Explanatory Notes

Queensland's Urban Potable Water and Sewerage Benchmarking 2020-21

January 2022

swim

DATA REPORTING

Contents

1. Introduction

Each year the Queensland Water Directorate (***qldwater***) publishes the annual Urban Potable Water and Sewerage Benchmarking Report. This is the 11th edition of the report to be prepared and published by ***qldwater***.

The data covered in this report is captured and reported to the Department of Regional Development Manufacturing and Water (RDMW), which is the department in Queensland that is responsible for (amongst other things) licencing and registration of water providers, administration of Drinking Water Quality Plans, and performance reporting.

Most water and sewerage service providers report to RDMW using the SWIM software, which is available to all members of ***qldwater*** through their membership.

Following a favourable reception for a revised format used last year, the report has once more been published as a set of slides formatted for display in PowerPoint that contain charts for all water reporting entities for each respective category, with this document providing explanatory notes and additional insights that should be read in conjunction with the charts.

The slide deck and explanatory report contains a suite of indicators and benchmarking data for 72 of Queensland's urban water/sewerage Service Providers. The data is presented in figures that provide comparative information to enable each Service Provider to compare its performance against that of similar sized service providers. The charts show ranked values of indicators for each Service Provider (SP) that reported in 2020/21 in five groups based on the number of (water) connected properties served: Small SP with less than 1,000 connections (light blue), Indigenous SP (dark blue), Medium SP with between 1,000 and 9,999 connections (light brown), Large SP with between 10,000 and 50,000 connections (dark brown) and Extra-large SP with more than 50,000 connections (red). This year Cook Shire Council has been counted in the Medium category, with 1,118 reported connections.

Queensland (along with NSW) differs from other states and territories in Australia in that its drinking water and wastewater services are primarily the responsibility of local government. In Queensland, urban services are provided by 69 councils, one non-council entity (RTA Weipa), three bulk water suppliers (data not included here) and two council-owned Distribution Retail Entities (DREs), compared to other states and territories that typically have either a single authority or a number of regional statutory authorities.

During 2020/21 Queensland's council-owned service providers spent more than $2.35 billion operating the $46 billion worth of water and sewerage assets under their control.

These water and wastewater services are provided to just over 2 million water connections and close to 1.9 million sewerage connections in Queensland. They are required for public health and essential services, and generally must operate continuously without disruption.

The Queensland Water Directorate strongly supports the use of performance reporting and benchmarking to assist service providers in the continuous improvement of the services they provide to their community. Performance reporting and benchmarking provide valuable comparative data. This data enables each service provider to critically examine its performance by investigating trends in its indicators and by comparing its performance against those of similar service providers, and particularly against high-performing service providers that are in a similar position and implementing the best-practices that are appropriate for their community. The diversity of the Queensland sector means that there is a broad variety of external factors influencing efficiency and effectiveness of service providers so comparisons with those with similar cost drivers will be most useful.

1.1. External factors potentially influencing performance

There are a wide range of 'external' factors which can influence a service provider's performance. These factors include things such as:

- Climate – rainfall patterns, evaporation, temperature
- Geography – geology i.e. soil reactivity (shrink-swell), topography (i.e. mountains, flood plain)
- Size – population, number of connections, area served
- Location – e.g. SEQ vs. Western Qld, dense urban vs. rural urban
- Services provided – water treatment vs. treated water imported from another supplier
- Water supply – river vs. dam vs. bore water may require different treatment, distance to supply
- Asset age – old assets may require more maintenance/repairs and be less efficient
- Regulatory requirements – sewage treatment discharge licences

It is important to take these factors into account when comparing performance with other service providers.

One way for service providers to limit the effects of these external factors is to examine trends in their own performance indicators over time. It must be remembered that there may be also changes in the external factors over time as well (e.g. wet vs. dry years).

1.2. Service provider size as a factor in assessing statewide 'benchmark' performance

It is important to note up front that the figures for smaller service providers may be skewed towards relatively higher values for indicators that standardise data by 'per connection' or 'per 100 km of mains'. This is due to these smaller service providers having very low populations and relatively short lengths of mains so that even small figures can be magnified when compared with larger organisations. This means that these indicators can result in small organisations comparing poorly with larger ones despite having similar performance profiles. In such cases, benchmarking is only useful against service providers of a similar size.

2. Sewerage Services

2.1. Capacity and viability

The total reported capital expenditure on sewerage infrastructure in Queensland was $658 million for 2020/21. In addition, the total reported operating costs to collect and treat sewage from across the State was $688 million at an average cost of $365 per connection. Note that not all councils provide sewerage services to their communities.

Sewage CAPEX per connection

Capital expenditure will vary markedly from year-to-year, particularly when expressed per connection for service providers with a small number of sewerage assets. The indicator provides a snapshot of investment across the industry. The statewide median capital expenditure was $257 per connection (n=67), this is a substantial increase from the previous year, for which the statewide median capital expenditure was $199 per connection (n=67).

For the medium-sized and larger service providers, the median capital expenditure was $249 per connection (n=40), which is less than the previous year. This suggests that the increase in capital expenditure was dominated by the smaller and indigenous service providers, and indeed, four of the top five service providers in this category are indigenous service providers, and there was a substantial increase in the median capital expenditure for this cohort to $430 per connection (n=27) from the previous year ($20 per connection).

The service provider with the greatest relative capital expenditure was Mornington Shire Council at $4,364 per connection. According to the council's operational plan a new administration and civic centre was to be constructed during the year and associated new sewerage infrastructure may be reflected in these reported figures. Note that the council also has a very small population, which magnifies the apparent investment on a per connection basis.

The second greatest relative capital expenditure was reported by Paroo Shire Council, which reflects the ongoing investment in recent upgrades to the Cunnamulla STP and sewer relining.

Sewerage OPEX per connection

The 'sewerage operating cost per connection' is sometimes used an indicator of the operational efficiency of a service provider. The components of operating cost (operation, maintenance and administration) are:

- Charges for bulk treatment/transfer of sewage
- Salaries and wages
- Overheads on salaries and wages
- Materials/chemicals/energy
- Contracts
- Accommodation
- All other operating costs that would normally be reported
- Items expensed from work in progress (capitalised expense items) and pensioner remission expenses

- Competitive neutrality adjustments, which may include land tax, debits tax, stamp duties and council rates.

Topography will also affect operating costs through the amount of pumping needed to move the sewage to the treatment plant. With higher levels of sewage pumping comes an associated increase in asset maintenance and energy costs. Note that the definition for this indicator excludes depreciation.

The statewide median OPEX per connection value was $429 per connection (n=66). For the medium-sized and larger service providers, the median OPEX was $409 per connection (n=40). For the smaller and indigenous service providers, the median OPEX per connection was significantly higher at $582 per connection (n=26). This is a substantial change from the previous year when the differential between the cohort median values has essentially doubled to $173 per connection.

The reason for this change is likely to be multifaceted, but it is known that many service providers have experienced ongoing issues as a result of the COVID-19 pandemic including: increased costs due to tightening supply for consumables; difficulty in securing goods and services including specialist contractors due to interstate travel restrictions; and reduced capacity on scheduled flight services. All these factors are likely to have contributed to increased cost to service communities, especially in remote communities.

Cost drivers for sewerage services

The type of treatment as well as the level of treatment (related to the discharge/ reuse requirements) of sewage will affect the operating costs. With higher levels of sewage treatment come associated increases in other costs, particularly energy and human resources.

Service providers with a number of separate sewerage systems, larger areas of low-density service (low numbers of properties serviced per km of main) and those with higher numbers of, and smaller, sewage treatment plants will generally need more employees to effectively manage their systems and thus have higher operational costs. Management of biosolids is another costly expense which is greater for large service providers, particularly if they are at a large distance from reuse or disposal sites.

The maintenance costs of sewerage infrastructure are related to several factors, such as the age and condition of the assets and the soil reactivity (shrink-swell of soils damaging pipes).

Typical residential bill: sewerage

The ‘typical annual residential bill: sewerage’ is the dollar amount of the typical residential sewerage bill for the financial year, including special levies. If the bill is cost-reflective and a service providers’ operations are run effectively and efficiently, the typical residential bill should be minimised and indicate the service provider is providing value for the community. However, if bills are lower than costs then a service provider may not be financially sustainable. The aim for a service provider should be to provide agreed levels of service at the lowest, but importantly sustainable, residential bill considering the costs of operations, capital and appropriate financial returns.

This indicator is currently only legislatively required to be reported as separate water and sewerage components by service providers with greater than 10,000 connections. Smaller utilities report the value for combined water and sewerage operations.

The median typical annual residential bill for sewerage services by medium and larger service providers was $712 (n=40), compared to $644 for all reporting entities (n=68).

Typical residential bill: water + sewerage

The median value for the typical annual residential bill for water and sewerage combined is $1,439 (n=68) and is reported by all service providers with the exception of Barcoo, Croydon, Etheridge and Mapoon Aboriginal Councils because they do not provide sewerage services.

For the medium and larger service providers, the median value for the typical annual residential bill for water and sewerage combined is $1,604 (n=40) and for the smaller and indigenous providers is somewhat lower at $695 (n=28) (see comment below relating to indigenous council charges).

The distribution of service providers for this indicator is complex due to the combined confounding factors, including:

- Many councils do not pass the full cost of supplying water and sewerage services on to customers.
- Some councils source their water from the Great Artesian Basin, which are generally not treated, reducing cost to supply.
- Some smaller councils do not provide sewerage services to all of their communities.
- Many indigenous councils do not charge for residents for water or sewerage services and often report $0 for this indicator.

Economic real rate of return: sewerage

In the case of council-owned service providers, the financial performance of many service providers is intricately linked with that of the owner council. This makes determining the financial performance of the sewerage operations as an individual business unit hard to assess particularly for small service providers.

In addition, an important distinction must be made between the category of (usually large) councils that are financially sustainable and can provide dividends to benefit their communities, and the small and often more remote councils. In the latter, smaller populations and small rates bases can mean that funding assistance and subsidies from other council income is necessary to maintain services and, in some cases, even operating costs may not be recovered.

One comparator of financial performance is the Economic Real Rate of Return (ERRR). The ERRR: sewerage is the revenue from sewerage business operations, less operating expenses for the sewerage business, divided by written down replacement cost of operational assets. An appropriate value for ERRR is difficult to determine for service providers but should be at least positive, with a margin to allow for return on capital (NWC and WSAA, 2010). OTTER (2011) suggested that an ERRR of around 7% was required for full cost recovery in the preamalgamation Tasmanian urban water industry. The Productivity Commission questioned whether the NWC and the NSW Office of Water definition of full cost recovery as an ERRR “greater than or equal to zero” was sufficient (see PC, 2011, p. 386).

ERRR data is now only specifically required under the Queensland KPI framework from service providers with greater than 10,000 water connections, however, it can be calculated from other indicators requested from all service providers. The data provided here are the calculated values for all service providers to allow for consistent comparison. The statewide median value for ERRR: sewerage for all service providers that provided data was 1.34% (n=68). This is down from the previous year, where the median value for ERRR: sewerage was 2.0% (n=67).

For the medium-sized and larger service providers the median of ERRR: sewerage was 3.23% (n=40), with four service providers in this cohort reporting ERRR: sewerage less than zero: Burdekin SC, RTA Weipa, Banana SC and Cook SC.

For the small and indigenous service providers, the median value of ERRR: sewerage was -2.29% (n=28). The very low or negative ERRR values for small and indigenous service providers reflect the difficulty in recovering costs from small councils with low rates base. The ERRR calculation also uses the total revenue values which may not include all revenue for indigenous councils.

2.2. Customer service

Sewerage service complaints per 1000 connections

Water and sewerage complaints per connection are reported in the following categories:

- QG4.10 CS9 Water quality complaints per 1000 connections
- QG4.11 CS13 Water and sewerage complaints (all) per 1000 connections
- QG4.12 CS10 Water service complaints per 1000 connections
- QG4.13 CS11 Sewerage service complaints per 1000 connections
- QG4.14 CS12 Water and sewerage billing and account complaints per 1000 connections

During 2020/21 a total of 54,073 water and sewerage related complaints were reported across the State.

The statewide median number of sewerage service complaints per 1,000 connections was 0.5 (n=68).

For the medium-sized and larger service providers the median of sewerage service complaints per 1000 connections was 0.9 (n=40), and for the small and indigenous service providers the median number of complaints per 1000 connections was 0 (n=29).

Percent CSS response target met: sewerage incidents

Reporting on specific response times for sewerage incidents has limited meaning. SPs often report that there is no 'ideal' response time as it varies depending on the type of incident (e.g. emergencies should be treated faster than minor issues) and the distance to the area of concern. Instead, it is more appropriate to report on the percentage of customer service standards achieved within target times. This means that the results reported are against the specific Customer Service Standards (CSS) to which service providers have agreed with their customers. As a result, CSS are not the same for every service provider and this fact should be taken into account when comparing data for different service providers. The statewide median for the percent of CSS response time targets met for sewerage incidents was 100%.

2.3. Condition of assets

Sewerage main breaks/chokes per 100 km sewer main

The statewide median for the number of sewer main breaks and chokes reported per 100 km of sewer mains during 2020/21 was 9.7 (n=68). This indicator can provide a rough indication of the condition and age of sewerage infrastructure although data may include breaks caused by third parties (e.g. accidental damage from excavation) as well as other anomalies like earth quakes and mining activities (underground blasting) and the impacts of extended dry and wet periods in areas with reactive soils.

The data as presented for this category must be viewed with caution as those service providers with small populations and small networks may be skewed towards the higher end of the rankings and may not be a robust reflection of the age or condition of the sewerage network.

3. Potable Water Supply

3.1. Capacity and viability

A total of 641,368 ML of water was sourced across the state in 2020/21 from all sources, including marine (desalination), surface water, groundwater and recycled (sewerage/stormwater) sources, some 37 GL less than the previous year. Of this, 576,707 ML of potable water was produced with 377,787 ML supplied to residential customers, 126,129 ML to non-residential customers and 69,469 ML as non-revenue water. An additional 4,931 ML of raw-partially treated water was also supplied to customers (1,855 ML to residential and 3,076 ML to non-residential). A total of 39,562 ML of recycled water was supplied to customers in 2020/21 and is generally used for irrigation purposes (e.g. golf courses, sporting fields and crops).

The reported total capital expenditure on water supply was $455 million for 2020/21. In addition, the reported total operating costs to supply water from across the state was $1,663 million at an average cost of $804 per connection for the State.

Water CAPEX per connection

Capital expenditure varies markedly from year-to-year, particularly for service providers with a smaller number of water assets, but still provides a snapshot of investment across the industry. The statewide median for capital expenditure was $419 per connection (n=71), this is 10% higher than the previous year ($379 per connection n=71). Like the sewerage CAPEX, the change in water CAPEX was driven by investment in the small and indigenous service providers. For the medium-sized and larger service providers the median value of capital expenditure was $327 per connection (n=40), and for the small and indigenous service providers the median capital expenditure was $1,448 per connection (n=31).

As was seen last year, Wujal Wujal Aboriginal Shire Council had atypically high water CAPEX per connection at $8,207, but the standout was Bulloo Shire Council with $15,412 per connection. Bulloo Shire has a very small population (207 connections), and sources its drinking water from the Great Artesian Basin with essentially no treatment. It is understood that this investment consists of a new solar-powered cooling plant to manage the high temperature groundwater.

Water OPEX per connection

Service providers with cost reflective pricing and effective and efficient systems will have lower operating costs and thus provide better value for money to their customers. The components of operating cost (operation, maintenance and administration) are:

- Water resource access charge or resource rent tax
- Purchases of raw, treated or recycled water
- Salaries and wages
- Overheads on salaries and wages
- Materials/chemicals/energy
- Contracts
- Accommodation
- All other operating costs that would normally be reported

- Items expensed from work in progress (capitalised expense items) and pensioner remission expenses
- Competitive neutrality adjustments, which may include land tax, debits tax, stamp duties and council rates

The statewide median value for water OPEX was $706 per connection (n=70). For the medium-sized and larger service providers, the median OPEX was $699 per connection (n=40). For the smaller and indigenous service providers, the median OPEX was higher at $939 per connection (n=30). This is reflective of the myriad of variable cost drivers that contribute to the operating costs for each service provider that are not directly related to the number of connections. Note that the definition for this indicator excludes depreciation.

The service provider with the highest water OPEX per property was Wujal Wujal Aboriginal Shire Council, at $2,636 per connection.

Cost drivers for water supply

External factors beyond the control of individual organisations dramatically affect the cost of providing water services. For example, service providers that maintain major storage dams for their water supply may have larger capital expenditure and operating costs than other service providers.

The amount and type of treatment needed for the water sourced will also affect operating costs. However, larger water treatment plants may have lower costs than smaller plants, through economies of scale. Service providers with a number of separate water supply systems, larger areas of low-density service (i.e. low numbers of properties serviced per km of main) and those with higher numbers of smaller water treatment plants will generally need more employees and other resources to effectively manage their systems and thus have higher costs.

The topography and location of the water supply will also affect operating costs through the amount of pumping needed to move the water to the treatment plant and then on to the customer and will have a relatively greater impact on small providers. High numbers of connections within urban areas provide economies (through density) which will help to reduce this cost, relative to service providers with widely spaced connections.

Maintenance costs of water supply pipe infrastructure is related to several factors, such as the age, type and condition of the assets, the soil reactivity (shrink-swell impacts on buried pipes), corrosive water, water pressures and the density of connected properties.

Typical residential bill: water

The ‘typical residential bill: water’ is the dollar amount of the typical residential water bill for the financial year, including special levies. If the bill is cost-reflective and a service providers’ operations are run as effectively and efficiently as possible, then the typical residential bill should be minimised and the service provider would be providing value for the community. However, if bills are lower than costs then a service provider may not be financially sustainable. The aim for a service provider should be to provide agreed levels of service at the lowest sustainable bill considering all costs and return on capital. Comparison of such indicators and consideration of efficiency is important as there may be incentives to either charge too little (e.g. to impress customers) or to charge too much (e.g. to increase returns).

This indicator is only required to be reported as separate water and sewerage components by service providers with greater than 10,000 connections though smaller service providers are still encouraged to report both values. The median typical residential bill for water supply by medium and larger service providers was $848 (n=40), and $744 for all reporting entities (n=72).

Note that most indigenous councils in Queensland do not specifically charge residents water or sewerage fees and often report $0 for this indicator.

Economic real rate of return: water

As for sewerage services, in the case of council-owned service providers the financial performance of most service providers is intricately linked with their owner councils, making it difficult to assess the financial performance of the water supply operations specifically.

In addition, an important distinction must be made between the category of (usually larger) councils that can be categorised as financially sustainable and can generate dividends (return on capital) to support their communities, and the smaller and often more remote councils. In the latter, smaller populations (and thus rate bases) can mean that capital investment in water infrastructure is difficult and relies on funding assistance and subsidies from other sources of income. In some cases, even operating costs can be difficult to meet.

One comparator of financial performance is the Economic Real Rate of Return (ERRR). The ERRR: water is the revenue from water business operations, less operating expenses for the water business, divided by written down replacement cost of operational water assets. An appropriate value for ERRR is difficult to determine for service providers but should be at least positive with a margin to allow for return on capital (NWC and WSAA, 2010). OTTER (2011) suggested that an ERRR of around 7% was required for full cost recovery in the Tasmanian urban water industry while the Productivity Commission questioned the appropriateness of NWC and NSW Office of Water definitions of full cost recovery as an ERRR “greater than or equal to zero” (see PC, 2011, p. 386).

ERRR data is only specifically requested from service providers with greater than 10,000 water connections, however, it can be calculated from other indicators requested from all service providers. The data provided are the calculated values. The statewide median value for ERRR: water for all service providers that provided data was 0.82%. (n=72).

For the medium-sized and larger service providers the median of ERRR: water was 2.69% (n=40).

For the small and indigenous service providers, the median value of ERRR: water was -2.69% (n=32). In this group, only five service providers reported a value greater than zero, with Winton Shire Council’s reported values yielding an ERRR: water of 6.1%.

3.2. Customer service

Water service complaints per 1000 connections

As discussed in section 2.2, previously in this report we have published the values for 'water and sewerage complaints (all) per 1000 connections'. However, this indicator includes 'any other complaints' not included in the other indicators. Unfortunately, the interpretation of what comprises a 'complaint' varies markedly among utilities and comparisons among service providers remain problematic. The choice of a service complaints indicator may be more reflective of the customer experience across all service providers.

The statewide median number of water service complaints per 1,000 connections was 0.6 (n=72).

For the medium-sized and larger service providers the median of water service complaints per 1000 connections was 1.1 (n=40), and for the small and indigenous service providers the median number of complaints per 1000 connections was 0 (n=32). It must be noted that the majority the small and indigenous service providers cohort reported zero complaints.

Percent CSS Response targets met: water incidents

Reporting on specific response times for water incidents has no real meaning as there is no 'ideal' response time as it varies depending on the type of incident (e.g. emergencies should be treated faster than minor issues) and the distance to the area of concern. Instead, it is more appropriate to report on the percentage of customer service standards achieved within target times. This means that the results reported are against the specific Customer Service Standards (CSS) that service providers have agreed to with their customers. The results reported are independent of the specific response time taken and the associated issues discussed above and allows the results to be compared among service providers. The statewide median for the proportion of CSS response time targets met for water incidents was 100%.

3.3. Condition of water assets

Proportion potable water that is non-revenue water

Non-revenue water is the amount of potable water produced for which revenue is not received. It is made up of unbilled authorised consumption (e.g. network flushing, firefighting), apparent losses (e.g. theft, meter errors), and real losses (e.g. leaks, bursts and overflows). Some non-revenue water is necessary in potable water production and network management including maintaining public safety. For some service providers this represents an important additional cost to be managed. The statewide median value for the proportion of potable water produced that is non-revenue is 11.53% (n=72).

For the medium and larger service providers, the median value for the proportion of potable water that is non-revenue water is 15.4% (n=40), and for the smaller and indigenous providers is somewhat lower at 3.37% (n=32).

It is known that many small and indigenous councils do not measure water usage. For these councils it is very likely that the reported values for this indicator are estimates. The number of councils that report 2% or less for this value may be indicative as it seems highly unlikely that reporting is accurate. As a result, the median of the full dataset is likely to be incorrect. It is suspected that the median value for the medium and larger service providers is likely to be more representative of the industry as a whole.

Water main breaks

The statewide median for the number of water main breaks that were recorded per 100 km of main during 2020/21 was 18.8 (n=72), unchanged from the previous year. This indicator can provide a rough surrogate for the condition and age of water main infrastructure although data may include breaks caused by third parties (e.g. accidental damage during excavation) as well as other anomalies like earthquakes and mining activities (underground blasting).

For the medium and larger service providers, the median value for number of water main breaks that were recorded per 100 km of main is 18.2% (n=40), and for the smaller and indigenous providers is similar at 18.8% (n=32).

It must be noted that the range of length of water mains amongst service providers is very large, ranging from 5 km for Lockhart River Aboriginal Shire Council, to 9,559 km for Urban Utilities. This means that for the service providers with short mains lengths, a single main break can yield very large values for this indicator when reported as ‘per 100 km of main’.

Annual potable water supplied per connection

Per capita potable water consumption figures are commonly used by government and the media but are not required to be reported by any service providers. Residential potable water consumption may however be estimated from other reported indicators. In particular, the potable water supplied per connection per annum (reported by all but indigenous service providers), can be used as a proxy for per capita consumption.

The median of reported values for average potable supply per property for the state was 583 kL in 2020/21 (n=72), which is lower than the previous year (refer Table 1).

Table 1: Annual potable water supplied per connection per year since 2012/13.

Year	Annual potable water supplied per connection per year
2020-2021	583 kL
2019-2020	622 kL
2018-2019	555 kL
2017-2018	585 kL
2016-2017	515 kL
2015-2016	502 kL
2014-2015	519 kL
2013-2014	474 kL
2012-2013	509 kL

The potable water supplied per connection per annum, in kL per annum when divided by 365 provides a value for potable water supplied per connection per day. When this number is divided by an average number of persons per household, it yields an estimate of per capita daily consumption. The average number of persons per household in Queensland is 2.7. The relationship for this average holds most closely for higher density urban areas, and there are a number of other factors which should be considered for other locations.

As an example, the median of all reported values for the potable water supplied per connection per annum was 583 kL per connection per annum, which can be converted as described above to 592 L per person per day. Note that this method considers only potable water supplied, and some locations may have alternative/ additional sources.

3.4. Water security

Proportion of connections with water restrictions

The water consumption by a community is interlinked with the revenue that a service provider is able to collect for the supply of water. Drought conditions may place an additional financial burden on service providers in the form of costs for providing supply of water (e.g. water carting), reconfiguration of water treatment plants to treat alternative supply sources and increased chemical usage for poor quality source water. On top of this, service providers in areas with reduced supply will impose restrictions, which result in reduced revenues due to reduced supply to customers.

A set of water security indicators have now been included in the mandatory annual reporting requirements. To display this data in a comparative format, we have included a chart that plots the proportion of connections for each service provider that was under some level of water restriction. The colour shade displayed shows ‘relatively’ what level of restriction was imposed during the that period.

The graphs are not intended to compare the performance of service providers as such, but generally show that the larger the bar the longer more people were under some form of water restriction.

These charts provide additional context for the financial and consumption data provided elsewhere in the report.

4. References

NWC and WSAA (National Water Commission and Water Services Association of Australia). 2010. National Performance Report 2009-10: Urban Water Utilities, NWC, Canberra.

OTTER (Office of the Tasmanian Economic Regulator). 2011. Tasmanian Water and Sewerage State of the Industry Report 2009-10. Tasmanian Government, Hobart.

PC (Productivity Commission). 2011. Australia’s Urban Water Sector, Report No. 55, Final Inquiry Report, Volume 1, Canberra.