent in nominal terms, a consistent increase for both metropolitan and regional businesses.
- The largest increases were recorded by Western Water (\$46), Coliban Water (\$43), North East Water (\$40) and Yarra Valley Water (\$39).

BACKGROUND

- Differences in average household bills across the businesses can be attributed to several factors: the cost to service different regions, sources of water, historical decisions about tariff structures and the average volume of water used.
- Prices and tariff structures for water and sewerage differ between businesses. All businesses have a fixed fee and a usage based charge for water. Only the metropolitan retail businesses have a usage based charge for residential sewerage. Usage based charges allow households to influence their total bill by reducing water consumption.
- City West Water, South East Water, Yarra Valley Water, Central Highlands Water, Lower Murray Water, Wannon Water and Western Water used an inclining block tariff structure, where the usage price rises with the level of consumption. The other nine urban water service providers had a single tier water usage charge in 2015-16.
- Tenants do not pay service or fixed charges and are only responsible for the usage, or variable, component of the bill. Melbourne tenants pay the sewer variable charges as well as the water variable charges.
- The Commission's pricing determinations establish a fixed price path by stating the maximum prices businesses may charge for each year of a five-year pricing period. Annual price increases for a particular business may vary from year to year across the pricing period; hence the relative increases for various businesses may differ each year.
- We use each business's average household consumption (figure 3.1) to calculate an indicative average household bill for water and sewerage services. This includes both the fixed and variable water and sewerage charges. We have excluded the metropolitan drainage charges for Melbourne Water and the metropolitan parks charges set by the Minister for Water. For regional businesses with multiple pricing zones, we used the prices in the largest town to calculate each business's average household bill.
- There is a bill estimator available to consumers on our website at www.esc.vic.gov.au/water/prices/water-bill-calculator/

3.3 ASSISTING WITH PAYMENT DIFFICULTIES

The Commission's Customer Service Code requires urban water businesses to assist customers who have payment difficulties. This section reports on how the water businesses have assisted customers through a number of different methods.

2015-16 REVIEW OF HARDSHIP MEASURES — MELBOURNE METRO

In its final decision for the 2013 water price review, the Commission allowed \$5.25 million for the metropolitan retailers (City West Water, South East Water, Western Water, and Yarra Valley Water) to help customers manage the large price increases from July 2013. Businesses were expected to use the additional revenue to enhance existing hardship policies, expand programs, adopt best practice and improve associated infrastructure. The extra revenue was not intended for direct financial customer assistance, because other options existed already.

The Commission measures how well the water businesses manage the additional hardship funds. Details about the 2015-16 results and trends since 2012-13 can be found in the latest report, available on the Commission's website.⁴

The Commission's 2015-16 hardship measures report highlights the changes since measures were introduced in 2013. Overall, more customers are accessing support programs such as payment extensions and instalments plans, as well as government assistance in the form of concessions and Utility Relief Grants (URGs).

In addition, more customers are meeting their agreed payment plans, indicating these plans are more likely to reflect a customer's capacity to pay.

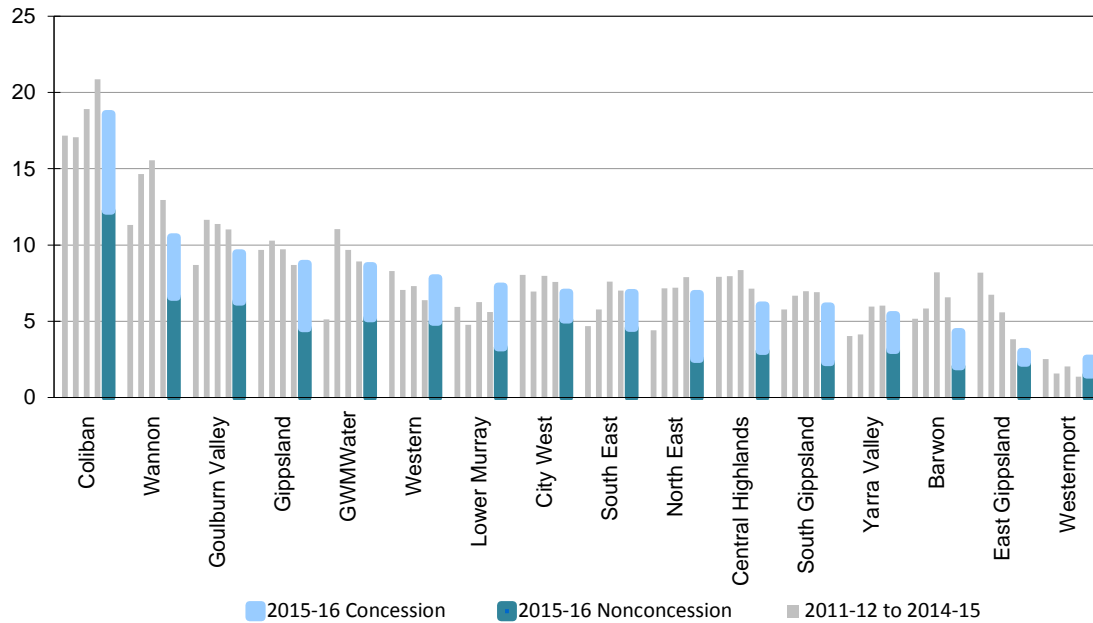
Areas for further work include greater assistance for customers completing URGs forms, as the return rate across the four businesses was below 61 per cent. Western Water and City West Water could do more to ensure customers have access to hardship support at lower debt levels.

⁴ Essential Services Commission 2016, *Review of hardship measures taken by metropolitan water businesses 2015-16*, December.

CUSTOMER INSTALMENT PAYMENT PLANS

Instalment plans are alternative payment arrangements to help address affordability issues by providing customers with the flexibility to manage their bill payments. This may be of particular assistance for customers experiencing financial difficulties.

FIGURE 3.6 RESIDENTIAL CUSTOMERS WITH INSTALMENT PLANS
(per 100 customers)



SNAPSHOT (Residential instalment plans, per 100 customers)

State-wide Average		-8.4%	Metro Average		-6.9%	Regional Average		-11.4%
2015-16	6.7	↓	2015-16	6.3	↓	2015-16	8.0	↓
2014-15	7.3		2014-15	6.7		2014-15	9.0	

KEY OBSERVATIONS

RESIDENTIAL

- In 2015-16, the overall rate of residential instalment plans decreased to 6.7 per 100 customers from 7.3 in 2014-15. The number of residential customers on instalment plans decreased from 171 832 in 2014-15 to 161 165 in 2015-16.

- The use of instalment plans for residential customers ranged from 2.6 per 100 customers for Westernport Water to 18.6 per 100 customers for Coliban Water.
- Five businesses reported an increase in the number of customers on instalment plans this year. The largest were Westernport Water with an increase of 91 per cent (or 181 additional customers), Lower Murray Water with an increase of 31 per cent (or 507 additional customers) and Western Water with an increase of 26 per cent (or 931 additional customers). Westernport Water reported that it suspended collections in 2014-15 as it implemented a new billing system, and in 2015-16 it focused efforts on working with customers to enter into payment arrangements.
- The remaining 11 businesses reported decreases of between 2 and 33 per cent in the number of customers on instalment plans.
 - Barwon Water reported the largest percentage decrease of 33 per cent, with almost 3000 fewer customers on instalment plans this year. This is the second year of decline after a surge in uptake following the implementation of Barwon Water's new billing system in 2013. Barwon Water also attributed the drop off to its declining tariffs following two years of efficiency rebates to customers, with lower bills aiding vulnerable customers in particular.
 - Yarra Valley Water reported the largest decrease for the metropolitan businesses, down 9 per cent to 38 500 customers. While it continued to promote fortnightly or monthly payment arrangements as a support option, Yarra Valley Water saw a decrease in the use of formal instalment plans. It did, however, observe an increase in the less formal flexible online payment options where customers choose their own amount and frequency of payments (through BPay, for example).
- This is the second year running where a general reduction in the use of instalment plans has been observed.

NONRESIDENTIAL

- Overall, the number of nonresidential customers on payment instalment plans decreased by 8 per cent, down from 3757 customers in 2014-15 to 3470 in 2015-16, although there was almost an equal split of increases and decreases across businesses.

- Instalment plans for nonresidential customers increased the most for City West Water, Lower Murray Water, and Barwon Water, reporting increases of 27, 24 and 22 per cent respectively.
- Conversely, East Gippsland Water nearly halved the number of instalment plans for nonresidential customers (from 54 in 2014-15 to 29 in 2015-16). This was the fourth consecutive year that East Gippsland Water reported a decline, which it considers might be due to an increase in commercial property owners managing payments and including the cost in the lease to tenants. Similarly, South East Water's nonresidential instalment plans have either declined or remained static for four consecutive years. It manages the majority of non-residential customer billing issues through short term payment plans, which are not classified as instalment plans.

CONCESSION PAYMENTS

The Victorian Government provides concessions to assist low income households with water and sewerage bills at their principal place of residence.

TABLE 3.1 CONCESSION PAYMENTS
(\$, nominal)

Water business	2014-15 residential customers with concession	2014-15 concession expenditure	2015-16 residential customers with concession	2015-16 concession expenditure
City West	24%	\$21 988 904	24%	\$23 567 563
South East	29%	\$44 191 476	27%	\$45 268 802
Yarra Valley	27%	\$47 506 925	26%	\$48 712 079
Barwon	32%	\$9 608 227	31%	\$9 719 313
Central Highlands	38%	\$4 659 156	37%	\$4 877 860
Coliban	38%	\$5 286 197	37%	\$5 512 408
East Gippsland	42%	\$1 809 971	42%	\$1 887 182
Gippsland	38%	\$4 994 916	38%	\$5 176 337
Goulburn Valley	39%	\$4 100 375	39%	\$4 207 096
GWMWater	37%	\$2 498 722	38%	\$2 531 469
Lower Murray	33%	\$2 051 528	33%	\$2 155 681
North East	41%	\$3 687 225	40%	\$3 653 779
South Gippsland	41%	\$1 385 801	39%	\$1 443 110
Wannon	40%	\$2 993 366	40%	\$3 133 259
Western	31%	\$3 685 248	31%	\$3 964 759
Westernport	19%	\$688 140	19%	\$706 055
STATEWIDE TOTAL	29%	\$161 136 177	29%	\$166 516 752

Source: Department of Health & Human Services and Essential Services Commission.

KEY OBSERVATIONS

- In 2015-16, the government contributed \$167 million in concession payments towards water bills. This was an increase of over \$5 million compared with 2014-15.
- The number of concession households increased by approximately 700 (0.1 per cent), from 685 300 in 2014-15 to 686 000 in 2015-16 (29 per cent statewide).

UTILITY RELIEF GRANTS SCHEME (URGS)

The Department of Health and Human Services administers the URGS, which provides one-off financial contributions towards a bill of a customer experiencing payment difficulties. The URGS payment is generally used for a short term financial crisis. It is different from the hardship programs provided by the water businesses to customers who experience ongoing financial hardship (discussed next).

TABLE 3.2 AVERAGE AMOUNTS OF UTILITY RELIEF GRANTS 2015-16
(\$, 2015-16)

	Approved	Grants paid (\$)	Average grant paid (\$)	Grants per 1000 customers
City West	749	\$323 911	\$432	1.9
South East	1 569	\$665 007	\$424	2.3
Yarra Valley	2 626	\$1 133 366	\$432	3.7
Barwon	185	\$69 139	\$374	1.3
Central Highlands	246	\$98 016	\$398	4.0
Coliban	535	\$212 056	\$396	8.1
East Gippsland	98	\$41 167	\$420	4.8
Gippsland	220	\$92 391	\$420	3.6
Goulburn Valley	295	\$109 922	\$373	5.8
GWMWater	74	\$29 856	\$403	2.7
Lower Murray	42	\$14 464	\$344	1.4
North East	171	\$58 884	\$344	3.8
South Gippsland	35	\$12 555	\$359	2.1
Wannon	217	\$87 608	\$404	6.0
Western	275	\$126 501	\$460	4.8
Westernport	46	\$18 720	\$407	3.1
TOTAL	7 383	\$3 093 563	\$419	3.1

Source: Department of Health & Human Services.

KEY OBSERVATIONS

- The number of URGS grants increased by 12 per cent from 6614 in 2014-15 to 7383 in 2015-16; while the rate of grants increased from 2.8 per 1000 customers to 3.1 per 1000 customers in 2015-16.

- Coliban Water again recorded the highest rate of URGS uptake for the period of 8.1 per 1000 customers in 2015-16 (8.0 per 1000 customers in 2014-15). In 2014-15, Coliban Water established a proactive and dedicated Debt Recovery and Hardship Team that seeks to find the best solutions for customers with payment difficulties. This includes supporting customers to obtain government grants where available.
- Wannon Water, Goulburn Valley Water, Western Water and East Gippsland Water also recorded relatively high rates of URGS uptake for the period with 6.0, 5.8, 4.8 and 4.8 per 1000 customers respectively.
- Over a third of all URGS payments went to Yarra Valley Water customers, with a total of \$1.13 million paid between the 2626 customers.
- The average grant amount in 2015-16 was \$419, up \$4 from 2014-15. The average value of grants ranged from \$344 for Lower Murray Water and North East Water to \$460 for Western Water.

WATER BUSINESSES' OWN HARDSHIP GRANTS SCHEMES

Hardship grants schemes are another approach used by water businesses to assist residential customers experiencing financial hardship. These often take the form of co-payment schemes, where the water business will waive a periodic payment if the customer meets a set number of scheduled payments, with the waived payment counted as a hardship grant.

In 2015-16, businesses were asked to report the number of customers receiving hardship grants, rather than the number of grants reported previously. The change in definition for this indicator means the historical data will not align with the 2015-16 figures, as customers receiving multiple hardship grants are now only counted once.

TABLE 3.3 HARDSHIP GRANT SCHEMES 2015-16

	Customers awarded hardship grants (per 100 customers)	Average value of hardship grants paid to customers (\$, nominal)
City West	0.08	\$822
South East	0.16	\$128
Yarra Valley	0.99	\$192
Barwon	1.97	\$35
Central Highlands	0.36	\$73
Coliban	0.60	\$192
East Gippsland	1.34	\$148
Gippsland	0.06	\$337
Goulburn Valley	0.68	\$537
GWMWater	0.25	\$47
Lower Murray	-	-
North East	0.12	\$512
South Gippsland	0.02	\$577
Wannon	0.72	\$239
Western	0.59	\$415
Westernport	0.03	\$1 894
STATEWIDE AVERAGE	0.55	\$184

KEY OBSERVATIONS

- Water businesses approved hardship grants for 13 142 customers in 2015-16. The 2014-15 figure of 19 301 is the total number of grants approved, and includes instances of multiple grants to the same customer — the figures, therefore, do not compare directly. We amended the definition for 2015-16 to better represent the number of customers taking up this option, rather than the number of times the option was taken up, and this new definition will apply moving forward.
- Barwon Water again recorded the highest rate with 1.97 per 100 customers receiving grants in 2015-16, followed by East Gippsland Water with 1.34 per 100 customers.
- South Gippsland Water provided three hardship grants in 2015-16, which was the first year it has provided grants to customers since 2008-09. Lower Murray Water has never provided a hardship grant.
- The average value of hardship grants across businesses ranged from \$35 to \$1894 in 2015-16, with an overall average of \$184.
- Westernport Water and City West Water reported the highest average value of hardship grants, while Barwon Water reported the lowest.
- The total dollar value of all grants increased by 6 per cent in 2015-16, to \$2.4 million from \$2.3 million in 2014-15. The largest percentage increase was reported by GWMWater, followed by North East Water and Central Highlands Water — all doubling the total value paid to customers.

BACKGROUND

The urban water businesses must assist customers with payment difficulties on a case-by-case basis by:

- providing alternative payment arrangements in accordance with a customer's capacity to pay, including offering a range of payment options (such as flexible payment plans) or redirecting the bill to another person to pay
- offering to extend the due date for some or all of an amount owed
- appropriately referring customers to government funded assistance programs (including the URGS) or to an independent financial counsellor
- observing minimum periods of notice before applying supply restrictions or pursuing legal action to recover outstanding debts
- not restricting water supply of a customer or pursuing legal action before first taking additional steps to secure payment, including making a reasonable attempt to contact the person, offering a payment arrangement and resolving any dispute over the outstanding amount.

The Commission extended the hardship related guaranteed service level (GSL) scheme to all 16 urban retail water businesses from 1 July 2012. This gives businesses an additional incentive to try contacting a customer before initiating legal action or restricting water services in response to nonpayment. Please see the Commission's website for more information about hardship GSLs.

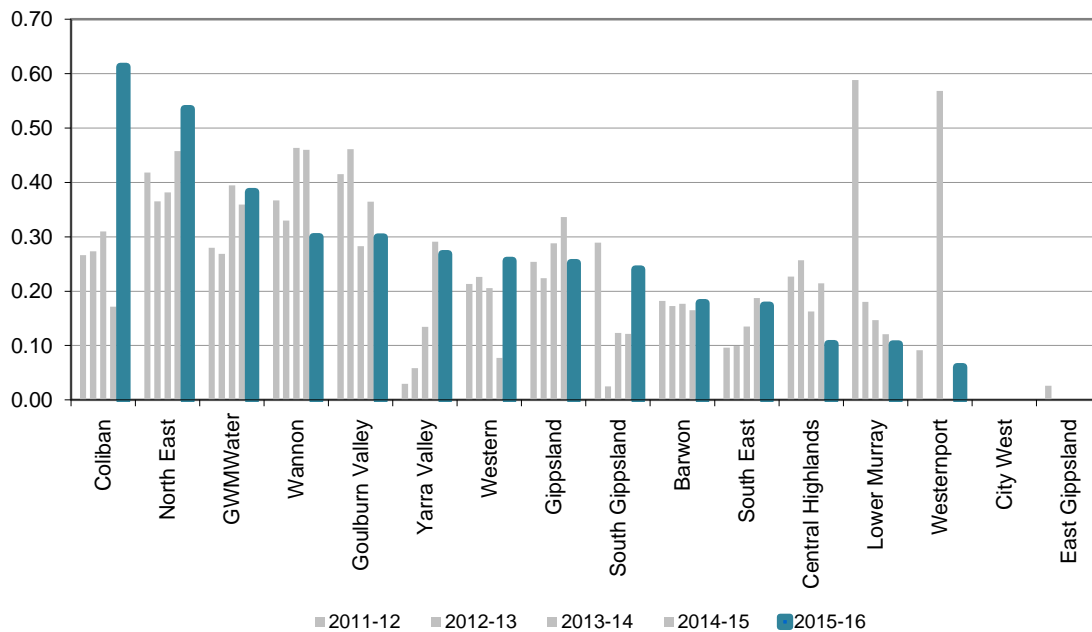
3.4 ACTIONS FOR NON-PAYMENT OF BILLS

RESTRICTIONS OF SUPPLY

Water legislation allows water businesses to limit the water flowrate to nonpaying customers by inserting a restriction device in the customer’s water supply line.

The Commission’s Customer Service Code sets out the procedures water businesses are required to follow before restricting a customer’s water supply. The majority of water businesses will apply supply restrictions or take legal action only after offering all available assistance to their customers, and where the level of outstanding debt is high.

FIGURE 3.9 RESIDENTIAL SUPPLY RESTRICTIONS FOR NONPAYMENT OF BILLS
(per 100 customers)



SNAPSHOT (Residential supply restrictions, per 100 customers)

State-wide Average		-0.1%	Metro Average		-8.0%	Regional Average		18.3%
2015-16	0.20		2015-16	0.17		2015-16	0.27	
2014-15	0.20		2014-15	0.19		2014-15	0.23	

KEY OBSERVATIONS

- In 2015-16, 4779 residential customers had their water supply restricted for nonpayment of water bills. This represented a 2 per cent increase (or an additional 107 residential customers) from 2014-15. Restrictions for metropolitan customers were down 8 per cent this year following an 80 per cent increase in 2014-15. Conversely, seven regional businesses reported an increase in the number of restrictions they applied this year, with an overall 18 per cent increase.
- Of particular note, however, is the 23 per cent increase in the number of residential concession customers who had their water supply restricted, from 926 customers in 2014-15 to 1137 customers in 2015-16. The largest increases came primarily from Coliban Water and South East Water.
 - Coliban Water considered the 2014-15 figures were abnormally low, as restrictions were suspended between February and July 2015. It has now implemented enhanced hardship processes and increased resourcing. The large increase in restrictions this year is due to Coliban Water reducing a backlog of longstanding debts. Most customers entered into payment arrangements rather than restrictions, and most restrictions were only applied for very short periods of time.
 - South East Water advised it uses restriction of water supply as a last resort effort to communicate with nonpaying customers (both concession and non-concession), so the customer can pay their account or enter into a sustainable payment plan to ensure their account does not spiral out of control. No specific reason was identified for the almost 50 per cent increase in concession customers restricted this year, while the restriction rate for non-concession customers fell 14 per cent.
- The highest restriction rates in the state were 0.61 and 0.53 per 100 residential customers, recorded by Coliban Water and North East Water respectively. Coliban Water's restriction rate more than doubled its recent historical trend due to reducing a backlog of longstanding debts. City West Water and East Gippsland Water continued to not restrict water supply to any customers for nonpayment of bills.
- Central Highlands Water reported the largest percentage decrease in residential restrictions for nonpayment of bills (down 52 per cent), from 131 in 2014-15 to 63 restrictions in 2015-16. This is a result of a greater focus on legal action rather

than supply restriction in 2015-16 (with a corresponding increase in number of legal actions, described in the next section).

- There was little change in the number of nonresidential customers whose water supply was restricted with a total of 149 customers across the state, although 103 (69 per cent) of these restrictions applied to Yarra Valley Water customers. Nine businesses did not restrict water supply to any of their nonresidential customers.

RESTRICTION DURATION (RESIDENTIAL)

Water businesses must identify how long customers restricted for nonpayment remain on supply restrictions. Specifically, they must report the number of residential customers whose water supply is restored within three days of being restricted, as well as the number with restrictions still in place after 14 days. A high proportion of customers on supply restrictions for long periods of time may suggest the restriction policy is poorly targeted, with customers unable to pay their bill rather than being unwilling to do so. Supply restrictions may also be less effective in rural areas where people have access to alternative water supplies such as water tanks and dams.

- Businesses reported a range of 25 per cent to 67 per cent of restricted customers had their water supply restored within three days of the restriction being applied.
- The proportion of supply restrictions not restored within 14 days generally ranged from 20 per cent (Lower Murray Water) to 71 per cent (GWMWater).

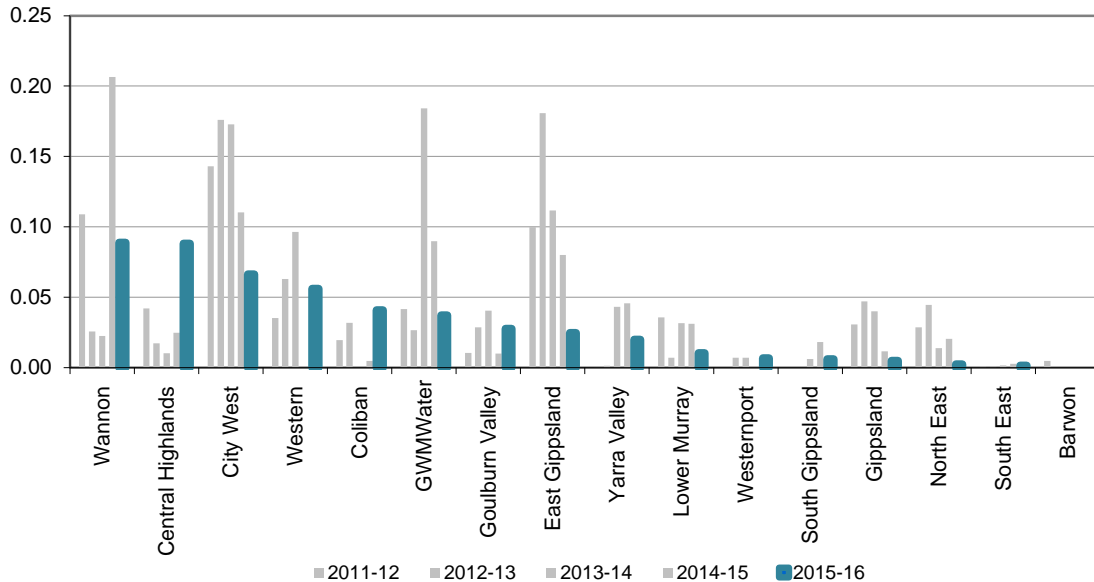
BACKGROUND

- The Customer Service Code requires all urban water businesses to assist customers facing payment difficulties on a case-by-case basis. It also requires water businesses to take steps before restricting supply. A revised Code, released in October 2010, increased the minimum outstanding payment amount at which businesses could initiate supply restriction or legal action to \$200.
- Water businesses report on:
 - the number of customers restricted for nonpayment of their water bills
 - restrictions data disaggregated by concession/non-concession for residential customers
 - the average level of outstanding debt for which restrictions were applied.

LEGAL ACTION AND AVERAGE DEBT LEVELS

Water businesses may take legal action against customers to recover unpaid debt.

FIGURE 3.10 RESIDENTIAL LEGAL ACTIONS
(per 100 customers)



SNAPSHOT (Residential legal actions, per 100 customers)

State-wide Average		-40.1%	Metro Average		-49.4%	Regional Average		-0.6%
2015-16	0.03	↓	2015-16	0.02	↓	2015-16	0.03	▬
2014-15	0.04		2014-15	0.05		2014-15	0.03	

KEY OBSERVATIONS

- Overall, businesses took legal action against 672 customers across Victoria in 2015-16 for nonpayment of water bills — 426 customers (39 per cent) fewer than the previous year. This is the second year in a row where a large decline has occurred, following a peak of 1318 legal actions in 2013-14.
- Legal action was taken against 591 residential customers (519 non-concession customers and 72 concession customers) and 81 nonresidential customers.

- The overall rate for legal action against residential customers for nonpayment of bills remained low, dropping to 0.026 per 100 customers (or one in 3900).
- Barwon Water was the only business that undertook no legal actions against residential customers (for the fourth consecutive year), while six other businesses reported five or fewer legal actions.
- Six businesses undertook no legal actions against non-residential customers in 2015-16. Two of these businesses (Gippsland Water and East Gippsland Water) took no legal action for the first time in the last five years. East Gippsland Water noted that it had raised the debt level for triggering legal action, once all hardship avenues had been exhausted.
- Wannon Water and Central Highlands Water had the highest rate of 0.09 legal actions per 100 customers, although Wannon Water's rate was less than half its 2014-15 rate (0.21).
- Central Highlands Water also reported the largest increase in the number of legal actions against residential customers for nonpayment of bills (an increase of 39 legal actions, from 15 in 2014-15 to 54 in 2015-16). By issuing a legal letter for non-payment, rather than a field call, this legal correspondence is classed as legal action.
- Other large increases in legal actions against residential customers were reported by Coliban Water, Western Water and Goulburn Valley Water. Coliban Water noted that there were minimal legal actions initiated in the previous two years for a combination of reasons including significant procedural changes and a reduction in backlog of debtors for the previous year (in particular, the 2015-16 result is inflated due to a growth in >\$1,000 debtors from the past two years). Western Water attributed its rise in legal actions to an increased focus on legal action for non-paying owners. Goulburn Valley Water noted its increase was due to a change in internal processes.
- City West Water again recorded the highest number of legal actions for residential customers (258 in 2015-16), reflecting its practice to take legal action rather than to restrict water supply, recognising the essential nature of its service to households. However its legal action figure has declined significantly over the past two years.

- City West Water and Yarra Valley Water collectively accounted for 66 per cent of all legal actions reported and recorded results much higher than South East Water with only 23 legal actions (with none against concession customers).
- The average debt for initiating legal action was substantially higher than the \$200 minimum specified in the Code, ranging from \$892 for Lower Murray Water to \$7425 for South East Water.
- City West Water, with the highest number of legal actions, had one of the lowest average debt levels for legal action, indicating its preference to use legal actions instead of restrictions.

4 CUSTOMER RESPONSIVENESS AND SERVICE

This chapter reports on:

- responsiveness of water business call centres (**section 4.1**)
 - benchmarking call centre performance and other key findings across: call centre connect times, greeting quality, agent manner, enquiry handling skills
 - benchmarking connect times
 - average time to connect to an operator
- complaints (**section 4.2**)
 - complaints received by the water businesses
- complaints received by the Energy and Water Ombudsman Victoria (EWOV) (**section 4.3**).

4.1 RESPONSIVENESS OF CALL CENTRES

The Commission engaged Customer Service Benchmarking Australia (CSBA) to benchmark call centre performance in 2015-16 against Australian water and energy sector averages. Trained CSBA mystery shoppers contacted the water businesses via account lines to rate each interaction according to CSBA's own Customer Service Index (outlined in table 4.1 below), with criteria individually weighted according to their importance and influence on the customer experience.

CSBA reported performance for sector averages (metropolitan retail and regional urban) and for the top performing business in a particular category. These results were also compared with the Australian water sector average, and an overall Australian utility sector average.

In 2015-16 CSBA made 1600 calls to regional urban businesses and 360 calls to the metropolitan retailers.

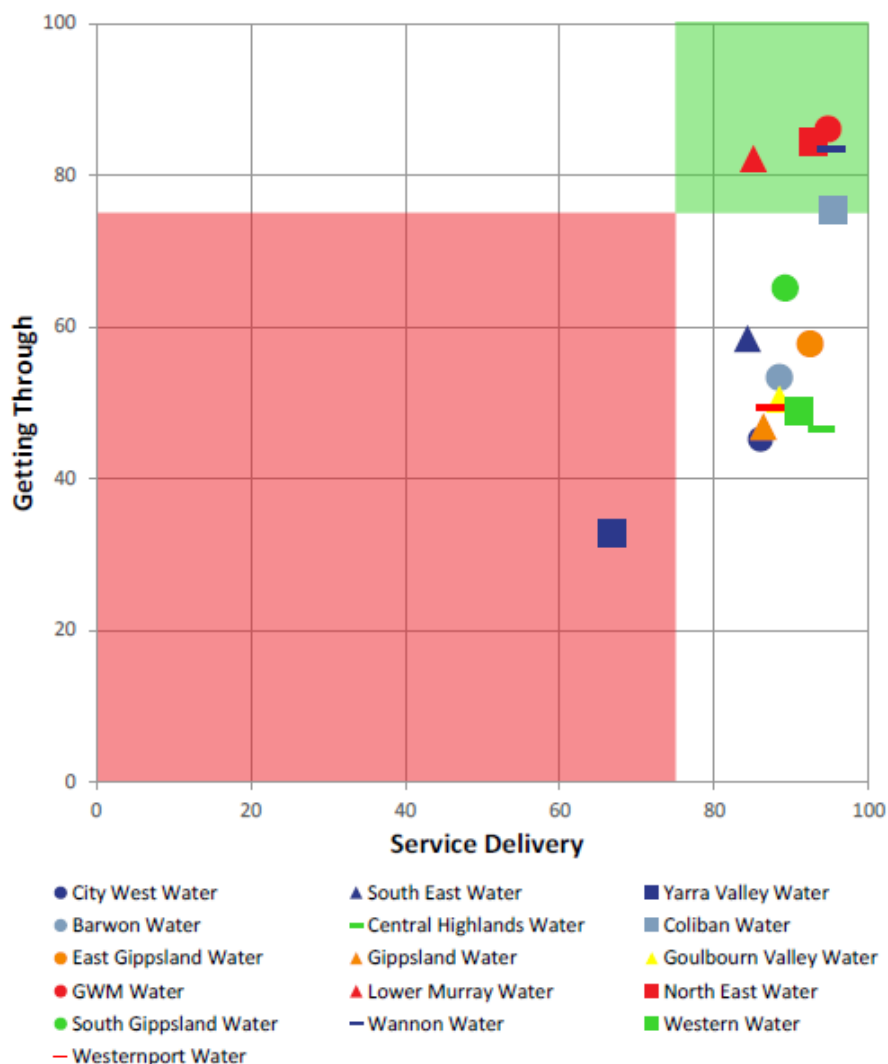
TABLE 4.1 CSBA'S CUSTOMER SERVICE INDEX

Metrics for 'Getting Through'	Metrics for 'Service Delivery'
<p>CALL CENTRE CONNECT TIMES</p> <ul style="list-style-type: none"> CSBA's 'mystery caller' survey reports an average connect time, <i>inclusive</i> of Integrated Voice Response (IVR) time. The CSBA caller listens to each menu in the IVR system in full before selecting the relevant option. Calls are only made to a business's account line, where both account and fault lines are available. <p><i>CSBA measures the duration of connect time (ring time, queue time and IVR time) and also transfer time if needing to speak with multiple operators to resolve the query.</i></p> <p>GREETING QUALITY</p> <p>CSBA measures greeting quality according to an index comprising:</p> <ul style="list-style-type: none"> welcome salutation giving the business name giving the agent's name making an offer to help the caller sign off. <p><i>Score: out of 100</i></p> <p>INDEX SCORE FOR 'GETTING THROUGH'</p> <p>Index out of 100 based on Connect Times, Greeting Quality and proportion of successful calls.</p>	<p>AGENT MANNER</p> <p>CSBA classifies agent (operator) manner as Acceptable or Unacceptable using four mutually exclusive ratings:</p> <ul style="list-style-type: none"> Acceptable <ul style="list-style-type: none"> interested, helpful and warm (best practice agent manner) businesslike and unemotive Unacceptable <ul style="list-style-type: none"> laidback and easy going disinterested and curt. <p><i>Score: out of 100</i></p> <p>ENQUIRY HANDLING SKILLS</p> <p>CSBA measures four key enquiry handling skills:</p> <ul style="list-style-type: none"> ability to probe to clarify customer needs product service knowledge agent provides a clear outcome for the enquiry agent is helpful and courteous. <p><i>Score: out of 100</i></p> <p>INDEX SCORE FOR 'SERVICE DELIVERY'</p> <p>Index out of 100 based on Agent Manner, Enquiry Handling Skills and proportion of successful calls.</p>

CSBA presented each business’s performance using its Customer Service Grid (figure 4.1), with the overall customer experience falling into one of four “quadrants”:

- Satisfied quadrant (green) is where callers are relatively pleased.
- Dissatisfied quadrant (red) is where callers are likely to feel irritated.
- Annoyed quadrant (white – upper left) highlights where calls are answered quickly, but there was inconsistent enquiry resolution or unacceptable operator manner.
- Restless quadrant (white – lower right) is where callers are likely to be frustrated due to a lengthy connect time, despite acceptable service or enquiry resolution.

FIGURE 4.1 BENCHMARKING CALL CENTRE PERFORMANCE
CSBA’s Customer Service Grid and Index scores



KEY OBSERVATIONS — CSBA REPORTED DATA

Overall call centre performance

- Consistent with 2014-15, water businesses generally scored highly for overall Service Delivery, with Getting Through being the distinguishing factor for overall call centre performance. Even when the ‘mystery shoppers’ encountered somewhat lengthy connect time or an inadequate greeting, businesses were able to provide good service and resolve enquiries once the call centre operator was reached. The best call centre performance was recorded for GMMWater, closely followed by North East Water and Wannon Water. South East Water was the highest performing call centre for the metropolitan businesses.
- Yarra Valley Water scored the lowest for call centre performance and was the only business within the Dissatisfied Quadrant. 29 per cent of calls were unsuccessful in connecting to an operator after four minutes, which is a metric used alongside the Customer Service Index to assess overall performance. As also reported in the following sections, Yarra Valley Water has been working to improve resourcing for its call centre.

Customer Service Index components

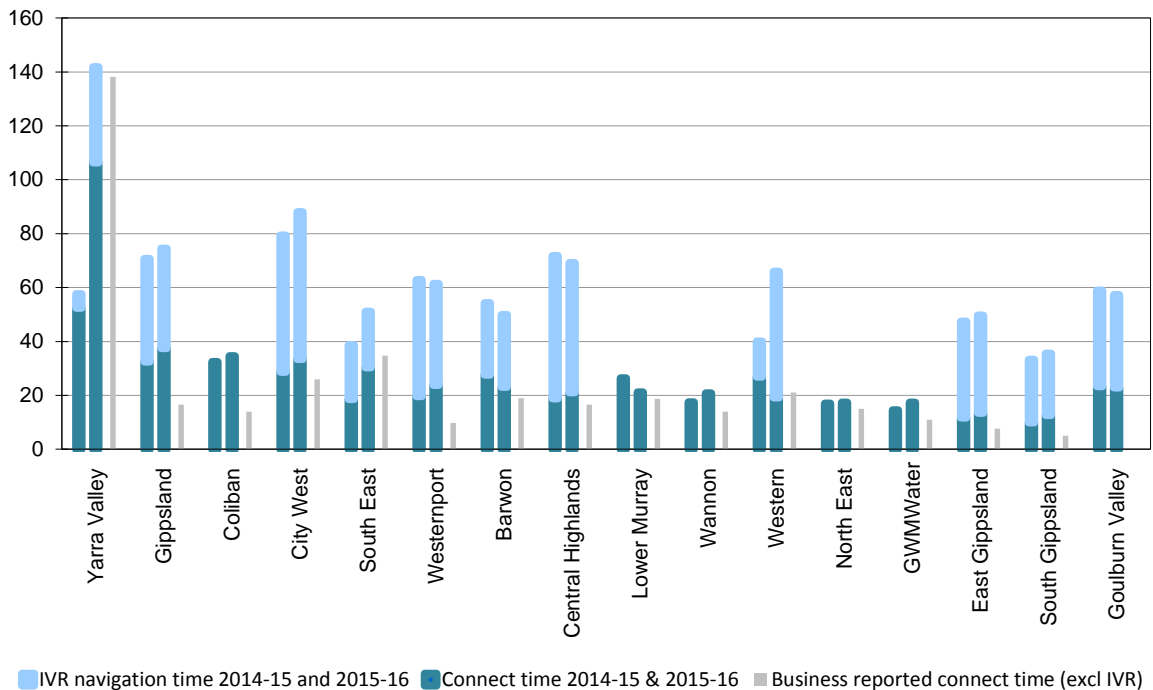
- Regional and metropolitan businesses scored equally for overall Greeting Quality, with Coliban Water and South East Water being the best performers in their respective areas. Wannon Water and Yarra Valley Water displayed the best Agent Manner and were recorded to have an increase in their respective scores, despite the average agent manner decreasing for all businesses.¹
- On average all businesses displayed good Enquiry Handling Skills and were on par with the Australian Water Sector and Cross-Sector Companies. Yarra Valley Water and Coliban Water were the top performers in each of the four Enquiry Handling Skills (as listed in table 4.1).
- Connect times to a call centre operator are discussed in the following sections.

¹ In 2015-16, CSBA amended its methodology for the Agent Manner measure. Customer feedback and industry trends show that ‘Businesslike / Unemotional Manner’ is far less acceptable than the Best Practice Manner that is ‘Interested, Warm and Attentive’. As a result, Best Practice Manner is now weighted higher, resulting in a drop in the average score. Minimal displays of Unacceptable Manner were recorded.

BENCHMARKING CONNECT TIMES

CSBA ‘mystery shoppers’ pose as genuine customers with general enquiries. When calling a business, the mystery shopper will behave like a new customer and listen to full recordings and menu options in an automated interactive voice response (IVR) system before selecting the option appropriate to the enquiry. The IVR navigation time reported below is the maximum time a customer would spend in the automated system. However regular phone customers would be able to bypass lengthy messages and access automated account information or an operator faster if familiar with IVR options.

FIGURE 4.2 AVERAGE CONNECT TIME 2014-15 AND 2015-16 — ACCOUNT LINES INCLUDING IVR
CSBA data (seconds)



Note: Goulburn Valley Water was unable to report its call connect time data for 2015-16.

KEY OBSERVATIONS — CSBA REPORTED DATA

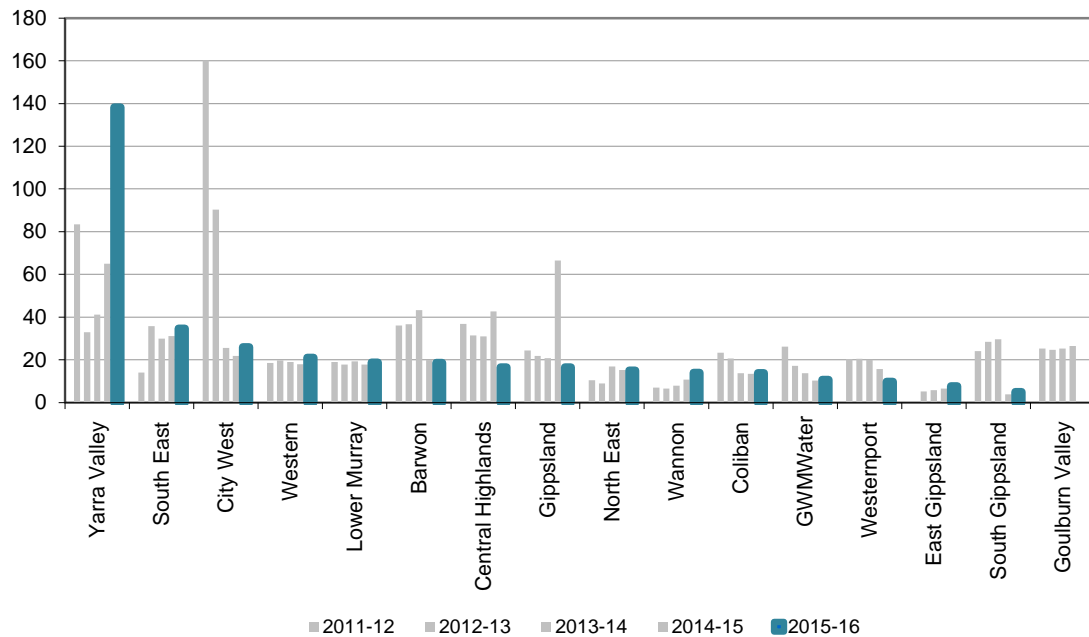
- GWMWater and North East Water were the best regional businesses for call centre connect times, with 17.3 and 17.4 seconds respectively. CSBA has ranked GWMWater as the best regional business for the past four years.
- South East Water (51 seconds) scored the best metropolitan water business for call centre connect times, a position it has held for the past three years.
- In 2015-16, CSBA recorded an 18 per cent increase in the average call centre connect time, up to 53 seconds from 45 seconds in 2014-15.
- City West Water was recorded as having the longest IVR time, being 54.5 seconds for a customer to listen to the full recording before choosing an option. Central Highlands Water had the second longest IVR time of 47.9 seconds. Overall the duration of IVR recording times across the state increased by 16 per cent. As customers become more familiar with IVR menus, they may be able to anticipate the menu options and reach an operator faster.
- Coliban Water, GWMWater, Lower Murray Water, North East Water and Wannon Water do not use IVR systems.
- Overall businesses generally self-reported shorter average ring and queue times, as recorded through their own monitoring and reporting systems, than the combined ring and queue times (excluding IVR time) recorded by CSBA.
- Yarra Valley Water and Western Water were recorded as having the biggest increase in length of IVR time in 2015-16, with IVR lengths for other businesses remaining relatively steady.

AVERAGE TIME TO CONNECT TO AN OPERATOR

Timeliness of call centres in connecting incoming calls to operators is an important factor influencing customer satisfaction. Water businesses monitor and report on the time taken for customers to connect to an operator at their call centres, excluding time spent navigating IVR menus.

In 2014-15, the IVR navigation time was specifically excluded for the first time, but average connect times did not necessarily decrease compared to previous years. Some businesses may not have included IVR time in previously reported figures.

FIGURE 4.3 AVERAGE TIME TAKEN TO CONNECT TO AN OPERATOR — ACCOUNT AND FAULT LINES
Business-reported data (seconds)



Note: Goulburn Valley Water was unable to provide its call connect data for 2015-16.

SNAPSHOT (Connect time, seconds)

State-wide Average		49.7%	Metro Average		67.3%	Regional Average		-36.6%
2015-16	55	↑	2015-16	71	↑	2015-16	14	↓
2014-15	37		2014-15	42		2014-15	22	

KEY OBSERVATIONS

- In 2015-16, the water businesses received 2.1 million phone calls, 81 per cent of which were calls to account enquiry lines, on par with account line calls in 2014-15.
- Eight businesses recorded an increase in average connect time, including all metropolitan businesses. State-wide, the weighted average time to connect to an operator was 55 seconds in 2015-16, 18 seconds longer than in 2014-15.
- Yarra Valley Water recorded a significant increase in average operator connect time of 112 per cent, from 65 to 138 seconds, more than triple the average connection time of the two other metropolitan businesses. Yarra Valley Water advised the decline in service level and time to answer was a result of low call centre staff numbers. In addition, the calls that the Customer Service team deal with are generally more complex and take longer than in the past, as many transactional enquiries are transitioning to the online portal. Yarra Valley Water is recruiting and training additional call centre staff to address the shortfall from staff moving to new internal appointments.
- Five regional businesses reported a decrease in average connect time, with the largest time reductions recorded by Gippsland Water (down 50 seconds) and Central Highlands Water (26 seconds).
 - Gippsland Water's reported figure in 2014-15 was very high as it included the IVR time. The 2015-16 figure does not, and returned to typical historical values (about 20 seconds).
 - Central Highlands Water rebalanced its call centre team members in 2015-16, with a focus on improving the connect time.
- Goulburn Valley Water advised it was unable to obtain accurate data from Telstra this year, so no 2015-16 value has been included.

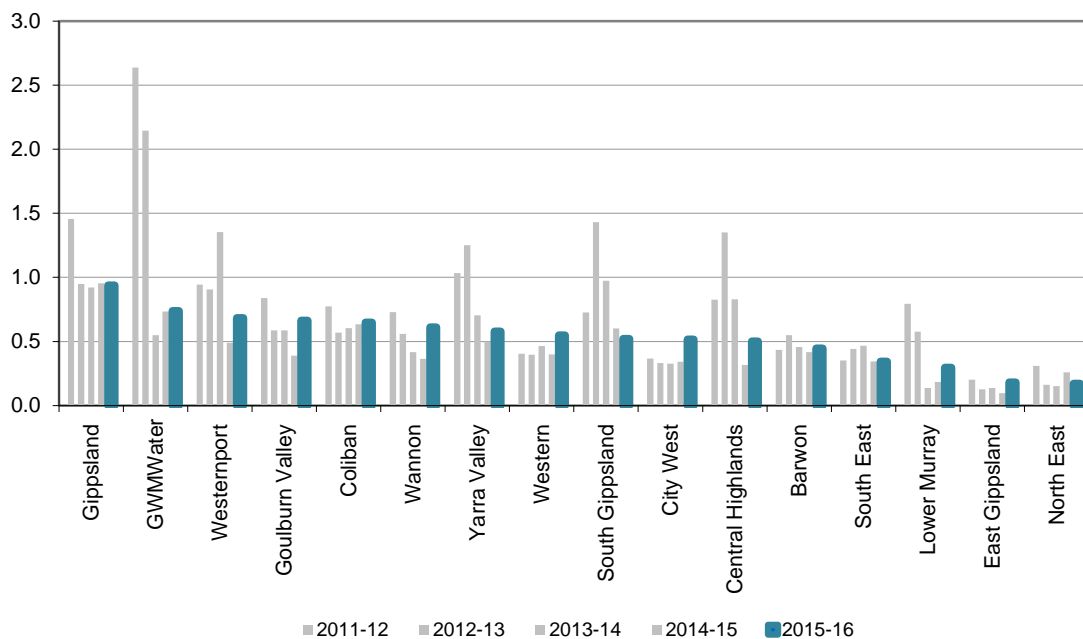
BACKGROUND

- The Customer Service Code places obligations on businesses for customer responsiveness and service. These obligations include having policies, practices and procedures for handling customers' complaints and disputes, and providing certain information to customers on request. Auditing businesses' compliance with the Code is done in conjunction with performance report audits.
- Customer connection measures are disaggregated between account enquiries and emergency contact numbers. Eleven businesses have a separate number for faults and emergencies. These businesses are City West Water, South East Water, Yarra Valley Water, Barwon Water, Gippsland Water, Goulburn Valley Water, GWMWater, North East Water, Wannon Water, Western Water and Westernport Water.
- Businesses without a separate fault and emergency number must record all calls against account lines. These differences can make direct comparisons between businesses difficult, although calls are generally answered faster when a business has a fault line available to customers.
- Businesses may use automated interactive voice response (IVR) systems to intercept calls before directing the customer to the appropriate customer service area. This approach generally increases the time taken to connect to an operator, and will vary according to the number of menu options, length of recordings, and the ability to bypass the recordings if a customer is familiar with the options. For this reason, the IVR time is excluded from the comparison measures; however businesses should not ignore the impact that lengthy IVR processes will have on customer satisfaction.

4.2 COMPLAINTS RECEIVED BY WATER BUSINESSES

Customer complaints can indicate dissatisfaction with the services provided by water businesses. If a business cannot resolve a complaint directly with the customer, the customer may refer the matter to the Energy and Water Ombudsman (Victoria) (EWOV) for further investigation (see section 4.4).

FIGURE 4.4 COMPLAINTS RECEIVED BY WATER BUSINESSES
(per 100 customers)



SNAPSHOT (Complaints, per 100 customers)

State-wide Average		17.2%	Metro Average		17.4%	Regional Average		16.9%
2015-16	0.49	↑	2015-16	0.48	↑	2015-16	0.54	↑
2014-15	0.42		2014-15	0.41		2014-15	0.46	

KEY OBSERVATIONS

- In 2015-16, businesses received 12 899 customer complaints, a 20 per cent increase on the record low 10 764 complaints received in 2014-15. Yarra Valley Water and City West Water accounted for over 69 per cent of the increase, with 1480 extra complaints between them.
 - Yarra Valley Water revised its reporting practices for water and sewerage supply reliability following feedback on its regulatory audit for 2014-15. Dissatisfied customers are now escalated to a specialised complaint/case management team and recorded as a complaint.
 - City West Water reviewed property title information, which led to some billing records having service charges removed and some having service charges added — 685 extra complaints were recorded for ‘payment issues’ in 2015-16, out of the total increase of 796 complaints.
- Only three businesses reported falls in the total complaints per 100 customers rate — North East Water (34 per cent), South Gippsland Water (14 per cent) and Gippsland Water (2 per cent).
- The largest increases in complaint rate were recorded by East Gippsland Water (89 per cent), Goulburn Valley Water (71 per cent), and Wannon Water (67 per cent), although East Gippsland Water’s complaint rate was still the second lowest in the state after reporting the lowest rate for the previous four years.
 - East Gippsland Water received an increase in disputes regarding the validity of the vacant land charges applied to bills, although this charge was unchanged. It also improved training of customer service staff to better capture customer complaints.
 - Goulburn Valley Water attributed its increase in water quality complaints to a number of events detailed in section 6.2 (almost 50 per cent of the increase). Overall Goulburn Valley Water has consolidated its complaint management into a single system and considers its improved data management practices have resulted in an increase in the number of complaints recorded. An increase in sewer reliability complaints was recorded but was found to be related to internal property house connections — additional rectification works have been investigated for locations with repeat blockages. Finally, billing improvements

and further customer service training have led to a decrease in number of payment issue complaints.

- The increase in complaint rate for Wannon Water is related to ‘water quality’ (detailed in section 6.2). This was slightly offset by a decrease in ‘payment issues’ complaints (also a five year downward trend), due to continued high performance of the customer relations team and continued reduction in tariffs.
- Water businesses received most complaints about water quality (42 per cent), followed by payment issues (20 per cent), water pressure (14 per cent), sewer odour (5 per cent), water supply reliability (3 per cent), and sewer service reliability (2 per cent). Other complaints not included in these categories comprised 13 per cent of total complaints.

BACKGROUND

- A complaint is recorded if a customer registers dissatisfaction in a complaint category. Australian Standards define a complaint as an “expression of dissatisfaction made to or about an organisation, related to its products, services, staff or handling of a complaint where a response is implicitly expected or legally required.” (AS/NZS 10002:2014)
- Businesses report the number of customer complaints about:
 - water quality (see also chapter 6)
 - water supply reliability
 - sewerage service quality and reliability
 - payment issues²
 - water pressure/flow rate
 - sewage odour
 - ‘other’ complaints.

² The Commission formed a new category, payment issues, in 2012-13. It combines the affordability and billing categories from previous years.

4.3 COMPLAINTS RECEIVED BY ENERGY AND WATER OMBUDSMAN (VICTORIA)

EWOV has a role is to help resolve complaints and disputes between consumers and electricity, gas and water providers in Victoria. It reports on consumer cases that involve payment difficulties, disconnections or restrictions and debt collection or credit default.

EWOV provides us with a summary of complaints and enquiries it received for each water business (see table 4.2). This provides a useful comparison with complaint rates reported to us by each water business.

KEY OBSERVATIONS

- In 2015-16 EWOV received 2202 complaints about the metropolitan and regional urban water businesses, up 3 per cent from 2148 complaints in 2014-15. EWOV also received 54 enquiries, down from 57 last year.
- The number of complaints to EWOV for each of the three metropolitan retailers was fairly consistent with the sector share of customers for each business. South East Water and Yarra Valley Water had a slightly lower proportion of complaints than their sector share, while City West Water was slightly higher.
- Of the regional businesses, Coliban Water again had the highest number of complaints referred to EWOV relative to sector share, with 18 per cent of all regional complaints while only servicing 11 per cent of the regional population.
- Westernport Water experienced the lowest ratio of customer complaints to EWOV relative to customers served, with only 1 per cent of all regional complaints while servicing 2 per cent of regional customers. Next was South Gippsland Water (with 2 per cent of regional complaints and a 3 per cent sector share).

TABLE 4.2 COMPLAINTS RECEIVED BY ENERGY AND WATER OMBUDSMAN (VICTORIA)

Water businesses	Total cases				Total enquiries		Total complaints		2015-16 complaints				Sector share	Ratio
	2015-16	%	2014-15	%	2015-16	%	2015-16	%	Unassisted referrals	Assisted referrals	Real time resolution	Investigated complaints	%	Complaints to sector share
Melbourne	36		27		2		34		8	17	2	7		
City West	562	31	443	26	24	55	538	31	99	395	12	32	22	1.38
South East	598	34	634	37	11	25	587	34	91	399	36	61	38	0.89
Yarra Valley	625	35	627	37	9	20	616	35	123	398	24	71	40	0.89
Total – Metropolitan	1,785	100	1,704	100	44	100	1,741	100	313	1,192	72	164	100	
Barwon	67	15	94	20	1	13	66	15	16	40	2	8	22	0.71
Central Highlands	42	10	46	10	0	0	42	10	8	22	3	9	10	1.02
Coliban	77	18	85	18	0	0	77	18	20	41	5	11	11	1.71
East Gippsland	12	3	10	2	1	13	11	3	2	8	0	1	3	0.77
Gippsland	39	9	37	8	0	0	39	9	6	31	0	2	10	0.93
Goulburn Valley	32	7	30	6	2	25	30	7	6	19	1	4	8	0.85
GWMWater	23	5	25	5	0	0	23	5	1	20	0	2	5	1.18
Lower Murray	15	3	10	2	0	0	15	4	6	8	0	1	5	0.73
North East	36	8	44	9	1	13	35	8	5	25	0	5	7	1.15
South Gippsland	9	2	15	3	1	13	8	2	0	7	0	1	3	0.65
Wannon	23	5	36	8	1	13	22	5	4	13	0	5	6	0.84
Western	56	13	26	5	1	13	55	13	11	39	3	2	9	1.48
Westernport	4	1	16	3	0	0	4	1	2	2	0	0	2	0.41
Total – Regional	435	100	474	100	8	100	427	100	87	275	14	51	100	
TOTAL – VICTORIA	2 256		2 205		54		2 202		408	1484	88	222		

BACKGROUND

- EWOV records complaints under four separate categories:
 - **unassisted referrals** — where a customer did not speak with their water business about their complaint and they are referred back to the business’s contact centre;
 - **assisted referrals** — where a customer spoke with someone at their water business’s contact centre about their complaint, but it remains unresolved and the matter is referred by EWOV to a higher level complaint resolution officer at the business;
 - **real time resolution** — EWOV’s Real Time Resolution Team receives failed assisted referral calls from customers and then works to resolve the complaint through customer education and direct negotiation with the customer and their water business (all within a one-call approach); and
 - **investigated complaints** — when the matter remains unresolved, the customer or the water business can request the matter be investigated by EWOV.

5 NETWORK RELIABILITY

This chapter reports on:

- water supply reliability (**section 5.1**)
 - water supply interruptions
 - customer interruption frequency
 - timing of interruptions
 - average duration of interruptions
 - overall reliability
 - number of customers experiencing an interruption

- sewerage service reliability (**section 5.2**)
 - sewer blockages
 - containment of sewer spills
 - sewer spills to customer properties

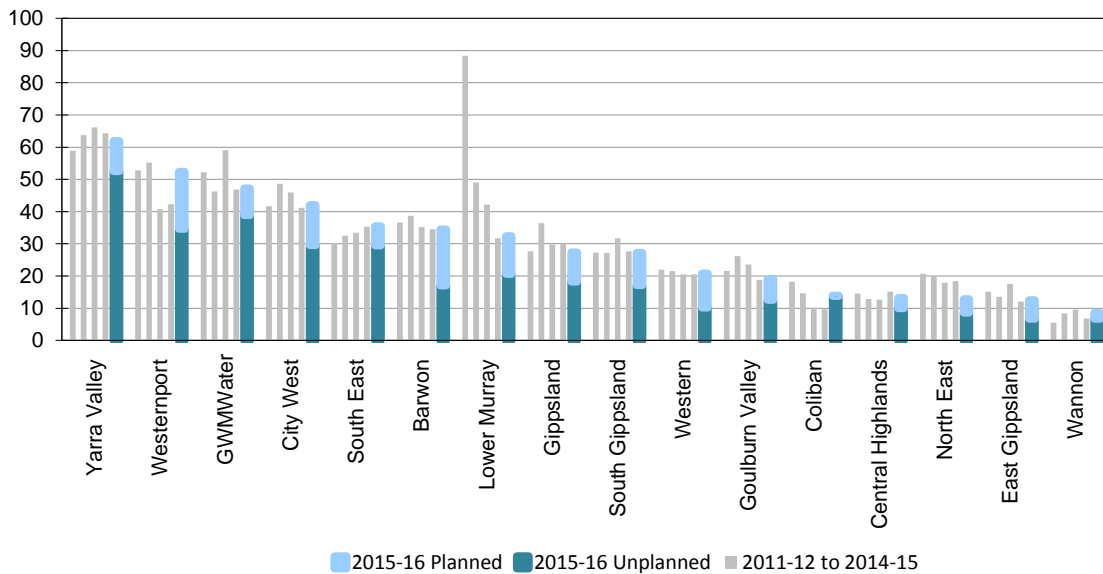
5.1 WATER SUPPLY RELIABILITY

A reliable supply of water to customers is the cornerstone of a water business's operation. This chapter presents information on network reliability, considering asset performance, service interruptions to customers and responsiveness to service problems.

WATER SUPPLY INTERRUPTIONS

A water supply interruption is an event that causes a total loss of supply to one or more customers. Interruptions may be due to planned maintenance activities, or unplanned activities resulting from pipeline or delivery system failures.

FIGURE 5.1 WATER SUPPLY INTERRUPTIONS (PLANNED AND UNPLANNED)
(per 100 kilometres of water main)



SNAPSHOT (Water supply interruptions, per 100 kilometres)

State-wide Average		-1.1%	Metro Average		-1.8%	Regional Average		-0.1%
2015-16	35.8	↓	2015-16	47.5	↓	2015-16	23.0	▬
2014-15	36.2		2014-15	48.4		2014-15	23.0	

KEY OBSERVATIONS

- The average water supply interruption rate across the state was 35.8 interruptions per 100 kilometres of water main in 2015-16, a 1 per cent improvement from 36.2 interruptions in 2014-15. The regional average was steady at 23.0, while the metropolitan businesses recorded a 2 per cent improvement, down to 47.5.
- The unplanned interruptions statewide average ranged between 26 and 30 interruptions per 100 kilometres over the past five years. In 2015-16 only the three metropolitan businesses, GWMWater and Westernport Water recorded rates above the average.
- In 2015-16, Wannon Water again reported the lowest rate of water supply interruptions (at 8.7 per 100 kilometres); it has done so for the past eight years.
- By contrast, Yarra Valley Water again reported the highest number of water supply interruptions (61.8 per 100 kilometres), albeit down 4 per cent from last year.
- North East Water reported the largest improvement this year (a 30 per cent decrease) to record its lowest result of 12.8 interruptions per 100 kilometres, since it reported 12.7 in 2005-06. Its water main renewals program targets mains with a history of multiple breaks, and resulted in a significant decrease in the number of breaks and customer interruptions this year.
- Coliban Water reported the largest increase in 2015-16 to record 13.9 water supply interruptions per 100 kilometres. The result represents a return to historical levels after two years of relatively low interruptions, as water network bursts and leaks are more likely when soil has less moisture in dry years like 2015-16. Coliban Water is still one of the better performing businesses for this indicator.

BACKGROUND

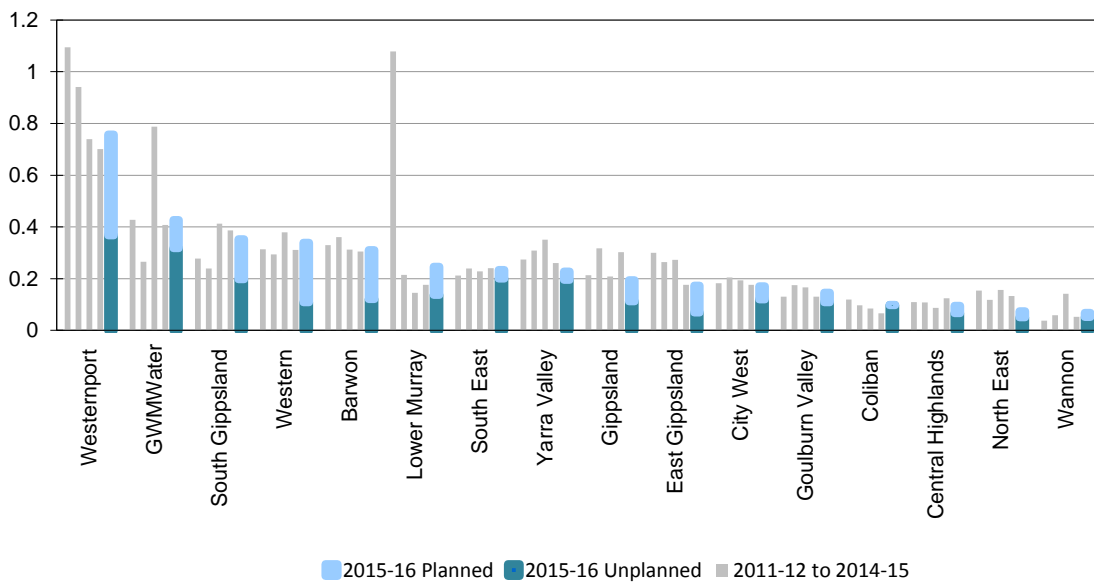
- The frequency of interruptions across different networks is compared by measuring the number of water supply interruptions per 100 kilometres of water main.
- Soil type, geography and the assets' age and material cause regional variations in interruption rates for water mains, but asset management can also significantly affect supply reliability in the medium to long term.

CUSTOMER INTERRUPTION FREQUENCY

Customer interruption frequency measures how often on average a customer will experience an interruption.

A single water supply interruption will generally inconvenience a specific number of customers. An event causing 50 customers to lose supply is recorded as one water supply interruption and 50 customer interruptions.

FIGURE 5.2 CUSTOMER INTERRUPTION FREQUENCY — PLANNED AND UNPLANNED
(interruptions per customer)



SNAPSHOT (Customer interruption frequency per customer)

State-wide Average		-5.9%	Metro Average		-7.3%	Regional Average		-1.8%
2015-16	0.22	↓	2015-16	0.22	↓	2015-16	0.22	↓
2014-15	0.23		2014-15	0.23		2014-15	0.23	

KEY OBSERVATIONS

- In 2015-16, the average frequency of customer interruptions (planned and unplanned) across the state was 0.22 interruptions per customer, a slight improvement from 0.23 interruptions per customer in 2014-15. This average rate was consistent across both metropolitan and regional sectors. While the unplanned interruption rate was up slightly, the planned rate was lower, producing the overall reduction in customer interruption frequency.
- Wannon Water reported the fewest water supply interruptions per customer (0.07) up from 0.05 in 2014-15. It has retained one of the lowest rates since 2009-10.
- North East Water also reported a frequency of 0.07 interruptions per customer, its best performance to date, and the best performance improvement reported this year. Gippsland Water and Central Highlands Water also reported good improvements this year.

Planned interruptions

- The frequency of planned interruptions across the state was 0.06 per customer, a slight improvement from 0.07 reported in 2014-15.
- Gippsland Water recorded the largest improvement in planned interruptions in 2015-16 with a decrease of 52 per cent, following a spike last year when it undertook water mains air scouring to improve water quality. Its frequency of 0.08 was the lowest since 0.07 in 2006-07.
- Similarly, as a result of large improvements in 2015-16, Yarra Valley Water and North East Water recorded their best and second best results respectively (0.03 and 0.02 planned interruptions per customer). Yarra Valley Water undertook lower volumes of planned works as a result of the higher volumes of emergency work experienced for the year. North East Water's targeted water main renewals program coupled with customer growth in 2015-16 has led to the significant decrease in interruption frequency.
- By contrast, Westernport Water recorded the highest rate again this year of 0.39 planned interruptions per customer, although this was down slightly from last year's 0.43 planned interruptions. Westernport Water has a planned air scouring program to remove stagnant water and improve water quality prior to the peak summer usage period each year.

- Lower Murray Water reported one of the largest increases in planned interruptions of 60 per cent. In 2015-16, Lower Murray Water changed its method from counting properties to counting customers in order to better account for high density living (increased count of approximately 8 per cent). About 28 per cent of the overall increase was due to one project involving pipeline replacement on a council road works project, in an area of very high density housing.

Unplanned interruptions

- The statewide average for frequency of unplanned interruptions in 2015-16 increased by 1 per cent from 2014-15. All of the metropolitan businesses remained relatively steady for 2015-16, while the regional average increased 4 per cent.
- Coliban Water and Goulburn Valley Water reported the largest increases (49 and 35 per cent respectively) in the unplanned customer interruption rate in 2015-16 (although both businesses are still below the regional average, and results were within the variability experienced over recent years). Coliban Water attributes the increase to the drier soil conditions and Goulburn Valley Water advised it had incurred an increase in the number of unplanned interruptions and in the number of customers affected per interruption due to more interruptions on larger mains.
- Westernport Water also reported a large increase of 33 per cent (following years of steady improvement) and as a result, it again has the highest rate in the state at 0.37 unplanned interruptions per customer. This increase is due to a dry year with less than average annual rainfall, which resulted in more unplanned water interruptions.
- North East Water, Central Highlands Water and South Gippsland Water reported the largest improvements in 2015-16. North East Water's improvement follows an equally large improvement in 2014-15, and it now has the equal lowest unplanned interruption rate in the state due to its targeted water main renewal program. Central Highlands Water advises it remained consistent with its five year average and likely benefited from seasonal factors this year. South Gippsland Water increased its preventative valve maintenance program, which allowed less customers to be isolated per unplanned event, in towns where these valves had been replaced.

TIMING OF WATER SUPPLY INTERRUPTIONS

The timing of customer interruptions, as well as the frequency, affects the inconvenience caused to customers. Peak hours of water use occur from 5am–9am and 5pm–11pm, and interruptions during these peak times generally cause greater inconvenience than during the off-peak times.

KEY OBSERVATIONS

- In 2015-16, five water businesses (all regional businesses) reported no planned customer interruptions during peak hours. This was Western Water's sixth straight year with no planned interruptions in peak hours, and the second consecutive year for Coliban Water following an operational decision to avoid planned interruptions during peak hours.
- GWMWater reported the highest result of all the businesses in 2015-16 (as it did in 2014-15) with a frequency of 0.015 planned interruptions per customer during peak hours. However, it has recorded large reductions in the last two years due to the continued focus to avoid planned shutdowns during peak hours.
- In addition to the five businesses that reported no planned interruptions, Goulburn Valley Water, East Gippsland Water and North East Water reported greatly reduced (by 82, 81 and 80 per cent respectively) peak hour interruption rates in 2015-16.
 - For North East Water, this decline followed a relatively high peak hour interruption rate in 2014-15 year. It introduced more targeted planning to ensure, where possible, planned works requiring an interruption to service were performed outside of peak hours.
 - For Goulburn Valley Water, the reduction was attributed to an improved process for works associated with water main replacement and developer works. This involved a tightening of the available shutdown duration, improved planning and where applicable the use of multiple work crews to complete the shutdown.
 - East Gippsland Water advised that it had reduced its air-scouring program for 2015-16, has undertaken an extensive proactive maintenance program for valves and fittings over the last five years, and has increased its use of bypass

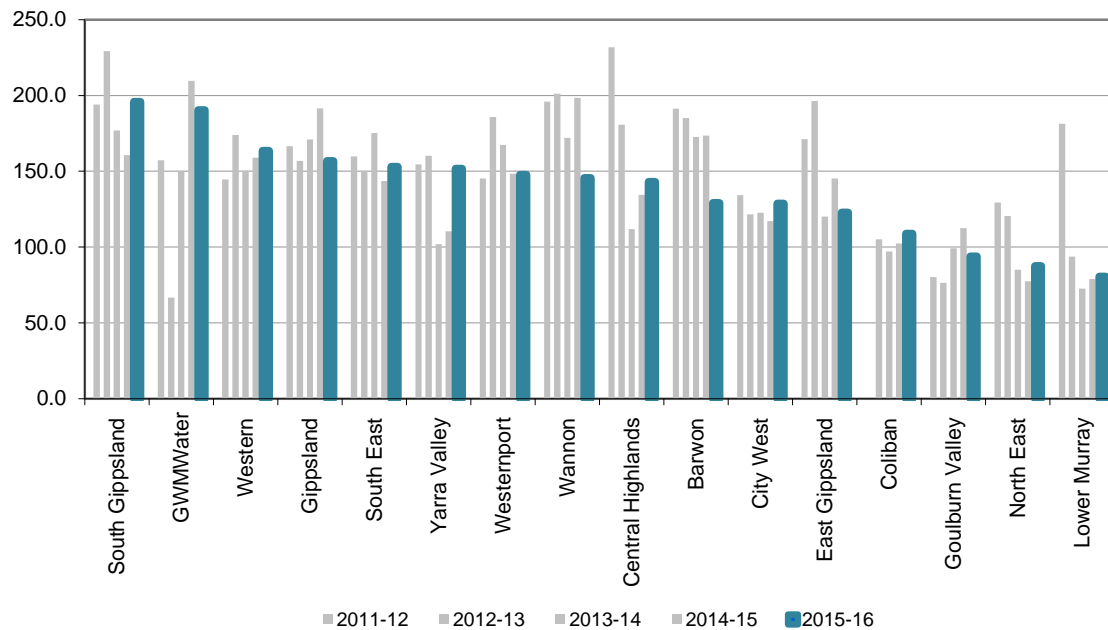
technology for maintenance, in association with better redundancy and flexibility built into the systems.

- The largest increases in the peak hour interruption rate were recorded by Central Highlands Water (107 per cent increase) remaining low overall, Lower Murray Water (73 per cent), South East Water (68 per cent) and Yarra Valley Water (65 per cent). South East Water attributed its increase in planned shutdowns to a rise in the number of subdivision developments, while Yarra Valley Water attributed its major variance to an incident during a planned job related to meter installation, which impacted 1449 properties. Lower Murray Water repaired two separate blocked valve incidents in the Mildura CBD during peak hours (between 4.00am and 7.00am) to minimise the disruption to commercial customer operating hours.

AVERAGE DURATION OF WATER SUPPLY INTERRUPTIONS

Average interruption duration indicates how long it takes, on average, to restore supply after an interruption. It is measured from the time water supply is shut down until it is returned to normal service levels.

FIGURE 5.3 AVERAGE DURATION OF PLANNED INTERRUPTIONS
(minutes)



SNAPSHOT (Average duration planned interruptions, minutes)

State-wide Average		2.1%	Metro Average		19.1%	Regional Average		-14.0%
2015-16	143	↑	2015-16	145	↑	2015-16	141	↓
2014-15	140		2014-15	122		2014-15	164	

KEY OBSERVATIONS

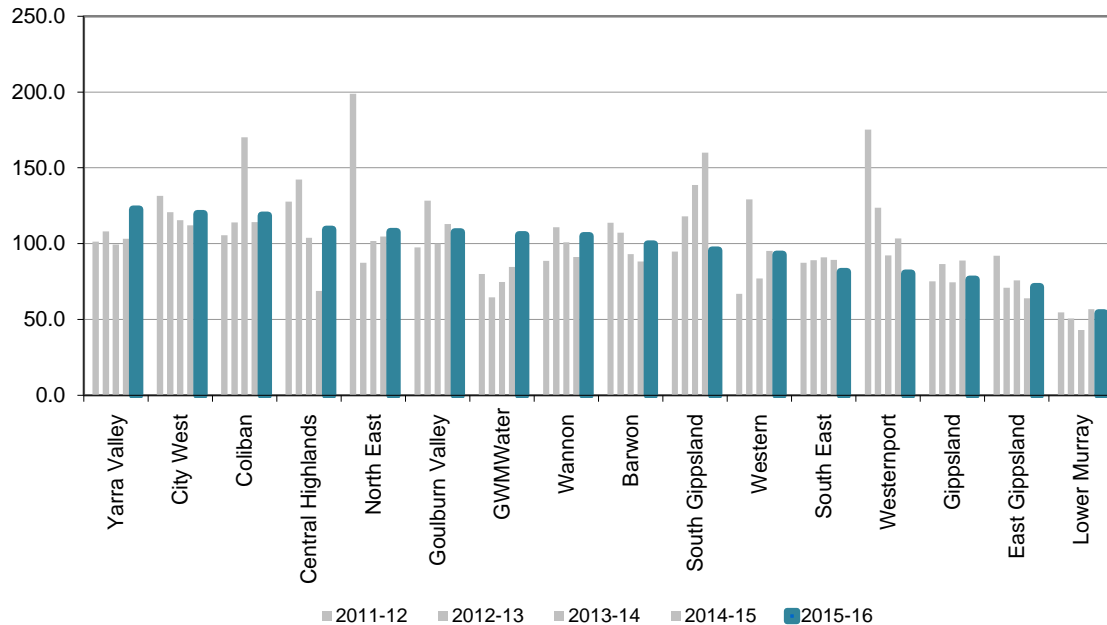
- In 2015-16, the statewide average duration of planned interruptions increased by 2 per cent. The metropolitan average increased by 19 per cent to 145 minutes (from 122 minutes) while the regional average decreased by 14 per cent to 141 minutes (from 164 minutes).

- Yarra Valley Water was the main driver of the increase in the metropolitan average, recording a 37 per cent increase in 2015-16 due to a higher proportion of more complex planned jobs being undertaken this year resulting in longer average duration times. City West Water and South East Water also reported increases of 10 per cent and 7 per cent respectively.
- The improvement in the regional average was mainly driven by Wannon Water (27 per cent decrease) as no air scouring was undertaken this year, Barwon Water (26 per cent) and Gippsland Water (18 per cent). Barwon Water installed two new pressure management zones, which allowed the operation of zone valves resulting in a number of short planned interruptions to customer supply. Gippsland Water attributed the improvement to effective planning of preventative works throughout 2015-16, specifically the programmed air scouring of reticulation networks.
- Lower Murray Water recorded the shortest average duration of planned interruptions (80 minutes), having been among the shortest for the past three years, while South Gippsland Water recorded the longest (196 minutes).

BACKGROUND

- The frequency of interruptions may be influenced by matters outside the control of water businesses, but it is possible to establish practices and procedures to restore supply quickly when an interruption does occur.
- Supply interruptions for planned work can vary greatly in duration, depending on the nature and extent of the planned work. On the one hand, businesses may conduct extensive programs to clean or replace pipes, and choose to maximise the amount of work performed during each scheduled supply interruption; this will increase the average duration.
- On the other hand, a business may strive to minimise or avoid planned supply interruptions wherever possible. This strategy can produce quite varied results for a particular business from year to year, as it may not always be possible to avoid a supply interruption to complete the required work.

FIGURE 5.4 AVERAGE DURATION OF UNPLANNED INTERRUPTIONS
(minutes)



SNAPSHOT (Average duration unplanned interruptions, minutes)

State-wide Average		5.3%	Metro Average		6.1%	Regional Average		1.7%
2015-16	103	↑	2015-16	105	↑	2015-16	96	↑
2014-15	98		2014-15	99		2014-15	95	

KEY OBSERVATIONS

- In 2015-16, the average duration for unplanned interruptions across the state increased by 5 per cent (103 minutes compared with 98 minutes in 2014-15). The metropolitan average increased by 6 per cent and the regional average by 2 per cent.
- The metropolitan increase was driven predominantly by Yarra Valley Water which recorded a 19 per cent increase. City West Water also reported an increase of 7 per cent. Yarra Valley Water transitioned to a new maintenance contractor in November 2015, with half the staff being new and initial issues with the field-based IT system. In addition, the prolonged summer gave rise to increased water usage and changes in ground conditions, resulting in a larger volume of overall emergency faults for the year (up 12 per cent compared to 2014-15).

- South East Water recorded a 9 per cent decrease and, as a result, recorded its lowest result for the last five years (of 81 minutes).
- Lower Murray Water again recorded the shortest average duration (54 minutes). Yarra Valley Water, with its large increase, recorded the longest average duration (122 minutes).
- Six regional businesses improved their performance but performance deteriorated for the other seven. Notable results for the regional businesses included:
 - South Gippsland Water reported the biggest improvement across all businesses in 2015-16 (a 40 per cent decrease). This was the first improvement for South Gippsland Water in the last five years, following two major incidents in 2014-15: one involving a break of a valve on a township trunk main and the other a break on a major trunk main.
 - Westernport Water reported a 22 per cent improvement in 2015-16, and consequently recorded its lowest result over the last five years, with an average duration of 80 minutes. Westernport Water attributed the improvement to no significant (priority 1) bursts/leaks that would have affected a large number of customers in one interruption. It had a higher frequency of smaller interruptions affecting a smaller number of customers restored in a shorter timeframe. One burst on a major trunk main that could have affected a larger number of customers (if shutdown) was programmed and repaired as a planned interruption.
 - Central Highlands Water reported the largest increase of all businesses in 2015-16 (of 59 per cent), which it noted was consistent with its five year average, following a relatively low year in 2014-15 (possibly due to seasonal and other factors).
 - GWMWater reported a 25 per cent increase in 2015-16, which also followed increases in the previous two years. GWMWater has seen a higher than normal instance of interruptions over five hours in duration and shutdowns impacting 50 or more customers. GWMWater also experienced 19 whole-of-town outages during this reporting period.

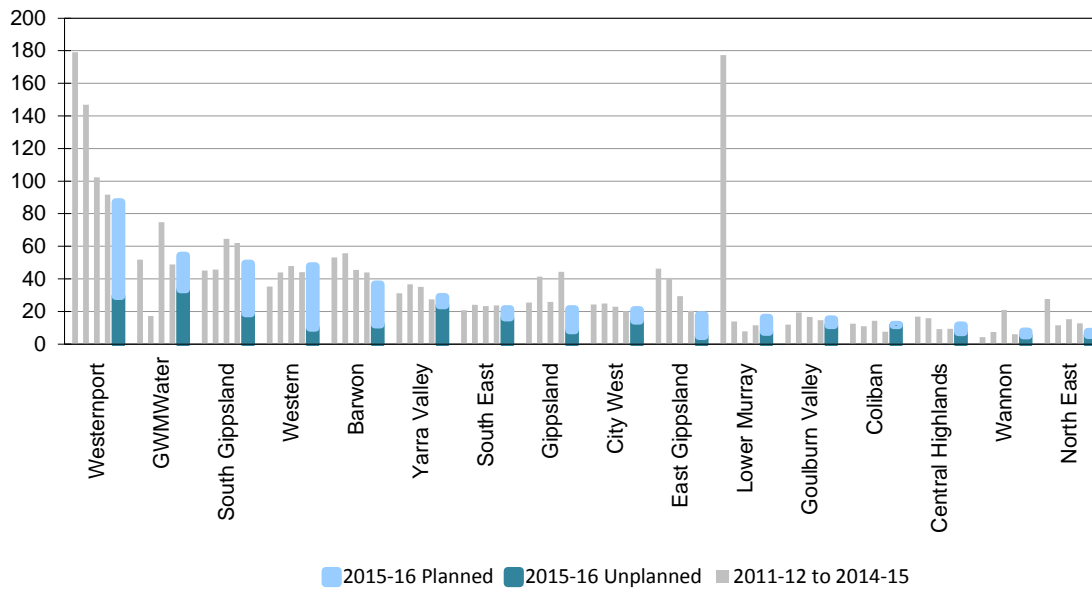
BACKGROUND

- Unplanned interruptions generally involve water supply infrastructure failures (such as pipeline bursts, equipment or instrument failures) that require shutting down the water supply to conduct emergency repairs. The duration can be greatly affected by factors including the size and location of the pipeline, access to the worksite, the availability of work crews to attend, and the nature of the repair required.
- Planned interruptions that take longer than the planned duration are also considered to be unplanned interruptions.

OVERALL WATER SUPPLY RELIABILITY

Overall reliability of a water supply network is measured by customer minutes off supply (the product of average customer interruption frequency and average interruption duration).

FIGURE 5.5 AVERAGE CUSTOMER MINUTES OFF SUPPLY
(minutes)



SNAPSHOT (Average customer minutes off supply, minutes)

State-wide Average		-3.7%	Metro Average		-0.6%	Regional Average		-10.9%
2015-16	25	↓	2015-16	24	→	2015-16	26	↓
2014-15	26		2014-15	24		2014-15	29	

KEY OBSERVATIONS

- In 2015-16, the average customer minutes off supply across the state was 25 minutes, a small improvement from 26 minutes in 2014-15. While the metropolitan sector remained fairly steady, the regional sector recorded an 11 per cent improvement in 2015-16.

- Of the metropolitan businesses, only South East Water reported an improvement in 2015-16. Of the regional businesses, six of the 13 regional businesses recorded an improvement.
- North East Water reported the lowest 2015-16 result of 7 minutes, after it recorded a 42 per cent improvement from 2014-15. North East Water has continued to invest in training and automotive response equipment to reduce the duration of service interruptions. The water main renewals project has also resulted in less interruptions being recorded in 2015-16.
- Gippsland Water reported the largest decrease (from 44 minutes to 21 minutes). However, this follows an abnormally high result last year due to its air scouring maintenance program in the towns of Warragul, Drouin and Mirboo North.
- Although Westernport Water has reported improvements for the last five years, it again recorded the highest result (87 minutes) for the sixth consecutive year. According to Westernport Water, its result reflected the unusual nature of its network (where a burst or a leak can affect a significant proportion of its customers) and its preventative maintenance plan.
- Coliban Water, Lower Murray Water and Wannon Water reported the largest percentage increases in minutes off supply in 2015-16, however the overall performance of all three businesses is still among the best in the state.
- East Gippsland Water reported an improvement in the minutes off supply for the fifth consecutive year. It has continued its proactive maintenance regime coupled with the roll out of mobile technology for field teams to assist with reducing the duration of water supply interruptions.

NUMBER OF CUSTOMERS EXPERIENCING AN INTERRUPTION

This measure is the number of customers who experienced multiple water supply interruptions in a year. Many of the performance indicators concentrate on average performance, but this measure can identify customers who received poor service with a higher number of interruptions.

It is also important to note the restoration times for unplanned and planned customer interruptions. These measures look at how promptly a water business restores supply once it shuts down a water main.

KEY OBSERVATIONS

- Nine of the 16 businesses reported fewer than 10 per cent of customers incurred one or more unplanned water supply interruptions during 2015-16.
- North East Water and Wannon Water reported the lowest interruption rates (4.4 per cent and 4.7 per cent of customers had at least one interruption respectively) while Westernport Water and South Gippsland Water again reported the highest rates (26.9 per cent and 19.7 per cent respectively). South Gippsland Water attributed the high result in 2015-16 to two large main breaks that affected the entire townships of Toora and Welshpool in June 2016 — although this was still a better result than 2014-15 when one major break affected 10 per cent of customers.
- For customers incurring multiple interruptions (two or more unplanned interruptions), Wannon Water and Central Highlands reported the fewest (both reporting 0.4 per cent of customers) while Westernport Water and GWMWater again reported the most (7.9 per cent and 7.4 per cent of customers respectively).
 - Westernport Water attributed its high result to failures of pipelines to towns that have a single source of water supply, namely Corinella, Dalyston and Archies Creek. These towns are supplied by cast iron cement lined pipe and the pipelines were replaced under the capital program for water main replacement. The ongoing water main replacement program will continue to review asset condition and criticality, giving priority to areas supplied via a single source.
 - GWMWater reported that its increase was due to two water mains in two particular towns experiencing multiple breaks and impacting the same

customers. These mains have been earmarked for replacement or have since been replaced.

- The majority of unplanned water supply interruptions are restored within five hours, ranging from 94.2 per cent at Yarra Valley Water up to 100 per cent at East Gippsland Water and Lower Murray Water.

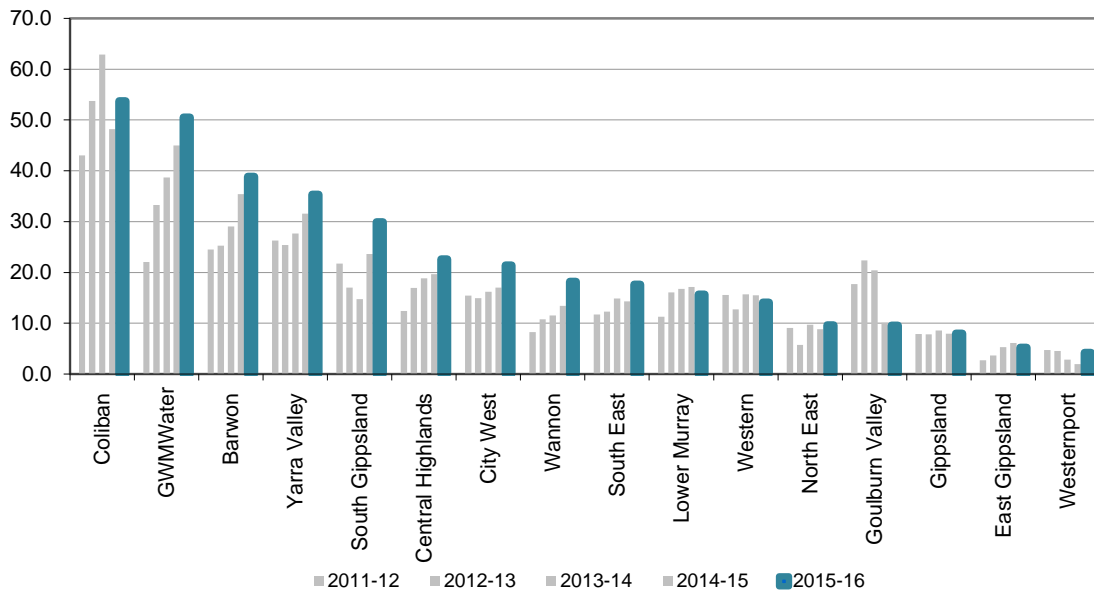
5.2 SEWERAGE SERVICE RELIABILITY

This section reports information about the reliability of sewerage services from two perspectives — the performance of the sewer assets and the impacts on customers.

SEWER BLOCKAGES

A sewer blockage is a partial or total obstruction of a sewer main that impedes sewage flow. This measure includes all trunk and reticulation main blockages (core infrastructure that transfers sewerage to treatment facilities), but excludes blockages in the house connection branch (HCB) and property drain (ancillary infrastructure that transfers sewerage to the core network).

FIGURE 5.6 SEWER BLOCKAGES
(per 100 kilometres of sewer main)



SNAPSHOT (Sewer blockages, per 100 kilometres)

State-wide Average		13.8%	Metro Average		16.5%	Regional Average		9.7%
2015-16	25.2	↑	2015-16	25.6	↑	2015-16	24.5	↑
2014-15	22.1		2014-15	22.0		2014-15	22.3	

KEY OBSERVATIONS

- The overall rate of sewer main blockages across state increased by 14 per cent in 2015-16 to 25.2 sewer blockages per 100 kilometres from 22.1 blockages in 2014-15. This is the poorest statewide performance since 2009-10.
- The metropolitan average blockage rate increased by 16.5 per cent, with all three metropolitan retailers recording increases. The regional average also increased, with only four of the 13 regional businesses recording improvements this year. There is a discernible trend of deteriorating performance over the last five years for around half of the 16 businesses.
- Coliban Water recorded the highest sewer blockage rate in the state, as it has done for every year of reporting, 12 per cent higher in 2015-16 than last year. Coliban Water's "Stop the Block" sewer improvement program is still ongoing, however the very dry summer led to an increase in breakages and tree root intrusion this year.
- GWMWater again reported the second highest sewer main blockage rate (50.5 blockages per 100 kilometres of sewer main), a 12 per cent increase from its 2014-15 result and the fourth year of consecutive increases, more than doubling since 2011-12. GWMWater noted western Victoria has experienced drier years over the last five reporting periods. With lower rainfall, blockage rates increase as tree roots enter pipes searching for water. Approximately 86 per cent of GWMWater sewer blockages are caused by tree root intrusion, which drives an ongoing maintenance program to manage the problem.
- Similarly, Barwon Water also reported increases in the sewer main blockage rate for the last four years, making it the third highest overall. Barwon Water notes the ongoing dry conditions in 2015-16 contributed to an increased number of sewer main blockages. The dry conditions resulted in increased ground movement causing cracking and sewer main pipe joint displacement, allowing tree root ingress.
- South Gippsland Water and Wannon Water reported large increases (of 27 per cent and 36 per cent respectively) in sewer main blockages. For South Gippsland Water, this increase was attributed to a drier than average year, and followed an even larger increase in 2014-15. For Wannon Water, this was the fourth consecutive year of increases. Wannon Water experienced higher than normal blockages during the year in some townships due to both root intrusion and age of assets. Wannon

Water is continuing to conduct proactive CCTV monitoring of assets to inform its renewals program and pro-active sewer cleaning program.

- Westernport Water reported the lowest rate of sewer blockages for the third year running with only 4.2 blockages per 100 kilometres of sewer main, despite this being more than double last year's rate. The increase was attributed to sewer tree root invasion from ground movements as a result of dry weather.

Customers affected by sewer blockages

- Businesses are required to report the number of customers experiencing three or more sewer blockages in the year. Most businesses reported very low numbers of customers experiencing three or more sewer blockages per year. The exceptions were Wannon Water (13 customers or 0.03 per cent) and GWMWater (11 customers or 0.03 per cent).

BACKGROUND

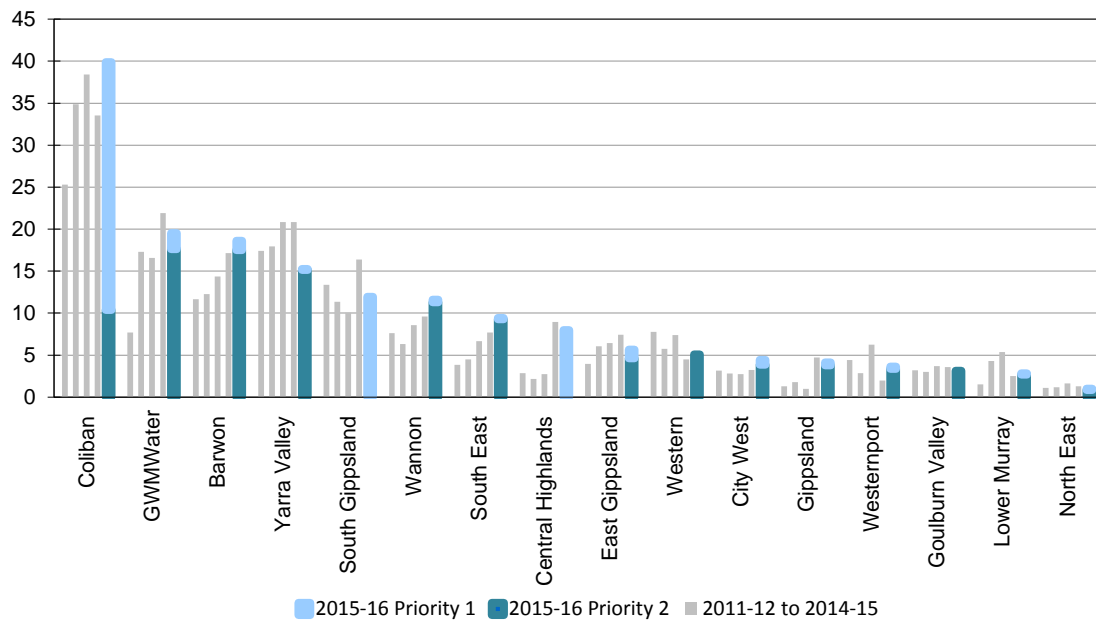
- Sewerage reliability is influenced by:
 - frequency of service failure (as indicated by sewer blockages per 100 kilometres of main and the number of blockages experienced by customers)
 - responsiveness to service failure (as indicated by sewer spills contained within five hours)
 - containment of sewage within the system (as indicated by the number of sewage spills, in particular spills onto customers' properties).
- Customers in Victoria rarely lose access to sewerage services. Blockages or other faults usually result in sewage spills rather than incapacity to dispose of sewage. The exception is when blockages occur in the pipe connecting a customer's property to the sewerage system. The impact of these interruptions, while great on the individual customer affected, is minor in an overall network context because it is confined to that customer. By contrast, a single water supply interruption will typically result in a loss of service to about 50 properties.
- A sewer blockage may lead to a sewage spill because it reduces the capacity of the sewer to handle the volume of sewage, particularly at times of high rainfall. Asset management practices affect the performance of the sewerage network, but a range of external factors can contribute to sewer blockages, particularly hot liquid fats solidifying as they cool and tree roots intruding into the sewers.

CONTAINMENT OF SEWER SPILLS

Reticulation and branch spills are a failure to contain sewage within the sewerage system. This measure excludes spills from emergency relief structures and at sewer pump stations and spills due to blockages in house connection branches. Depending on severity, customers may experience property damage and/or health risks.

The percentage of spills that are fully contained within five hours reflects the timeliness with which businesses contain sewer spills from branch and reticulation sewers.

FIGURE 5.7 SEWER SPILLS FROM RETICULATION AND BRANCH SEWERS
(per 100 kilometres of sewer main)



SNAPSHOT (Reticulation and branch sewer spills, per 100 kilometres)

State-wide Average		-4.7%	Metro Average		-11.7%	Regional Average		6.4%
2015-16	11.6	↓	2015-16	10.9	↓	2015-16	12.6	↑
2014-15	12.2		2014-15	12.3		2014-15	11.9	

KEY OBSERVATIONS

Priority one and two spills

- Twelve of the 16 water businesses reported one or less priority 1 sewer spills per 100 kilometres of sewer main.
- Coliban Water reported by far the highest priority 1 spill rate in 2015-16, with 29.5 spills per 100 kilometres of sewer main (a total of 565 sewer spills). This was also an increase of 7 per cent from 2014-15, and is the highest result reported by Coliban Water since reporting commenced in 2004-05 (and the highest reported by any business). Coliban Water also recorded a large increase (of 72 per cent) in priority 2 spills in 2015-16, but this mainly reflects a shift in interpretation from priority 1 spills. Coliban Water attributed the overall increase in spills to the increase in breaks and blockages due to the prolonged dry conditions experienced this year.
- Western Water and Goulburn Valley Water both reported zero priority one spills in 2015-16 after reporting 0.4 spills and 0.5 spills per 100 kilometres of sewer main respectively in 2014-15. Goulburn Valley Water considers the reduction reflects the ongoing management of the sewer CCTV inspection and relining program. Western Water's Sewer Spill Prevention Strategy (SSPS) continued to deliver improved sewer system performance. Since the SSPS commenced 6 years ago, Western Water has observed a noticeable decline in the number of sewer blockages and consequent spills.
- GWMWater reported the highest rate of priority two spills (17.6 per 100 kilometres of sewer main) closely followed by Barwon Water (17.5 spills) and Yarra Valley Water (15.1 spills). Yarra Valley Water reported its priority 2 sewer spill rate fell by 27 per cent in 2015-16 (down from 20.7 spills to 15.1 spills per 100 kilometres of sewer main). Yarra Valley Water attributed the lower figure to data quality impacts associated with the transition to a new maintenance contractor in November 2015, with 50 per cent of the staff being new and initial issues with the field based IT system.

Containing spills

- Ten businesses contained 100 per cent of sewer spills within five hours in 2015-16, down from 12 businesses last year. The percentage of spills contained within five hours for the remaining six businesses was:

- City West Water — 99.5 per cent, down from 100 per cent in 2014-15
- GWMWater — 99.2 per cent, down from 99.3 per cent in 2014-15
- Gippsland Water — 98.6 per cent, down from 100 per cent in 2014-15
- Wannon Water — 94.4 per cent, down from 100 per cent in 2014-15
- Yarra Valley Water — 92.2 per cent, down from 98.8 per cent in 2014-15
- Westernport Water — 84.6 per cent, down from 100 per cent in 2014-15

BACKGROUND

The severity of sewer spills is broken into two priority levels.

A priority one spill refers to a sewage spill that involves or results in any of the following:

- a public health concern
- significant damage to property
- a discharge to a sensitive receiving environment, or
- a discharge from a sewer pipe that is 300 millimetres (or greater) in diameter, or the flow is greater than 80 litres per minute.

A priority two spill refers to any minor failure to contain sewage within the sewerage system and any spill affecting several users that results in:

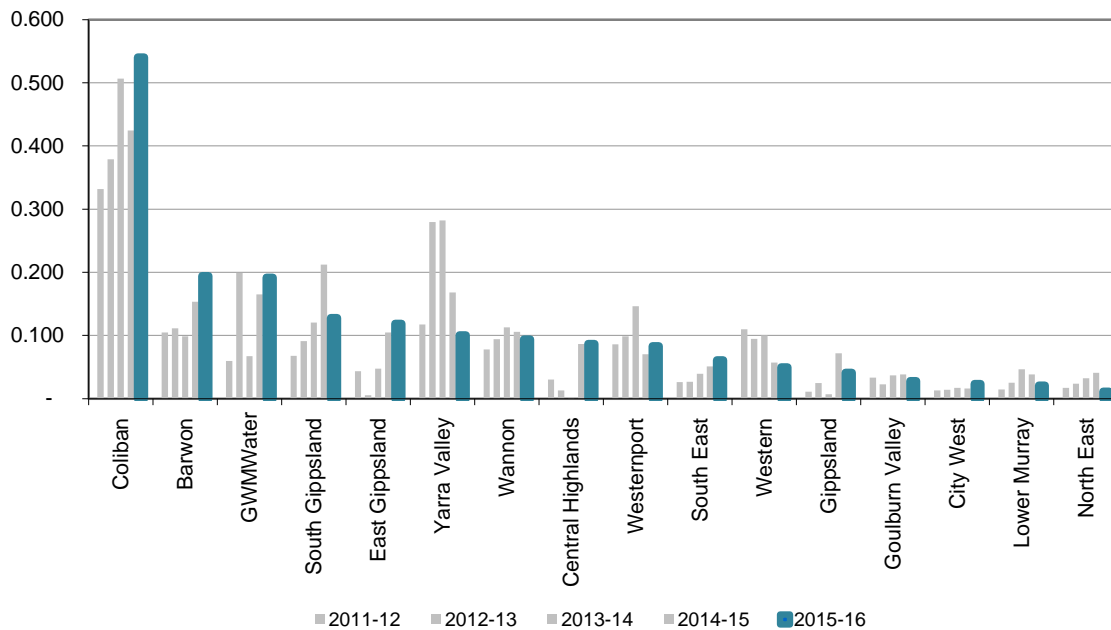
- minor property damage, or
- a discharge outside a building that does not pose a health risk.

Some businesses choose to classify all sewage spills as priority one on the basis that any spill could potentially pose a health concern.

SEWER SPILLS TO CUSTOMER PROPERTIES

Another measure of sewerage reliability is the number of sewer spills caused by a fault in the water business's systems that allowed sewage to discharge onto a customer's property.

FIGURE 5.8 SEWER SPILLS TO CUSTOMER PROPERTY
(per 100 customers)



SNAPSHOT (Customer property sewer spills, per 100 customers)

State-wide Average		-13.0%	Metro Average		-23.9%	Regional Average		9.6%
2015-16	0.09	↓	2015-16	0.07	↓	2015-16	0.15	↑
2014-15	0.10		2014-15	0.09		2014-15	0.13	

KEY OBSERVATIONS

- Across the state, the overall rate of sewer spills to customer property decreased slightly from 0.10 spills per 100 customers in 2014-15 to 0.09 spills per 100 customers in 2015-16. The metropolitan rate decreased in 2015-16, driven by Yarra Valley Water's improvement, while the regional average increased.

- After a decrease of 73 per cent in 2015-16, North East Water reported the lowest customer property spill rate with 0.011 per 100 customers. North East Water has invested in sewer pipe renewals and sewer maintenance programs to ensure ongoing service reliability across its wastewater collection networks.
- Large decreases were also recorded by Lower Murray Water (already one of the lowest rates) and Gippsland Water which attributed the reduction to its targeted preventative sewer main cleaning programs.
- By contrast, Coliban Water reported the highest rate of 0.54, almost triple the next highest rate of 0.19 (Barwon Water and GWMWater). This represented a 27 per cent increase from 2014-15 and was consistent with Coliban Water's continual higher rate of sewer blockages and spills than the other businesses.
- Large increases were also recorded by City West Water (46 per cent, albeit still one of the lowest spill rates) and Barwon Water (26 per cent). Barwon Water advised that the ongoing dry conditions resulted in an increased number of sewer main blockages and consequently sewage spills to customer property.

6 DRINKING WATER QUALITY

This chapter reports on compliance with some key parameters that indicate drinking water quality, namely:

- microbiological activity (*E. coli*) & turbidity (**section 6.1**)
- water quality complaints (**section 6.2**).

6.1 WATER QUALITY

Safe, good quality drinking water is essential for community health and wellbeing. Microbiological water quality, measured by the presence of *E. coli*, is the most important indicator from a public health perspective. The other key indicator is turbidity, a measure of cloudiness due to fine suspended particles.

KEY OBSERVATIONS

Microbiological activity (*E. coli*)

In Victoria, the governance framework for supplying safe drinking water is set out in the *Safe Drinking Water Act 2003* and the *Safe Drinking Water Regulations 2005*, both administered by the Department of Health and Human Services. New regulations, which are the applicable standard for the 2015-16 reporting year, came into operation on 18 July 2015.

The microbiological quality of drinking water is measured in terms of the number of *Escherichia coli* (*E. coli*) bacteria per 100 millilitres of drinking water. The presence of *E. coli* means water may be contaminated with faecal material. These organisms should not be present in drinking water. The new regulations require that all samples contain no *E. coli*.

- In 2015-16, 15 of the 16 urban water businesses met the *Safe Drinking Water Regulations 2015* requirement for all water supply zones. That is, all samples of drinking water collected for a water supply zone in any 12 month period contained no *E. coli*.
- Gippsland Water was the only business to not meet the standard, recording that 88.6 per cent of customers received water at a quality that met the *E. coli* standard. In July 2015, a single *E. coli* sample failure was detected and reported in the Sale water supply system, which accounts for 11.4 per cent of Gippsland Water's service population.

Turbidity

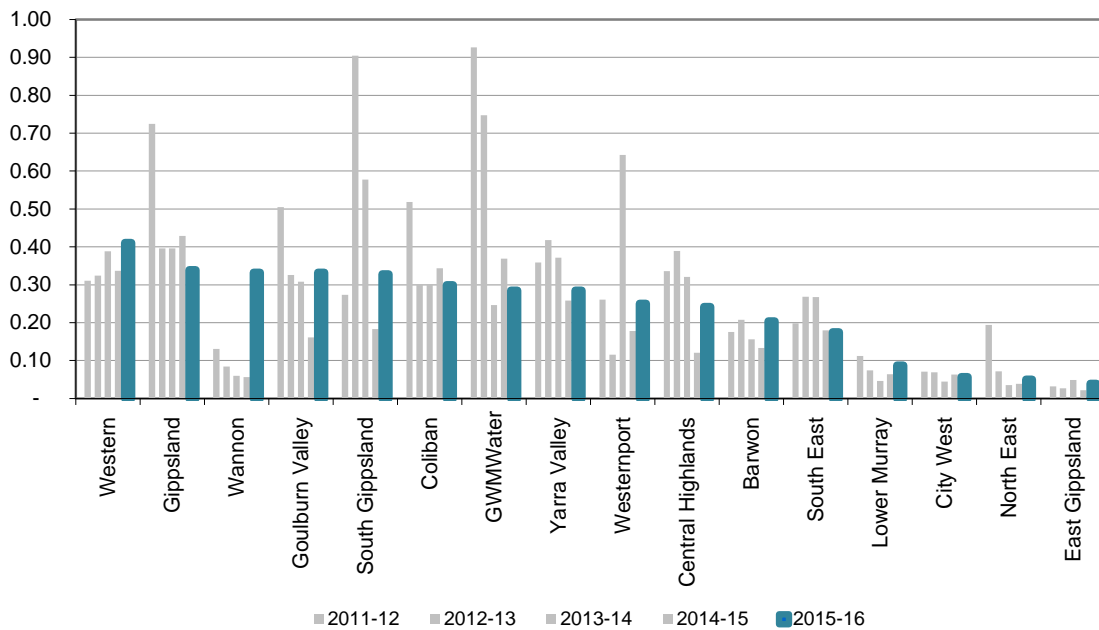
Turbidity in water is caused by the presence of fine suspended particles of clay and silt, algae and other microscopic organisms. It is measured in Nephelometric Turbidity Units (NTU). High turbidity levels can result in water having a 'muddy' or 'milky' appearance.

The Safe Drinking Water Regulations require at least 95 per cent of samples collected for a drinking water supply zone in a 12 month period should be below 5.0 NTU. In 2015-16, all water businesses reported delivering drinking water that complied with the standard of turbidity outlined in the Regulations.

6.2 WATER QUALITY COMPLAINTS

The number of water quality complaints is a measure of customer satisfaction with the colour, taste and odour of water supplied.

FIGURE 6.1 WATER QUALITY COMPLAINTS – ALL CAUSES
(per 100 customers)



SNAPSHOT (Complaints, per 100 customers)

State-wide Average		10.4%	Metro Average		3.6%	Regional Average		28.0%
2015-16	0.21	↑	2015-16	0.19	↑	2015-16	0.25	↑
2014-15	0.19		2014-15	0.19		2014-15	0.20	

KEY OBSERVATIONS

- The water quality complaint rate for all Victorian water customers was 0.21 complaints per 100 customers in 2015-16, a 10 per cent increase from 0.19 recorded in 2014-15. This increase was mainly driven by the regional sector which recorded a 28 per cent increase in the complaint rate from 0.20 in 2014-15 to

0.25 in 2015-16. However, the 2015-16 state-wide complaint rate was the second lowest it has been, with 2014-15 the lowest overall rate recorded.

- Eleven of the 16 businesses reported increases in their overall rate of water quality complaints for 2015-16.
- The largest increase in the complaint rate was reported by Wannon Water (from 0.06 complaints per 100 customers in 2014-15 to 0.33 complaints in 2015-16), with increased complaints recorded for the three categories of: colour; taste and odour; and other. Wannon Water reported this increase was due to a definitional change for this performance indicator, with any customer contact regarding water quality now recorded as a complaint, consistent with the other water businesses' reported data from 2014-15.
- The second largest increase in the complaint rate was recorded by Goulburn Valley Water. This increase in complaints mostly occurred in the colour category and is attributed to a range of matters, including a significant blue-green algae event on the Murray River, ongoing issues with some cast iron water mains, and a couple of large water main bursts in Shepparton. Goulburn Valley Water notes that the cast iron mains are programmed for replacement in 2016-17.
- Central Highlands Water also reported a relatively large increase in complaint rate in 2015-16, although this followed a very low complaint rate in 2014-15, and is still lower than its reported rate for previous years.
- Western Water reported this year's highest complaint rate of 0.41 complaints per 100 customers, slightly higher than its previous four years. Western Water reported that the low storages during the year necessitated supply changes, which is the likely reason for the increase.
- Most complaints were about colour for most businesses. By contrast, taste/odour prompted most complaints for Barwon Water, Central Highlands Water, East Gippsland Water and Westernport Water.

7 ENVIRONMENTAL

We compare water businesses' environmental performance by looking at three main areas, namely:

- Recycled water — Sewage treatment and effluent reuse (**section 7.1**)
- Biosolids reuse (**section 7.2**)
- Greenhouse gas emissions (**section 7.3**)




7.1 RECYCLED WATER — SEWAGE TREATMENT AND EFFLUENT REUSE

Sewage treatment plants generate an effluent stream that can be reused as recycled water, with the remaining unused effluent normally discharged to the environment. Water businesses report on the amount of available treated effluent that is reused for various fit-for-purpose activities, reducing the demand for potable water.

TABLE 7.1 VOLUME OF EFFLUENT REUSED
(megalitres)

	2012-13	2013-14	2014-15	2015-16	Change in 2015-16	Percentage change
Melbourne Water	48 849	49 723	46 709	42 167	- 4 542	-10%
City West	873	138	140	2 285	+ 2 145	1 533%
South East	3 106	2 967	3 397	3 968	+ 571	17%
Yarra Valley	2 687	3 135	3 665	3 906	+ 241	7%
Barwon	4 790	5 008	5 078	6 183	+ 1 105	22%
Central Highlands	1 971	1 683	1 531	1 898	+ 367	24%
Coliban	3 346	2 658	3 198	3 444	+ 246	8%
East Gippsland	2 959	2 903	2 755	3 172	+ 417	15%
Gippsland	1 651	1 104	1 701	1 957	+ 256	15%
Goulburn Valley	7 344	6 594	7 686	7 194	- 492	-6%
GWMWater	2 366	2 302	2 233	2 108	- 125	-6%
Lower Murray	2 491	3 202	2 799	2 791	- 8	0%
North East	2 203	1 895	2 552	2 590	+ 38	1%
South Gippsland	168	108	145	221	+ 75	52%
Wannon	1 490	1 251	1 978	1 728	- 250	-13%
Western	4 880	5 701	5 367	8 956	+ 3 589	67%
Westernport	238	273	254	295	+ 41	16%
TOTAL	91 413	90 644	91 187	94 861	+ 3 674	4%

SNAPSHOT (Volume of effluent reused, megalitres)

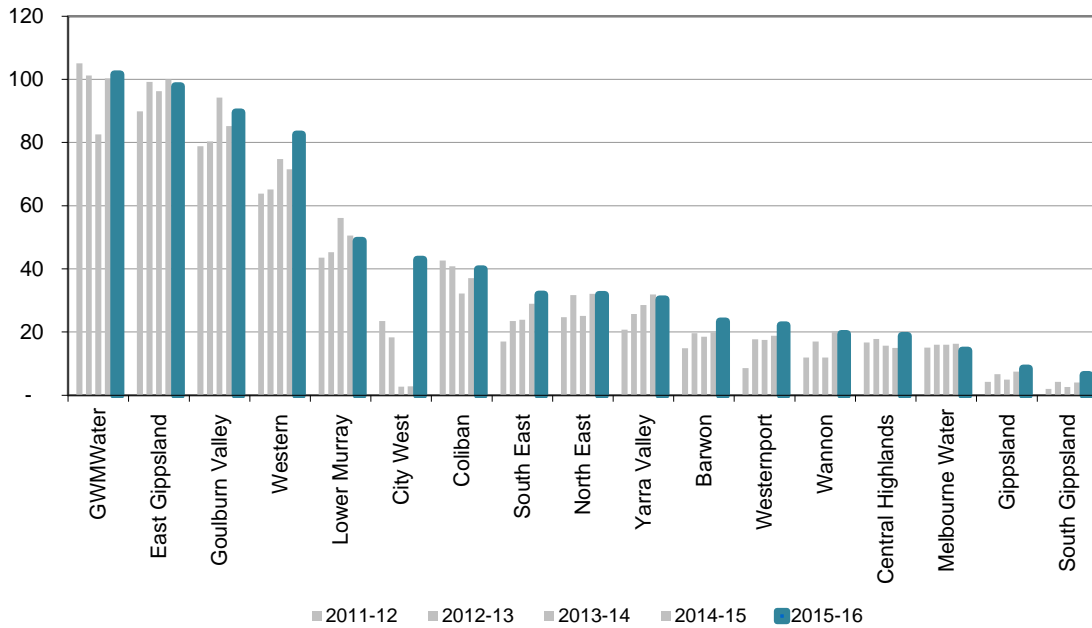
State Total		4.0%	Metro Total		-2.9%	Regional Total		14.1%
2015-16	94861		2015-16	52326		2015-16	42535	
2014-15	91187		2014-15	53911		2014-15	37276	

KEY OBSERVATIONS

- Victoria treated 474 400 megalitres of sewage in 2015-16, up 3 per cent from 461 700 megalitres in 2014-15. This produced 449 400 megalitres of treated effluent suitable for either recycled water purposes or for disposal to the environment.
- Most businesses (11 of 17, including Melbourne Water) recorded small increases (1–8 per cent) in the amount of sewage treated compared with last year, with six businesses reporting small decreases (1–5 per cent) — the variations were generally within the range of previously reported effluent volumes. Melbourne Water continues to treat about two thirds of the state’s total reported sewage volume (92 per cent of metropolitan Melbourne’s total sewage volume) at its two Melbourne treatment plants.
- In 2015-16, the total volume of recycled water used across the state rose 4 per cent to 94 900 megalitres compared with 91 200 megalitres in 2014-15.
- This represents a reuse rate of 21 per cent of total available treated effluent, with the remainder discharged to the environment. This figure has been relatively steady for the past five years, after a low of only 15 per cent in 2010-11 which was a very wet year with a reduced demand for recycled water. At the height of the drought in 2008-09, total reuse was 115 600 megalitres, representing 31 per cent of the available effluent.
- Melbourne Water reported a 4500 megalitres (10 per cent) decrease in recycled water use, leading to an overall 3 per cent reduction in the weighted average volume of recycled water used by the metropolitan water businesses, despite City West Water reporting a 1533 per cent (2145 megalitres) increase in recycled water reuse.
 - City West Water advised its large increase was because the Altona Recycled Water Plant restarted supply in 2015-16, having addressed quality issues first raised in 2012-13.
 - Melbourne Water advised its 10 per cent decrease was due to the significant reduction of Class C recycled water used for conservation flows in the wetland system at the Western Treatment Plant. This was despite higher volumes of recycled water supplied to the metropolitan retailers and to a large agricultural customer.

- In addition to City West Water, other large reuse volume increases were reported by Western Water with an increase of 3589 megalitres, Barwon Water (1105 megalitres), South East Water (571 megalitres) and East Gippsland Water (417 megalitres).
 - Western Water’s reported increase was mainly due to improved reporting of the volume used internally in its own treatment processes (up 2712 megalitres compared with last year), as well as an additional 677 megalitres sold to customers.
- In addition to Melbourne Water’s decrease, the largest reuse volume decreases were reported by Goulburn Valley Water (down 492 megalitres) and Wannon Water (250 megalitres).

FIGURE 7.1 PROPORTION OF EFFLUENT REUSED
(per cent)



SNAPSHOT (Per cent of effluent reused)

State Average		0.0%	Metro Average		-7.1%	Regional Average		10.8%
2015-16	21	█	2015-16	16	↓	2015-16	35	↑
2014-15	21		2014-15	17		2014-15	32	

KEY OBSERVATIONS

- Most water businesses reported similar reuse rates to previous years. The main exception was City West Water with the recommencement of its Altona recycled water supply to nearby industrial customers, which saw the proportion recycled increase from 3 per cent in 2014-15 to 43 per cent in 2015-16.
- 11 out of 17 businesses increased their reuse rate in 2015-16.
 - South Gippsland Water attributes the increase in effluent reused to drier conditions of summer and autumn 2015-16 compared to 2014-15, which increased recycled water purchased by customers.
 - The average reuse rate decreased for the metropolitan businesses due to the reduction of Class C recycled water at Melbourne Water mentioned earlier.

- GWMWater and East Gippsland Water recorded close to 100 per cent effluent reuse rate. Goulburn Valley Water (89 per cent) and Western Water (83 per cent) continued to report high reuse rates.
- By contrast, Gippsland Water and South Gippsland Water recorded the lowest reuse rates (8 per cent and 6 per cent respectively). Melbourne Water's reuse rate is also relatively low (14 per cent), yet this represents almost half the total volume of recycled water used across the state.
- Overall, the distribution across the various effluent reuse categories was consistent with last year. Agriculture still accounted for the largest proportion of recycled water (47 per cent or 44 gigalitres), up from 41 per cent in 2014-15
- A further 18 gigalitres was reported as being used in sewage treatment processes across the state, effectively substituting potable water use.

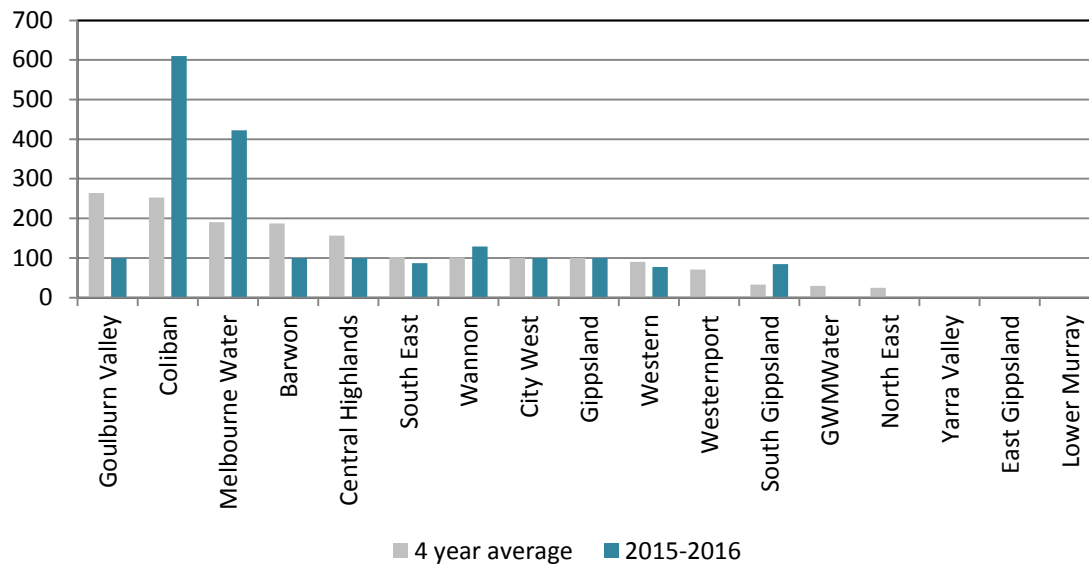
BACKGROUND

- A sewerage system receives waste water from various sources, including residential sewage, non-residential sewage, trade waste and other sources such as inadvertent storm water. The nature of this combined sewage stream, and therefore the treatment required, can vary significantly due to these different sources.
- The Environment Protection Authority Victoria (EPA) regulates treated sewage effluent quality through discharge licences at sewage treatment plants. The level of sewage treatment required usually depends on the type of waterway into which the treated sewage is discharged. There are three defined levels of sewage treatment:
 - *primary treatment* — generally to remove a substantial amount of suspended matter
 - *secondary treatment* — to substantially reduce biological oxygen demand (BOD) and suspended solids
 - *tertiary treatment* — to remove nutrients, further suspended solids and possibly targeted contaminants of concern.
- Recycled water is generally used for activities such as turf farms, some industrial processes, dairy farms, recreational lands such as parks or golf courses, and irrigation. Some businesses operate ‘third pipe’ recycled water supply systems to their customers, for non-potable uses such as garden watering and toilet flushing. Recycled water can also be used for beneficial environmental outcomes, such as wetlands, and onsite treatment plant uses external to the treatment process.

7.2 BIOSOLIDS REUSE

The organic sludge (biosolids) produced during sewage treatment can be put to beneficial reuse, rather than disposed of as a waste.

FIGURE 7.2 PROPORTION OF BIOSOLIDS REUSED
(per cent)



KEY OBSERVATIONS

- Total biosolids production was 111 200 tonnes, a 52 per cent increase from 73 200 tonnes in 2014-15. The main increase came from North East Water reporting 25 240 tonnes, following the desludging of a lagoon at its Wangaratta treatment plant — in 2014-15 it reported only 1459 tonnes, which was consistent with previous years. Melbourne Water also reported approximately 10 800 tonnes more than last year, but annual movement of this magnitude is normal for Melbourne Water due to the scale of its treatment plant operations.
- Overall biosolids reuse was 262 700 tonnes, a 12 per cent increase from 233 600 tonnes reused in 2014-15.
- This is mainly due to Melbourne Water drawing down its sizable biosolids stockpile, reusing 225 400 tonnes in 2015-16 and 190 000 tonnes in 2014-15. Through

collaboration with EPA Victoria and a civil contractor it has locked-in a beneficial use for up to 400 000 tonnes of previously stockpiled biosolids, to be removed from its Eastern Treatment Plant (ETP) over three years. The biosolids' geotechnical property of low permeability makes it suitable for re-establishing a landfill cap on an old landfill site close to the ETP.

- Barwon Water, City West Water, Central Highlands Water, Gippsland Water and Goulburn Valley Water reused all biosolids produced during the year, while Coliban Water, Melbourne Water and Wannon Water reported higher quantities reused than produced, indicating they ran down stockpiled biosolids produced in previous years.
 - Coliban Water's treated biosolids are reused on farms as a fertiliser to improve and maintain soil quality. The quantity reused increased significantly in 2015-16 with two new farms utilised, which allowed about 12 000 tonnes of stockpile rundown this year.
- Ten businesses have four year averages above or close to 100 per cent, indicating full reuse of biosolids over the longer term.
- By contrast, three businesses (Lower Murray Water, East Gippsland Water and Yarra Valley Water) showed zero biosolids reuse over the four year period.
 - Changes to its operations resulted in Yarra Valley Water no longer stockpiling new biosolids. It has continued to investigate reuse opportunities for existing biosolids stockpiles, however at present none of these opportunities are financially viable.
 - Lower Murray Water generates relatively small quantities of biosolids and continues to stockpile for a minimum of three years before beneficial reuse, to achieve the required treatment grade and allow sufficient drying. Lower Murray Water received an expression of interest for biosolids reuse however it decided not to proceed with that option. Lower Murray Water will continue to seek opportunities with local farmers and interested investors for biosolids reuse applications.
 - East Gippsland Water reuses all of its biosolids in the long term, but its lagoons are only desludged every 10 or so years.
- South Gippsland Water recorded 199 tonnes of biosolids reuse in 2015-16 and 125 tonnes in 2014-15, the first instances of reuse since reporting began in 2004-05.

BACKGROUND

- Organic sludge material, or biosolids, produced during the sewage treatment process is periodically removed from treatment plants and can be either stockpiled or disposed of. Disposal options include beneficial reuses such as organic rich fertiliser, or disposal as a non-reusable waste to landfill.
- Under the reporting protocol, biosolids are produced when they are removed from the treatment process. It is therefore possible for a business to not produce any biosolids in a given year, by not desludging any of the lagoons or tanks where the sludge accumulates.
- In any given year, a water business can accumulate (stockpile) biosolids without disposing of any; therefore, a zero reuse figure does not necessarily imply a business does not reuse its biosolids. Correspondingly, reuse percentages over 100 per cent indicate businesses used some stockpiled material from previous years. To help produce a clearer picture of the longer term biosolids management for the businesses, our analysis includes a four year average reuse figure, along with the current year's reuse as a percentage of this year's biosolids production. Businesses are ranked according to the four year average figure.

7.3 GREENHOUSE GAS EMISSIONS

TABLE 7.2 HISTORIC NET GREENHOUSE GAS EMISSIONS
(equivalent tonnes of CO₂)

	2012-13	2013-14	2014-15	2015-16	Percentage change	Per customer
Melbourne Water	378 785	339 137	477 881	432 997	-9%	0.24
City West	9 841	10 310	11 102	13 708	23%	0.04
South East	40 211	36 645	42 326	43 556	3%	0.07
Yarra Valley	29 512	32 708	33 255	33 762	2%	0.05
Barwon	37 960	39 943	38 849	40 504	4%	0.29
Central Highlands	14 567	16 271	16 277	29 779	83%	0.49
Coliban	33 017	31 648	44 006	56 374	28%	0.85
East Gippsland	8 442	8 098	7 912	8 011	1%	0.40
Gippsland	42 864	38 246	42 706	60 964	43%	0.98
Goulburn Valley	46 926	48 750	49 295	44 754	-9%	0.88
GWMWater	11 966	20 401	19 087	18 419	-4%	0.68
Lower Murray	11 166	17 366	17 912	20 015	12%	0.68
North East	39 637	41 521	41 162	43 862	7%	0.97
South Gippsland	7 550	6 872	7 411	7 385	0%	0.44
Wannon	30 714	29 095	31 725	32 970	4%	0.91
Western	15 644	15 217	30 646	31 900	4%	0.56
Westernport	6 259	6 471	6 473	6 053	-6%	0.41
TOTAL	765 061	738 700	918 026	925 013	1%	0.39

Note: Emissions per customer for Melbourne Water is calculated using the total residential customers of City West Water, South East Water and Yarra Valley Water.

KEY OBSERVATIONS

- Net CO₂-e emissions for Victorian urban water businesses were 925 013 tonnes in 2015-16, a slight 1 per cent increase from 918 026 tonnes in 2014-15. Twelve of the 17 businesses increased their total net CO₂-e emissions in 2015-16.
- The total net CO₂-e emissions for 2014-15 in last year's report was 756 280 tonnes, a 2 per cent increase from the previous year. However, Melbourne Water recently provided us with a revised figure of 477 881 tonnes for its 2014-15 emissions, significantly higher than the 316 135 tonnes it reported last year, and a 41 per cent increase on its 2013-14 figure. This took the 2014-15 total to 918 026 tonnes, a

24 per cent increase on 2013-14, and well above the previous highest reported figure of 862 200 tonnes in 2008-09.

- The main reason for Melbourne Water's large emission increase was the failure of a methane collection cover at its Western Treatment Plant in December 2014. A replacement cover is being constructed and due for completion during 2016-17. Melbourne Water's 2015-16 figure was still high at 432 997 tonnes, but a 9 per cent reduction from last year.
- Other large increases in total net CO₂-e emissions were reported by Central Highlands Water (up 83 per cent) and Coliban Water (up 28 per cent) — these increases were largely due to a significant increase in pumping to supply water from the Goulburn River system via the Goldfields Superpipe to meet increased demand (and lower inflows) following a prolonged period of warm and dry conditions.
- Gippsland Water also reported a 43 per cent increase in net emissions due mainly to equipment failures and compliance issues with the cogeneration plant at the Gippsland Water Factory, which saw the plant out of service for 5 months and all biogas processed through the flare during that period.
- Goulburn Valley Water had the largest decrease in emissions (9 per cent) followed by Westernport Water (6 per cent) and GWMWater (4 per cent).
- The overall emissions per residential customer for all businesses in 2015-16 increased to 0.4 tonnes per residential customer, from 0.32 in 2014-15.
- Metropolitan businesses' emission rate increased to 0.32 per residential customer in 2015-16 (from 0.23 tonnes in 2014-15), while regional businesses' emissions increased to 0.64 from 0.57 tonnes per residential customer in 2014-15.
- Gippsland Water, North East Water and Wannon Water had the highest level of emissions per residential customer with 0.98 tonnes, 0.97 tonnes and 0.91 tonnes respectively.

TABLE 7.3 SOURCES OF GREENHOUSE GAS EMISSIONS 2015-16
(equivalent tonnes of CO₂)

	Water	Sewerage	Transport	Other	Offsets	Total ^a
Melbourne Water	58 630	369 563	825	3 979	0	432 997
City West	401	11 007	1 024	1 276	0	13 708
South East	5 981	34 889	1 549	2 609	1 472	43 556
Yarra Valley	7 950	22 815	1 038	1 959	0	33 762
Barwon	6 192	31 925	702	1 685	0	40 504
Central Highlands	21 612	6 770	613	799	15	29 779
Coliban	31 103	24 067	615	589	0	56 374
East Gippsland	3 289	4 350	231	142	0	8 011
Gippsland	10 386	47 166	1 423	1 989	0	60 964
Goulburn Valley	14 648	29 654	619	350	517	44 754
GWMWater	13 507	4 892	898	568	1 446	18 419
Lower Murray	8 187	12 918	391	311	1 792	20 015
North East	9 674	31 957	806	1 425	0	43 862
South Gippsland	2 268	4 251	698	168	0	7 385
Wannon	13 530	18 132	773	535	0	32 970
Western	8 697	21 127	554	1 522	0	31 900
Westernport	1 283	4 074	233	463	0	6 053
TOTAL	217 337	679 557	12 992	20 369	5 242	925 013

^a Total CO₂-e emissions are net of offsets.

KEY OBSERVATIONS

- Sewerage treatment processes remain by far the biggest contributor of greenhouse gas emissions and accounted for 73 per cent of the gross emissions (that is, not including offsets) in 2015-16. Next were water treatment processes, which were responsible for 23 per cent of the gross total.
- Water supply and treatment emissions increased by 32 per cent, due to increased water pumping by Melbourne Water harvesting additional water from the Yarra River, and Coliban Water and Central Highlands Water with increased water pumping through the Goldfields Superpipe as described above. Sewerage treatment emissions decreased by 5 per cent in 2015-16, mainly due to Melbourne

Water's lower reported figure this year, while transport and 'other' emission sources also declined by 7 per cent and 25 per cent respectively from 2014-15.

- Reported CO₂-e emissions offsets represented 0.6 per cent of total emissions in 2015-16, and increased by 15 per cent after a number of years of decreases. Only one metropolitan business (South East Water) and four regional businesses reported offsets for 2015-16.
- Goulburn Valley Water reported 517 tonnes of offsets in 2015-16 after reporting zero in 2014-15 — it was able to use approved plantation carbon modelling this year, which was not available for 2014-15.
- South East Water increased its offsets in 2015-16 by almost 500 tonnes through improved operation of its mini hydro-electric system to allow a longer runtime.

BACKGROUND

- The calculations for greenhouse gas emissions are based on the framework of the National Greenhouse and Energy Reporting Scheme (NGERS); Melbourne Water is the only business required to report to the Australian Government's Clean Energy Regulator.
- Comparing different businesses' net carbon dioxide equivalent (CO₂-e) emissions should account for the differences in the nature of each operation, including:
 - source of water
 - gravity versus pumped networks
 - geographical conditions (which influence pumping needs)
 - the number of large customers and the extent of industry within the customer base
 - the calculation method.
- Similarly, variations in emissions per customer might reflect the differences between customer bases across businesses.
- Businesses may also reduce their reported net CO₂-e emissions through accredited carbon sequestration activities (including purchases through accredited offset schemes) that remove carbon from the atmosphere; tree plantations, for example.

8 STATUS OF MAJOR PROJECTS

8.1 BACKGROUND

In their pricing submissions for the 2013–18 pricing period, water businesses included their proposed major capital investment projects that were to be progressed or completed during the period. The Commission’s final pricing determination for each business includes a scheduled list of these projects allowed for in pricing, along with the anticipated completion year.

Customers’ prices include recovering capital investment costs in accordance with this approved project schedule. Therefore, it is appropriate water businesses explain delays or alterations to their project schedules, because approved funds will flow from pricing whether the expenditure is incurred or not.

This section tracks the businesses’ progress against their original schedule of projects. The major project status categories are:

- on-schedule — no significant changes to the project start and end dates
- delayed — either the project start was delayed, or completion will be later than scheduled
- deferred — the business rescheduled the entire project, either within the current pricing period or into a future period
- cancelled — the project will not proceed in the foreseeable future
- completed on time — the project was completed in accordance with the original scheduled completion date (includes early completion)
- completed late — the project was completed within the period, but later than the original scheduled completion date.

Table 8.1 summarises the current status of each business’s scheduled major projects for the 2013–18 pricing period. Table 8.2 provides more details for each scheduled project, including:

- a brief description or project name
- the original scheduled start and end years (as per the pricing determination)
- businesses’ latest updates of the actual or expected start and end years
- an overall project status (on-schedule, delayed, deferred, cancelled or completed)
- general comments to explain any relevant details of the project and its current status.

Table 8.2 also includes some projects from the 2008–13 pricing period that were not completed before the end of 2012-13, and were therefore carried over into the current 2013–18 pricing period. All major capital projects will be monitored through to their completion.

8.2 CAPITAL EXPENDITURE IN 2015-16

In 2015-16 the Victorian urban water industry spent \$992 million on capital works. Capital expenditure on water was \$388 million and on sewerage was \$604 million. This amount includes ongoing capital works programs as well as the discrete major capital projects discussed below.

The Commission’s approved pricing determinations for the 2013–18 pricing period include 100 major capital projects for the 17 urban water businesses. Some projects commenced in the 2008–13 pricing period, but now incur major capital expenditure in the current period.

The pricing determinations listed 54 projects due for completion by the end of 2015-16. Of these, 31 (57 per cent) have been completed, with 14 projects delayed, and nine deferred (seven into the next pricing period).

TABLE 8.1 SUMMARY OF SCHEDULED MAJOR PROJECTS — 2013–18

	No. major projects scheduled for 2013–18	On- schedule	Delayed	Deferred	Cancelled	Completed on time	Completed late
Melbourne Water	6		4			2	
City West	4	1	1			2	
South East	6	2		1			3
Yarra Valley	5		3	2			
Barwon	7	1	1	2		3	
Central Highlands	7	5				2	
Coliban	7		5			2	
East Gippsland	4	1		2		1	
Gippsland	3					2	1
Goulburn Valley	6		1	3		2	
GWMWater	8			1		6	1
Lower Murray	6		2	1		3	
North East	5	1	1	2			1
South Gippsland	5	1	2			1	1
Wannon	7	1	3	2		1	
Western	8	2	1	5			
Westernport	6	1	2			2	1
TOTAL	100	16	26	21	0	29	8

Twelve of the 100 projects were completed in the first year of the period, 13 were completed in 2014-15, and another 12 in 2015-16 (making a total of 37), with another 16 projects still proceeding on schedule. Overall, almost half of all projects are either delayed or deferred, with 21 of these 47 projects now expected to be completed in the next pricing period.

- Gippsland Water has completed all three projects listed in its price determination, with GWMWater completing seven of its eight projects and one deferred two years to be completed in 2017-18. Central Highlands Water has completed two projects on time, with the remaining five projects proceeding on schedule.
- Melbourne Water, Yarra Valley Water, Coliban Water, Goulburn Valley Water, North East Water, Wannon Water and Western Water have the majority of their projects recorded as delayed or deferred.

PROJECT DELAYS

Project schedules can be delayed for a range of reasons, both internal and external to the water business. Projects might be delayed in the early stages for additional design or investigation work, or during construction due to unforeseen difficulties. External factors can be beyond the direct control of the water businesses, such as local government approvals or planning appeals, supplier issues, as well as weather impacts on construction.

Projects may also fall behind schedule simply because the project timeline is unrealistic, or is too tight with no allowance for any unforeseen delays.

Of the 26 projects listed as delayed this year, the reasons provided by the water businesses included:

- five projects required further investigation or detailed design work
- five projects were affected by contractor issues
- four projects were delayed as a result of change in delivery program or priorities
- four projects encountered planning, permit or licence issues
- three projects were delayed due to funding issues
- one project was delayed because a provisional upgrade effectively 'bought time'.

Water businesses did not explain the delays for the remaining four projects, but these projects will mostly be completed within one year of the original target completion date.

PROJECT DEFERRALS

Deferring or cancelling projects does not necessarily reflect poor project management, but may in fact show prudent investment decisions if priorities changed or the need for a particular project no longer exists. Water businesses may reinvest the available capital funds by bringing forward other pressing projects, or they may choose to return the unrequired funds to customers through lower prices.

The water businesses identified the following reasons for deferring 21 projects:

- nine projects were postponed because of slower than expected customer demand growth

- four projects were deferred because a provisional upgrade or alternate facility effectively 'bought time'
- four projects required additional time for further design or assessment of alternatives
- two projects were deferred following further analysis of the supply demand strategy
- one project was deferred due to delays in land use planning in a future growth area
- one project was deferred to allow time for a review of the project scope.

Of the 21 projects:

- five were deferred 1–2 years and are still scheduled for completion within the 2013–18 pricing period
- 16 were deferred to the next pricing period.

By way of comparison, water businesses deferred 14 of 120 major projects scheduled for the 2008–13 pricing period to the 2013–18 pricing period or beyond. Another five were cancelled or suspended indefinitely due to changing requirements and circumstances.

ADDITIONAL PROJECTS

Three new major capital projects have been identified for delivery in 2013–18 that were not included in price determinations. North East Water has two new water security projects that are proceeding on schedule and Wannon Water has an energy efficiency improvement project that has been delayed by a year, but will be completed within the current period.

Table 8.2 also includes six major projects carried over from the previous period that were not specified in the determinations for the current period.¹ Of these, two are now completed, with two still on schedule. One has been delayed, and one was deferred until later in the period because demand was lower than planned.

¹ Many major capital investment projects that were underway and mostly completed at the end of the 2008–13 pricing period had incurred much of the expenditure. The remaining expenditure to be incurred in the 2013–18 pricing period did not put the project into the business's 'major project' category.

TABLE 8.2 STATUS OF PROJECTS SCHEDULED FOR COMPLETION DURING 2013 TO 2018

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Melbourne Water						
St Albans-Werribee pipeline — stage 2	2013-14	2015-16	2014-15	2016-17	Delayed	Construction pipe laying was completed in November 2015. Project completion is being delayed due to extended commissioning period.
Water mains renewals — North Essendon–Footscray	2013-14	2015-16	2014-15	2016-17	Delayed	The project was delayed due to finalising the licence agreement between Melbourne Water and Essendon Airport Pty Ltd. This is now finalised and the project, which was originally scheduled for completion in 2015-16 is now forecast for completion in October 2016.
Western Treatment Plant capacity augmentation — stage 2	2013-14	2016-17	2014-15	2018-19	Delayed	The project is delayed due to a change in delivery strategy which required a significant amount of time to run pilot plant trials. Phase 1 (pilot plant trials and functional design) was completed in May 2016. DTF approved business case for Phase 2 in June 2016 and tender documents were issued to three shortlisted proponents. Tenders were received in August 2016 and project is on target to award the Phase 2 contract in October/November 2016.
Western Treatment Plant sludge drying augmentation	2013-14	2015-16	2013-14	2015-16	Completed on time	This project has achieved Practical Completion on schedule and under budget in August 2015.
Water main renewals — Preston	2013-14	2016-17	2013-14	2017-18	Delayed	Project delayed in 2015-16 as prolonged period required to resolve community concerns over the reinstatement plans for the St Georges Rd centre median. Design and construct contract has now been awarded and the contractor has commenced detailed design activities and site mobilisation.
Sewer main rehabilitation — North Yarra	2013-14	2017-18	2013-14	2015-16	Completed on time	The project was completed in October 2015.

Continued on next page

TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
City West Water						
West Werribee dual water supply scheme	Carried over	2016-17	2010-11	2016-17	On schedule	The project (which will deliver recycled water assets) is expected to be partially operational in late 2016 and fully operational in 2017. Partial operation involves delivery of Class A/potable blended water to customers via the recycled water network. Full operation involves delivery of a Class A/desalinated Class A water blend to customers.
Office relocation	2013-14	2013-14	2013-14	2013-14	Completed on time	Practical completion of fit out works for the new Brooklyn Maintenance occurred in April 2014. Practical completion of the fit out for the new Footscray head office facility occurred in June 2014. Staff relocated from Sunshine to the Footscray office in July 2014.
Program Arrow	2013-14	2015-16	2011-12	2016-17 (R2)	Delayed	The Arrow program is a business transformation program to upgrade most of CWW's business system to an enterprise platform. It is a phased program consisting of three distinct releases. Release 1 involved the foundation modules (finance, contract, procurement etc.) and went live in May 2014. Release 2 (asset management module) is currently being implemented and Release 3 (customer billing) has not commenced.
Aquifer storage and recovery - construction	2013-14	2017-18	2015-16	2015-16	Completed on time	The construction of the West Werribee ASR scheme was completed on schedule. The operational trial is scheduled to commence in November 2017. The post-construction phase involves developing the injection plume. It is expected it will take 2-3 years to grow the plume to the point the water can be extracted. Water extracted from the scheme will be used to supply peak recycled water demands.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
City West Water (cont)						
Stormwater projects (various)	2013-14	2017-18	2010-11	2016-17	Completed on time	<p>The following stormwater schemes are now complete and operational:</p> <p>Keilor Public Golf Course and Green Gully Stormwater Harvesting schemes (completed November 2013) supplying up to 83 ML per year of fit-for-purpose storm water.</p> <p>Paisley Park Stormwater Harvesting scheme (completed October 2013) supplying up to 42 ML per year of fit-for-purpose storm water.</p> <p>Laverton Recreational Reserve Stormwater Harvesting scheme is completed. Some improvements are currently under consideration. The scheme will be able to deliver up to 88.8 ML per year of fit-for-purpose storm water</p> <p>Afton Street Stormwater Harvesting scheme (complete August 2015) delivering up to 20 ML per year of fit-for-purpose storm water.</p> <p>Lake Caroline Stormwater Harvesting scheme (completed in November 2015) supplying up to 52 ML per year of fit-for-purpose storm water.</p>

Continued on next page

TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
South East Water						
Sherbrooke sewer backlog scheme reticulation	Carried over	2013-14	2013-14	2015-16	Delayed	The Belgrave Heights stage was completed in 2012-13. Reticulation construction is currently suspended due to poor ground conditions for the final Selby section of the Belgrave/Selby stage, with forecast completion now in 2016.
Pound Road sewerage pump station	2013-14	2013-14	2013-14	2014-15	Completed late	This project was completed in February 2015. Electricity connection to and a substation for the site were delayed, deferring commissioning.
Cranbourne recycled water tank	2013-14	2013-14	2013-14	2014-15	Completed late	This project was completed early in 2015, slightly behind schedule. The project was delivered for \$7.3 million against an approved \$11.1 million.
Mt Martha treatment plant — long term sludge upgrade	2013-14	2014-15	2013-14	2015-16	Completed late	This project was completed a little behind schedule in November 2015. The delay was due to unforeseen issues with upgrading the existing infrastructure without disrupting the plant performance.
Boneo treatment plant capacity upgrade	2013-14	2016-17	2016-17	2018-19	Deferred	Interim works and operational changes have allowed the next major upgrade, including both activated sludge and sludge drying works, to be delayed until 2018-19 without adverse impacts.
Lang Lang treatment plant upgrade	2013-14	2016-17	2014-15	2016-17	On schedule	On scheduled to be completed in February 2017.
Dromana–Portsea backlog scheme	2013-14	Beyond 2017-18	2013-14	2018-19	On schedule	Final reticulation and transfer main construction completed in 2015 and in operation. Portsea, Sorrento, Blairgowrie, Rye and St Andrews Beach property connections continuing beyond 2018 as originally planned. As at March 2016, 1262 properties have been connected to the network.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Yarra Valley Water						
Warrandyte North sewerage project	2013-14	2013-14	2014-15	2016-17	Delayed	Local council planning permit approval process took significantly longer than expected, which delayed the commencement of the reticulation works. All the street reticulation works have been completed. The sewage pumping station is 90% completed, and the construction of the outlet sewer under the Yarra River is underway. Project completion is targeted for December 2016.
Donvale sewerage project	2013-14	2015-16	2013-14	2017-18	Delayed	The commencement of construction has been delayed by current planning approval timeframes. Of the four construction packages, two are currently underway and scheduled for completion in 2016-17. Another package is at tender evaluation phase, with the last package scheduled for tendering in October 2016 and completion in 2017-18.
Amaroo branch sewer	2013-14	2016-17	2014-15	2017-18	Delayed	The detailed design is now complete. The Department of Treasury and Finance has approved the project, and stakeholder engagement has been completed. The project was approved by the board in March 2015 and the construction contract has been awarded. The project remains on track for completion in 2017.
Lockerbie branch sewer	2013-14	2017-18	2018-19	2020-21	Deferred	The project was deferred following an upgrade of the Wallan Sewage Treatment Plant to accept additional flows and produce Class A recycled water. Completion is rescheduled for 2021. The treatment plant upgrade avoided construction of irrigation assets that would become redundant when the Lockerbie main sewer is commissioned.
Epping branch sewer tunnel	2016-17	Ongoing–2020	2016-17	2018-19	Deferred	Yarra Valley Water has been monitoring the growth in flows to ensure the asset is delivered 'just in time' and growth in flows has now triggered delivery of the project. Department of Treasury and Finance approval will be sought towards the end of 2016. Preliminary Design of the project will be completed in 2016-17 with detailed design and construction to commence in 2017-18. Yarra Valley Water is now proposing to complete the project in 2018-19.

Continued on next page

TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Barwon Water						
Torquay West high level feeder main	2013-14	2013-14	2018-19	2019-20	Deferred	Deferred due to delays in the land use planning for this future growth area.
Apollo Bay bulk water supply expansion	2013-14	2014-15	2010-11	2014-15	Completed on time	This project commenced during the 2008–13 pricing period, and continued into the current period. The project was completed according to the revised schedule in January 2014.
Pettavel water basin upgrade	2013-14	2014-15	2013-14	2014-15	Completed on time	The project was completed in 2014-15.
Black Rock water reclamation plant hydraulic capacity upgrade	2013-14	2015-16	2013-14	2016-17	Delayed	The upgrade to the Black Rock Inlet works was delayed due to the principle contractor going into voluntary administration and a quality defect being identified on a critical valve preventing commissioning. The works under contract that can be finished prior to commissioning are 98% complete. As of mid-November 2016, the contractor can continue to trade. It is likely that commissioning will begin in January 2017 with full project completion in March 2017.
West Lara transfer system	2013-14	2015-16	2013-14	2015-16	Completed on time	This project was completed in 2015-16.
Aireys Inlet pipeline (replaces Aireys Inlet Water Treatment Plant Upgrade)	2014-15	2016-17	2013-14	2016-17	On schedule	Lower cost pipeline solution (extension of water grid) implemented instead of water treatment plant upgrade, which will enable the treatment plant to be decommissioned. The pipeline is complete with the mechanical and electric fit out underway. Project anticipated to be completed in 2016.
Inverleigh low level feeder main	2015-16	2017-18	2023-24	2024-25	Deferred	This project was deferred for several years, given considerably slower growth in Inverleigh and reduced peak demand. It will be considered for inclusion in the next pricing period, with anticipated completion in 2024-25.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Central Highlands Water						
Blackwood sewerage	Carried over	Deferred to next pricing period	2016-17	2017-18	On schedule	Based on the recommendation of a multi-agency working group, tasked with developing an affordable wastewater solution for the Blackwood community, the Minister for Water launched the Blackwood Localised Septic Program (BLSP) in late 2015. The BLSP will upgrade or replace septic systems that were found to be faulty in an audit undertaken by the Moorabool Shire Council; and, provide planning support for owners of vacant land wishing to build. A Project Manager has been appointed and tenders for works are being developed for delivery.
Raw water pipeline replacement	2014-15	2017-18	2015-16	2017-18	On schedule	Stage 1 of this project associated with Talbot raw water customers will be completed by mid-2017. The detailed design of the next phase of the Evansford raw water main is scheduled to be completed late 2016 with construction planned to commence in 2016-17.
Living Victoria/Living Ballarat — Ballarat West aquifer storage and recovery project	2013-14	2014-15	2013-14	2014-15	Completed on time	The aquifer recharge injection pilot and rooftop water quality collection program is complete. Assessment of whole of water cycle management options for the potential future servicing of the Ballarat West Employment Zone was completed by June 2015.
Ballarat South flow containment project — Ballarat South outfall sewer	2016-17	2017-18	2016-17	2017-18	On schedule	The detailed design works for Kennedy’s Drive pump station and flow containment facility commenced early 2016. Construction works are expected to commence late 2016 and be completed mid-2017. Concept design works for the Ballarat South Sewer Upgrade have commenced.
Ballarat South wastewater treatment plant augmentation works	2013-14	2017-18	2013-14	2017-18	On schedule	Central Highlands Water invested \$2.6 million in capital expenditure activities across the site during 2014-15 and a further \$4.6 million in 2015-16 on a new 42 metre diameter clarifier and commencement of electrical and aeration upgrades.
Ballarat West urban growth zone	2013-14	2017-18	2013-14	2017-18	On schedule	Works are completed for all three stages of Cuthberts Road water main upgrade. The works at Cherry Flat Road water main and Glenelg Highway rising main are planned for delivery in 2016-17.

Continued on next page

TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Central Highlands Water (cont)						
Lexton water supply project	2013-14	2013-14	2013-14	2013-14	Completed on time	Works to deliver this water quality improvement upgrade were completed in June 2014.
Maryborough water quality improvement project	2013-14	2017-18	2013-14	2017-18	On schedule	Development of the preferred upgrade solution for Maryborough was completed in 2014-15. The detailed design, build and operational tendering phase is scheduled for completion in late 2015 or early 2016. Works on site are proposed to commence before the end of 2015-16.
Coliban Water						
Rochester wastewater connection to Echuca	2013-14	2013-14	2013-14	2013-14	Completed on time	The project was completed as expected.
Harcourt rural modernisation project	2013-14	2014-15	2012-13	2016-17	Delayed	The project commenced in 2012-13, and continues into the current pricing period. Construction works were delayed due to contractual issues. All major construction works have been completed, with the focus being on commissioning, reinstatement works and connecting customers.
Heathcote backlog sewerage	2013-14	2014-15	2016-17	2017-18	Delayed	Implementation was delayed as this was deemed a lower priority initiative than other competing projects and from an operational "needs" perspective.
Echuca and Cohuna water treatment plant upgrades	2014-15	2015-16	2016-17	2017-18	Delayed	The revised Business Case finalisation was delayed to incorporate into water treatment master planning activities. The Business Case will be completed before December 2016.
Coliban main channel	2013-14	2016-17	2015-16	2017-18	Delayed	Works have been staged over 3 years during the channel off-season to minimise customer service delivery impacts and remain on track. The project was delayed due to use of a 'preferred contractor' tender process. While this delayed project inception, it means tendering once instead of three times, as well as providing additional flexibility for any works beyond this that may be required.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Coliban Water(cont)						
Cohuna water reclamation plant refurbishment	2016-17	2017-18	2016-17	2016-17	Completed on time	The works have been completed.
Bridgewater and Laanecoorie water treatment plant upgrades	2014-15	2017-18	2014-15	2018-19	Delayed	The scope (and timing) of the project has changed in light of findings from the Master Planning process. Short-term improvement works are currently being carried out and are due to be completed during 2017-18. Longer term work to ensure the ongoing viability of water supply to the towns will be undertaken as funding becomes available.
East Gippsland Water						
Sarsfield — additional tank or liner	2013-14	2014-15	2019-20	2020-21	Deferred	This project was originally scheduled for construction in 2014-15. Further analysis of the Mitchell River Water Supply Demand Strategy deferred the project until the next pricing period. Related works were completed in 2014-15.
Bairnsdale sewer master plan bridge sewer pump station	2013-14	2015-16	2013-14	2015-16	Completed on time	Construction of three kilometres of dedicated rising main from Bridge SPS to Bairnsdale WWTP has been completed. Further works on the pump station and connections have also been completed.
Paynesville main supply pipeline (stage 2)	2014-15	2015-16	2018-19	2020-21	Deferred	Analysis of the Mitchell River Water Supply Demand Strategy and risk assessment also deferred this project until the next pricing period.
Bairnsdale wastewater treatment plant upgrade	2014-15	2017-18	2014-15	2017-18	On schedule	Digester refurbishment was largely completed in 2015-16 and commissioning is to be finalised by the end of the 2016 calendar year. Subsequent stages of this project (including flow balancing, electrical upgrades, and digestate dewatering system) have commenced and are on schedule for completion by the end of the current pricing period.

Continued on next page

TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Gippsland Water						
Drouin wastewater treatment plant upgrade	Carried over	2015-16	2015-16	2015-16	Completed on time	Practical Completion on the construction Contract was issued in April 2016 and the grit removal and screens have been operating since that time removing inert solids and grit hence improving the treatment capacity of the Drouin WWTP lagoons.
Sale water treatment plant upgrade	2013-14	2014-15	2014-15	2015-16	Completed late	Project involved replacing ageing aeration towers and non-compliant chemical storage delivery and handling facilities (part 1 of a plant upgrade) to improve water quality. Contract signed January 2015. Project achieved practical completion in December 2015, with demolition works completed March 2016.
Warragul-Hazel Creek trunk sewer (stage three)	2013-14	2014-15	2013-14	2014-15	Completed on time	Construction works began in September 2014 to make way for gas relocations. The project was completed in June 2015.
Loch Sport sewerage scheme	2013-14	2016-17	2012-13	2015-16	Completed on time	The Loch Sport township was declared fully serviceable in line with Gippsland Water's commitment to the community in October 2015 and has been operating without incident from that date. The community were a key stakeholder in the successful delivery of the project both individually and through the Loch Sport Community reference group.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Goulburn Valley Water						
Cobram — MGC unfluoridated water pipeline	2013-14	2014-15	2013-14	2016-17	Delayed	The majority of expenditure associated with this project will be funded by parties external to Goulburn Valley Water. The project was delayed until funding commitment was provided. The funding arrangements have now been finalised and delivery is expected for 2016-17.
Kilmore wastewater management facility additional winter storage	2014-15	2015-16	2023-24	2025-26	Deferred	Planning and design stages are substantially completed for a base project option. An alternative innovative option was identified, which involves environmental offsets rather than constructing infrastructure. Implementing the base project option is expected to be deferred until a later date; with offset projects expected to be approved (EPA approval required), and implemented over the next few years.
Mansfield wastewater management facility additional winter storage	2014-15	2015-16	2023-24	2025-26	Deferred	Planning and design stages are substantially completed for a base project option. The base case requires significant land acquisition. An alternative innovative option was identified, which involves environmental offsets rather than constructing infrastructure. Implementing the base project option is expected to be deferred until a later date; with offset projects expected to be approved (EPA approval required), and implemented over the next few years.
Marysville new water treatment plant	2013-14	2015-16	2013-14	2014-15	Completed on time	This project was completed in June 2015.
Numurkah water treatment plant upgrade	2013-14	2015-16	2013-14	2015-16	Completed on time	This project reached practical completion in 2015-16.
Shepparton water treatment plant upgrade	2014-15	2017-18	2017-18	2019-20	Deferred	The water treatment plant capacity upgrade works were deferred following the successful implementation of plant optimisation works. Water quality improvement works are still required, but were deferred to commence in 2017-18.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
GWMWater						
Intelligent rural pipeline networks	2013-14	2013-14	2013-14	2015-16	Completed late	This project was completed in June 2016, which was later than scheduled because project planning, the tendering process and finalising funding agreements delayed the commencement of the project.
Irrigation network decommissioning	2013-14	2014-15	2013-14	2014-15	Completed on time	This project was delivered and completed as scheduled.
Rupanyup sewerage scheme	2013-14	2014-15	2014-15	2014-15	Completed on time	This project was completed in October 2014 and the scheme was declared operational on 1 July 2015.
Upgrade of Donald wastewater and reuse system	2015-16	2015-16	2017-18	2017-18	Deferred	This project scope is being reviewed to investigate the impact of works to reduce infiltration. Infiltration works are currently being rolled-out and will continue up to 2017-18.
Donald treated water supply	2013-14	2014-15	2013-14	2013-14	Completed on time	Treated water supply to Donald was available from June 2014.
Wycheproof treated water supply	2013-14	2013-14	2013-14	2013-14	Completed on time	Treated water supply to Wycheproof was available from June 2014.
Rupanyup treated water supply	2013-14	2014-15	2013-14	2013-14	Completed on time	Treated water supply to Rupanyup was available from June 2014.
Minyip treated water supply	2013-14	2013-14	2013-14	2013-14	Completed on time	Treated water supply to Minyip was available from June 2014.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Lower Murray Water						
Mildura Trunk Extension	Carried over	2014-15	2014-15	2015-16	Completed late	The Mildura water supply 14 th Street trunk main extension project was deferred because demand was lower than planned. It has now been completed in three stages : <ul style="list-style-type: none"> • Stage 1: completed in 2015. • Stage 2 & 3: completed June 2016.
Relocation of 14 th Street tower	Carried over	2018-19	2017-18	2018-19	Deferred	This project was deferred during the 2008–13 pricing period because demand was lower than planned. The project is to prepare for future requirements in the relocation of this tank, with works now scheduled to start in 2017-18 with expected completion in 2018-19.
Mildura water supply strategy	2015-16	2015-16	2015-16	2015-16	Completed on time	This project involved two major stages. Stage 1 (Riverside Avenue) and Stage 2 (Benetook and Cureton Avenues) .Project completed July 2016.
Red Cliffs WTP upgrade	2013-14	2014-15	2013-14	2014-15	Completed on time	This project was completed on schedule in December 2014.
WTP water quality improvements	2013-14	2016-17	2011-12	2017-18	Delayed	This is a program of works across several water treatment plants, which began in 2011-12 and will be undertaken progressively over the 2013–18 pricing period. Robinvale WTP was completed in 2011-12. Mildura 7 th Street WTP was completed in June 2015. Swan Hill WTP works have commenced and will be completed in November 2016. Finally, Kerang WTP works will be undertaken in 2017-18.
WTP PLC replacement	2013-14	2016-17	2011-12	2017-18	Delayed	This is a program of works to be conducted in parallel with the WTP water quality improvements project, following the same timeline as described above and will be completed in 2017-2018.
Mildura emergency sewer overflow storages	2012-13	2013-14	2012-13	2013-14	Completed on time	Project works were completed on schedule in March 2014.
Merebin sewage diversion to Koorlong WWTP	2016-17	2017-18	2023-24	2027-28	Deferred	A revised Wastewater Management Plan has identified no immediate growth requirement to proceed with this project, and it has now been deferred into the fifth regulatory pricing period.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
North East Water						
Bright off-river storage	2013-14	2013-14	2010-11	2014-15	Completed late	This project was put on hold in January 2011, following the Minister's request for a review of the site selection process. North East Water issued a report in February 2011 and the Minister decided in late September 2011 to allow the project to progress through to the planning stage. Transfer main and off-stream storage projects were awarded in June 2013 and September 2013 respectively. The transfer main was completed early 2014 and the storage dam was completed in November 2014 after experiencing wet weather construction delays.
Servicing unserviced communities (small towns) — Moyhu sewerage system	2013-14	2014-15	2013-14	2016-17	Delayed	This is an innovative STED (septic tank effluent drainage system) treatment and reuse project. Construction in progress and has been delayed due to wet weather. Anticipated final completion Nov 2016.
Yackandandah reclaimed water management	2013-14	2016-17	2018-19	2019-20	Deferred	This project was deferred to the next pricing period. An ecological risk assessment (ERA) process is to be completed for discharges from the site to determine the potential impact of the receiving environment and beneficial uses, to inform whether a longer term discharge option is more viable than the current option.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
North East Water (cont)						
Bright water treatment plant	2013-14	2017-18	2013-14	2016-17	On schedule	Construction is completed and in commissioning stage. Anticipated completion is Sept 2016.
Wangaratta wastewater treatment stage 1 upgrade	2014-15	2017-18	2014-15	2018-19	Deferred	This project is at the initial systems definition stage of development.
Beechworth clearwater storage tank ***NEW PROJECT ***	Next pricing period	Next pricing period	2014-15	2016-17	On schedule	This project is required to ensure the township of Beechworth has sufficient storage of safe drinking water to meet peak daily demand. The project was reprioritised, bringing it forward to the current pricing period. Design is being finalised with procurement to start in Oct. Anticipated Completion June 2017.
Goorambat Security of Supply ***NEW PROJECT***	2017-18	2018-19	2016-17	2017-18	On schedule	This project addresses safe drinking water for the township of Goorambat. Project is in detailed design phase with estimated completion in early 2017-18.
South Gippsland Water						
Leongatha wastewater treatment plant — refurbish decommissioned digestive system	2013-14	2013-14	2013-14	2014-15	Completed late	The project was commissioned in September 2014.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
South Gippsland Water (cont)						
Poowong/Loch/Nyora sewerage scheme	2013-14	2017-18	2014-15	2015-16	Completed on time	This project was completed in June 2016 in collaboration with South East Water.
Foster wastewater treatment plant — rising main pipeline and storage	2017-18	2017-18	2017-18	2017-18	On schedule	The project is due to commence in November 2017. South Gippsland Water is currently undertaking a review of the options.
Northern towns supply connection works — Lance Creek to Korumburra	2015-16	2017-18	2016-17	2018-19	Delayed	This project did not receive funding in the 2014-15 or 2015-16 State Budget. This project received funding in the 2016-17 State Budget and will be delivered over the next three years, with completion expected in June 2019.
Northern towns supply connection works — Korumburra to Poowong	2016-17	2017-18	2016-17	2018-19	Delayed	This project did not receive funding in the 2014-15 or 2015-16 State Budget. This project received funding in the 2016-17 State Budget and will be delivered over the next three years, with completion expected in June 2019.
Wannon Water						
Curdie Vale bore construction	2013-14	2013-14	2013-14	2014-15	Completed on time	The project was completed in 2015.
Construct new bore at Wyatt St Portland	2014-15	2014-15	2014-15	2016-17	Delayed	Due to delays by the contractor in commencing site works the project is delayed, and is now expected to be completed by the end of 2016.
Casterton water treatment plant clarifier	2014-15	2015-16	2014-15	2016-17	Delayed	The contractor is having some minor issues during final commissioning at high flow rates. The contractor is currently back on site in Casterton to resolve. The project should be complete by the end of December 2016.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Wannon Water (cont)						
Water tower and pump station in Wollaston Road Warrnambool	2014-15	2015-16	2016-17	2017-18	Deferred	This project was deferred for two years because demand growth softened. A temporary water supply was implemented, which satisfies the short term requirements within this development.
Water tower and pump station in Wangoom Road Warrnambool	2014-15	2016-17	2016-17	2017-18	Deferred	This project was deferred for a year because demand growth softened.
Heywood and Hamilton water reclamation plant irrigation works	2015-16	2016-17	2013-14	2017-18	Delayed	Works at Heywood are now complete, with additional infrastructure constructed at the treatment plant in 2015-16, and an amended discharge license to the adjacent watercourse now in place. Investigations into lower cost alternative options at Hamilton are continuing to determine if excess treated winter flows can be discharged to the watercourse without negative impact. If so, an amended discharge license will be applied for. This would prevent the need for significant expenditure if additional winter storages are not required to be built at Hamilton.
Cobden and Casterton water reclamation plant irrigation works	2014-15	2017-18	2014-15	2016-17	On schedule	This project is on schedule, but Wannon Water is investigating alternative options with lower cost.
Portland reclamation plant wind energy project ***NEW PROJECT***	2014-15	2015-16	2014-15	2016-17	Delayed	This is a new major project (not initially included in the pricing submission). It is expected to deliver a significant reduction in energy costs at the site. Currently power connection and contractual terms associated with the purchase of the wind turbine are being negotiated. There should be some significant progress on these issues in 2016-17.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Western Water						
Rockbank outfall sewer (rising main)	2013-14	2014-15	2013-14	2016-17	Deferred	Completion of design and subsequent construction was initially deferred due to Fair Water Bills and slower growth. However, recent substantial growth in Rockbank has required the delivery of this project.
Surbiton Park RWP upgrade (digester)	2013-14	2014-15	2013-14	2017-18	Deferred	Progression to tender and construction was deferred due to Fair Water Bills and slower growth. Contract expected to be awarded in September 2016.
Melton Class A RWP upgrade	2015-16	2016-17	2018-19	2020-21	Deferred	The project was deferred to the next regulatory pricing period due to Fair Water Bills and slower growth.
Sunbury additional water storage — Bald Hill tank	2013-14	2016-17	2013-14	2018-19	Deferred	Preferred site has been selected for land acquisition, and currently negotiating with land owner. Land acquisition and construction was deferred due to Fair Water Bills and slower growth.
Sunbury recycled water plant (RWP) upgrade	2013-14	2016-17	2013-14	2018-19	Delayed	This project was delayed in the planning phase, firstly due to a longer than expected time to obtain business case approval from Treasury and then an additional delay when awarding the contract in late 2015, as a result of the change in Board members. The Design, Build, Operate Contract has been awarded with programmed completion of construction moved from late in 2016-17 to October 2018.
Bacchus Marsh RWP winter storage lagoon	2016-17	2017-18	2016-17	2017-18	On schedule	Site investigations commenced in October 2015. Investigations are continuing.
Bacchus Marsh rising main	2017-18	2017-18	2010-11	2020-21	Deferred	This project is to provide some redundancy and capacity increase of a critical asset. In 2013-14, the project was deferred to the next pricing period because other projects reduced the catchment and testing found the main was in better condition than expected.
Bacchus Marsh sewer rising main Geelong Road	2016-17	2017-18	2012-13	2017-18	On schedule	Detailed design commenced early in the event growth exceeded expectations, and is now 75 per cent complete. Detailed design is proceeding and is expected to be complete in March 2018.

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TABLE 8.2 (CONT)

Project description	Scheduled start date	Scheduled completion date	Expected/actual start date	Expected/actual completion date	Status	Water business comments
Westernport Water						
Candowie upgrade project	2013-14	2013-14	2013-14	2013-14	Completed on time	The project was completed in July 2013. The reservoir capacity is now doubled to 4463 megalitres, and it reached the new full supply level in September 2013.
Cowes wastewater reticulation — upgrade pump stations	2014-15	2014-15	2014-15	2015-16	Completed late	The Church Street upgrade was completed in 2014-15, and the Chapel Street SPS upgrade was completed in 2015-16. Upgrade to Cowes wastewater reticulation upgrade is complete.
Ian Bartlett water purification plant tertiary treatment	2015-16	2015-16	2015-16	2017-18	Delayed	The tertiary treatment upgrade concept design was completed in 2014-15; however further investigations into optimising existing plant to achieve treatment targets have been completed in 2015-16. Implementation of the tertiary treatment solution has been delayed to 2017-18.
Cowes wastewater reticulation — new rising mains	2016-17	2017-18	2016-17	2017-18	On schedule	The project is on schedule. The implementation schedule of the rising main from Chapel St Sewer Pump Station has been reviewed in 2015-16.
San Remo basin cover replacement	2016-17	2017-18	2016-17	2017-18	Delayed	San Remo Basin liner and cover replacement was initially programmed in 2016-17 due to its end of manufacturer’s Warranty Period. However Westernport Water decided to conduct an engineering investigation and condition assessment before it is contracted out for replacement. Depending on the outcome of the condition assessment, replacement will be planned in future years, which is later than initially planned. Therefore overall the project will be either “Delayed” or “Deferred” based on the outcome of the investigation.
Cowes wastewater treatment plant upgrade	2013-14	2017-18	2013-14	2015-16	Completed on time	The project commenced late 2013-14 and the construction phase is now complete. Testing and commissioning of the new works has been completed.