Department of Primary Industries
Water

2014–15

NSW Water Supply and Sewerage
Performance Monitoring Report

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LOCAL GOVERNMENT NSW

2014-15
NSW WATER SUPPLY AND SEWERAGE

PERFORMANCE MONITORING REPORT

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BEST PRACTICE MANAGEMENT

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MINISTER'S FOREWORD

The *Performance Monitoring Report* for NSW water utilities for 2014-15 provides an overview of the current status and future water supply and sewerage needs of NSW.

This annual Report has been prepared by DPI Water and its predecessors since 1986, and presents the key performance indicators for all NSW urban water utilities. This enables each utility to monitor and improve its productivity and performance through benchmarking against similar utilities. The Report also highlights the overall statewide performance of the NSW regional local water utilities and compares that performance with interstate utilities. The Report is important for public accountability and has been strongly endorsed by the Productivity Commission.

Through Goal 21 of the State Plan NSW 2021, the NSW Government's Country Towns Water Supply and Sewerage Program, the Regional Water and Waste Water Backlog Program, and the *NSW Best-Practice Management of Water Supply and Sewerage Framework* (page xii), the State Government will continue to work with water utilities to ensure the community benefits from effective, sustainable, and safe piped water supply and sewerage services.

To provide a balanced view of the long-term sustainability of NSW water utilities, the report adopts a triple bottom line accounting focus, with performance reported on the basis of social, environmental and economic performance indicators. These indicators include the utility's pricing signals and typical residential bill, compliance with the *Australian Drinking Water Guidelines 2011*, compliance with sewage treatment works licences, the volume of water used and recycled, greenhouse gas emissions, the fair value of assets and asset condition, including water main breaks and real water loss (leakage), sewer main breaks and chokes, the operating cost, whether each utility has achieved full cost recovery, and its level of implementation of the 19 planning, pricing and management outcomes required by the Best-Practice Management Framework.

I am pleased to note the evidence shows that the NSW utilities are continuing to perform very well. In consultation with stakeholders, DPI Water will be shortly commencing a major review of how it regulates the regional NSW local water utilities to ensure legislation and regulatory arrangements for this important sector are suitable for the challenges of the 21st century. This review will build on the success of the present arrangements, reflect the now mature NSW local water utility environment, and work to further streamline regulation and reduce financial and regulatory burdens on the utilities.

The Hon. Niall Blair MLC
Minister for Primary Industries
Minister for Lands and Water

ACKNOWLEDGEMENTS

Local Government NSW (LGNSW) is acknowledged for its strong and continuing support for the NSW annual water supply and sewerage performance monitoring system since its commencement in 1986.

The public health regulator, NSW Health, is acknowledged for its oversight of drinking water quality in regional NSW, including administering the preparation and implementation of a Drinking Water Management System (Public Health Act 2010) by each utility providing a public drinking water supply. NSW Health has also provided additional water quality data (from the NSW Health Drinking Water Database) and water quality monitoring compliance data. This data has been incorporated into Appendix D and Figures 9 and 10 of this Report and Tables 5 and 12 and Appendices D1 and D3 of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*.

The NSW Local Government Water Directorate is also acknowledged for its strong support, contributions and feedback to facilitate ongoing review and refinement of the NSW Performance Monitoring System.

The continuing success of the NSW Performance Monitoring System as a robust evidence basis for productivity and performance improvement rests on participation by all NSW local water utilities (LWUs). DPI Water particularly acknowledges the continuing efforts of each LWU in providing current, accurate and timely data on its performance and in implementing the outcomes required by the NSW Best-Practice Management Framework (page xii).

LIST OF NSW WATER UTILITIES

This report discloses performance indicators for all NSW water utilities: 105 regional local water utilities (LWUs) and four metropolitan utilities (Sydney Water Corporation, Hunter Water Corporation, Water NSW (from January 1 2015, formerly Sydney Catchment Authority) and Hawkesbury Council). The NSW utilities are listed alphabetically on page iii with a number that indicates the relative size of the utilities on the basis of connected properties served. For example, the '11' beside Albury City indicates it is the 11th largest LWU. LWUs are grouped in four size ranges: over 10,000; 3,001 to 10,000; 1,501 to 3,000, and 200 to 1,500 connected properties.

To facilitate comparisons with similar sized LWUs, Appendices C to F of this report appear in order of the number of connected properties served.

Table 1- NSW water utilities (regional and metropolitan) in alphabetical order

No.	Utility	No.	Utility	No.	Utility
11	Albury City	84	Gilgandra	83	Oberon (R)
29	Armidale Dumaresq	60	Glen Innes Severn	19	Orange
24	Ballina (R)	28	Goldenfields (NO SGE)	71	Palerang
100	Balranald (DS)	1	Gosford	36	Parkes
21	Bathurst Regional	20	Goulburn Mulwaree	7	Port Macquarie-Hastings
23	Bega Valley	80	Greater Hume	17	Queanbeyan (R)
47	Bellingen	30	Griffith	33	Richmond Valley
53	Berrigan (DS)	94	Gundagai	8	Riverina (NO SGE)
72	Bland (NO WS)	44	Gunnedah	4	Rous (BS) (NO SGE)
78	Blayney (NO WS)	90	Guyra	3	Shoalhaven
89	Bogan	81	Gwydir	35	Singleton
97	Bombala	76	Harden (R)	52	Snowy River
104	Boorowa	30A	Hawkesbury (NO WS)		Sydney Water
87	Bourke (DS)	86	Hay (DS)	13	Tamworth Regional
105	Brewarrina (DS)		Hunter Water	69	Temora (NO WS)
27	Byron (R)	37	Inverell	68	Tenterfield
91	Cabonne	106	Jerilderie (DS)	93	Tumbarumba
92	Carrathool	77	Junee (NO WS)	43	Tumut
103	Central Darling (DS)	25	Kempsey	6	Tweed
40	Central Tablelands (NO SGE)	70	Kyogle	45	Upper Hunter
14	Clarence Valley	59	Lachlan	73	Upper Lachlan
67	Cobar (R)	48	Leeton	85	Uralla
66	Cobar WB (BS)	22	Lismore (R)	107	Urana (NO WS)
10	Coffs Harbour	31	Lithgow	9	Wagga Wagga (NO WS)
99	Coolamon (NO WS)	61	Liverpool Plains	88	Wakool (DS)
50	Cooma-Monaro	102	Lockhart (NO WS)	98	Walcha
75	Coonamble	5	MidCoast	79	Walgett (DS)
58	Cootamundra (R)	32	Mid-Western Regional	96	Warren (DS)
42	Corowa	38	Moree Plains	55	Warrumbungle
39	Cowra	65	Murray (DS)		Water NSW (formerly SCA)
54	Deniliquin	101	Murrumbidgee	95	Weddin (NO WS)
18	Dubbo	41	Muswellbrook	57	Wellington
26	Essential Energy	34	Nambucca	74	Wentworth (DS)
15	Eurobodalla	46	Narrabri	16	Wingecarribee
12	Fish River WS (BS)	63	Narrandera	2	Wyong Water
51	Forbes	62	Narromine	56	Yass Valley
				49	Young (R)

R - Reticulator; DS - Dual Supply; BS - Bulk Supplier; NO WS - No water supply; NO SGE - No sewerage

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EXECUTIVE SUMMARY

In regional NSW, the reticulated public water supply and sewerage services are the most important factor in protecting public health. In recent years NSW has been severely affected by drought and exceptionally wet years with major flooding in 2010-11 and 2011-12, followed by a moderately dry period in 2012-13 to 2014-15. The local water utilities also continue to face significant challenges from issues such as climate variability, the effect of water sharing plans on water availability, population changes (growth along coastal NSW and a decline in some inland areas), together with a projected shortage of skills and resources in water engineering.

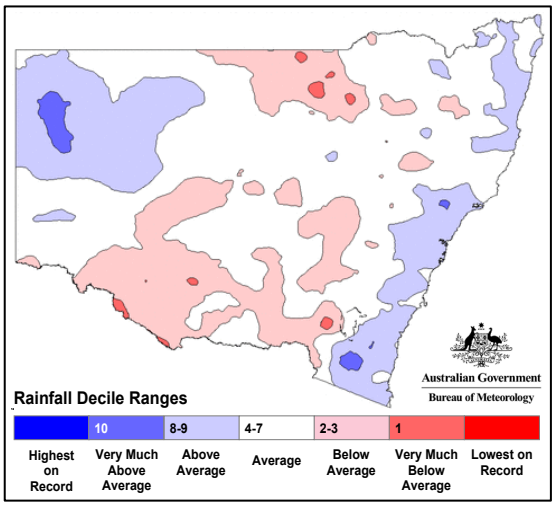


Chart 1 - NSW rainfall deciles - 1 July 2014 to 30 June 2015

In such challenging operating conditions utilities need to undertake sound strategic planning in accordance with the NSW Government's *Best-Practice Management (BPM) of Water Supply and Sewerage Framework* (page xii). Currently, 94 per cent of utilities have a sound strategic business plan (page 4), which includes a 30-year total asset management plan (TAMP) and a 30-year financial plan. Annual review and update of the TAMP and financial plan and preparation and implementation of an annual Action Plan to Council (page 78) will ensure the long-term effectiveness and sustainability of these services. Today all of the utilities are achieving full cost recovery for water supply and 98% for sewerage (page 85). The overall level of implementation of the 19 planning, pricing and management outcomes required by the BPM framework is 90 per cent (page 82).

NSW local water utilities have continued to achieve consistently high standards despite the challenges outlined above. There has been a real increase of only 18 per cent in the water supply median typical residential bill (TRB) over the past 20 years (page 5) to $593. The water supply TRB is now lower than the national median for all other Australian states and capital city utilities except Sydney, Melbourne and country Victoria. The median TRB for water and sewerage combined is $1290, which is a real increase of only 20 per cent over the same period. At the same time, 99.9 per cent of all 19,400 samples tested for E. coli complied with the 2011 Australian drinking water guidelines (ADWG). The public drinking water supply for 99.9 per cent of the urban population in regional NSW complied with ADWG, as did all of the regional utilities (page 85). Average annual residential water supplied is 166 kilolitres (kL) per property, which is 50 per cent lower than in 1991 (page 5). This trend in reductions is due mainly to the strong pay-for-use water pricing signals with a median water usage charge of 226 cents per kilolitre (c/kL) together with implementation of water conservation measures by the utilities and some drought water restrictions.

Utility characteristics

2014-15 was a moderate year, with around 20 per cent of the state – mostly inland NSW – receiving below average annual rainfall, while most coastal areas and north-west NSW experienced above average rainfall. Around 56 per cent of the water supply utilities received rainfall below their long-term median annual rainfall. The 2014-15 statewide median rainfall was 116% of the long-term median.

Since July 2014, 105 local water utilities (LWUs) have provided water supply and sewerage services to regional NSW (ie excluding Sydney and Hunter Water Corporations). Of these LWUs, 96 provided water supply services (including three bulk suppliers - Cobar Water Board, Fish River Water Supply and Rous County Council) and 99 provided sewerage services.

The LWUs provided a piped water supply to a population of 1.83 million (98.0% coverage) and to 828,000 connected properties (page 85). The total water supplied was 291,000 megalitres (ML), which has fallen by over 95,000 ML over the past 24 years. This is mainly due to the application of BPM framework measures including strong pay-for-use pricing signals, water conservation and

demand management including leakage reduction and some drought water restrictions.

The LWUs also provided a piped sewerage service to 1.74 million people (96.3% coverage).

Since implementation of the new Country Towns Water Supply and Sewerage (CTWSS) program in 1996, the small town backlog sewerage services provided have increased the piped sewerage coverage (blue line) in regional NSW from 92.3% to 96.3% of the urban population.

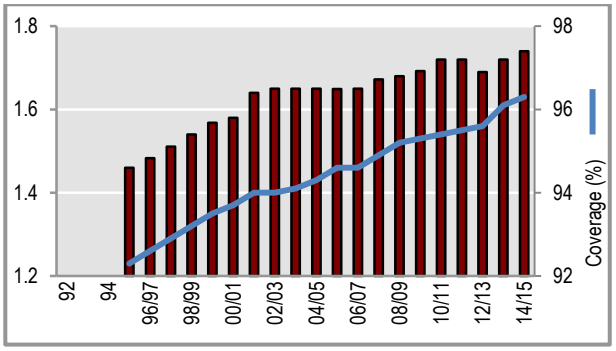


Chart 2 - Population with reticulated sewerage (millions)

Social

- The median typical residential bill for water supply is $593 (Jan 2016$), which has increased by 18% in real terms over the past 20 years (page 5). The median typical residential bill for sewerage is $697 and the median typical residential bill for water supply and sewerage is $1290, which has increased by 20% in real terms.

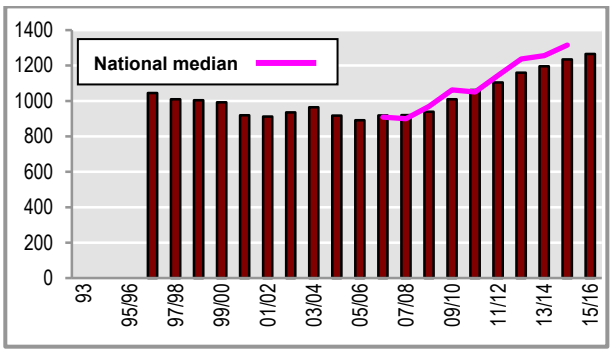


Chart 3 - Typical Residential Bill - water supply and sewerage - P8 ($/assessment Jan 2016$)

- Median water usage charge for the first step has risen to 226 c/kL. This is relatively high and is a strong pricing signal to encourage efficient water use. Water usage charges provide 72% of residential revenue, a major reform to the 20% obtained 20 years ago.
- The median developer charge for water and sewerage is $11,000 per equivalent tenement (page 85). This is 33% of the $32,900 median current replacement cost of system assets per assessment.
- From 2012 to 2015, the public drinking water supply for 99.9% of the urban population in regional NSW complied with ADWG (pages 7, 85). Water quality complaints remain low (page 9). The LWUs have skilled operators, with 348 operators meeting the National Certification Framework for Water Treatment Operators (page 16). Similarly, the LWUs have 419 fully qualified Wastewater Treatment Operators (page 16).
- Water main breaks are nine per 100km of main, which is much lower than all other Australian states and capital city utilities, indicating good asset condition (pages 18, 9).

Environmental

Average annual residential water supplied was 166 kL/connected property, which was similar to country Victoria and lower than the national median and all other Australian states and capital city utilities, except for Melbourne and Brisbane (pages 18, 9). Average annual residential water supplied has fallen by 50% over the past 24 years (from 330 to 166 kL/property).

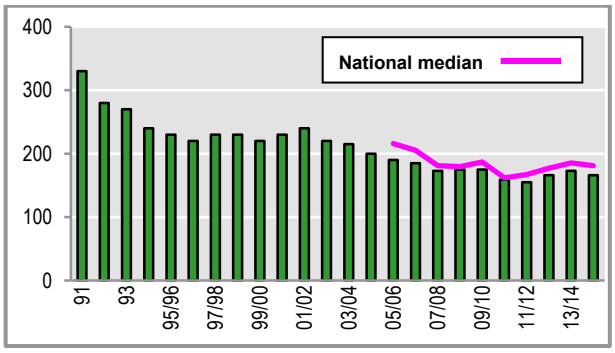


Chart 4 - Average annual residential water supplied - W12 (kL/connected property)

- Ninety-seven per cent of utilities have implemented sound water conservation measures (page 82).
- Reuse of recycled water was 39,000 ML, which is 22% of the total volume of sewage collected and was carried out by 70% of the utilities, mostly for agriculture (pages 19, 55, 85).
- Ninety-six per cent of the 4,184 samples analysed for biochemical oxygen demand (BOD) and 92% of the 4,184 samples analysed for suspended solids (SS) (page 11) complied

with the Environment Protection Authority (EPA) sewerage licences. Eighty-nine per cent of the utilities complied with their licence for BOD (pages 11, 51) and 82% complied for suspended solids (pages 11, 52).

Economic

The total revenue for the 105 regional utilities was $1,420m and the current replacement cost of their water supply and sewerage assets was $28,400m (page 87).

- The median economic real rate of return was 1.4% for water supply and sewerage, which was the same as country Victoria but lower than the national median and the capital city utilities (page 19). All LWUs are now achieving full cost recovery (page 12) for water supply and 98% for sewerage (page 85).
- The median operation, maintenance and administration cost (OMA) for water supply and sewerage has increased from $535 to $820 (Jan 2015$) over the past 23 years, largely due to more stringent standards for sewage treatment and increasing management costs. The water supply OMA cost was lower than the national median and country utilities in all the other states but higher than most capital city utilities (pages 19, 14, 61, 62, 85).

All NSW urban water utilities have abolished water allowances and have pay-for-use water pricing (page 89), which is a key requirement of the National Water Initiative (NWI).

Ninety-four per cent of utilities have a sound 30-year strategic business plan and financial plan (page 85), compared with only 31% 17 years ago. Continued implementation of the required outcomes of the BPM framework by each utility will ensure the long-term effectiveness and sustainability of these services.

Best-practice management

The NSW Government continues to actively encourage the regional LWUs to achieve appropriate, affordable, cost-effective and sustainable water and sewerage services through implementation of the NSW Best-Practice Management (BPM) of Water Supply and Sewerage Framework (page xii). All the utilities need to implement outcomes required by the BPM framework (page 106).

Overall level of implementation by the 105 LWUs of the 19 planning, pricing and management outcomes required by the BPM framework is 90%, compared with 46% 10 years ago. In addition, 45% of the utilities have implemented all of the required outcomes for water and 55% of the utilities have implemented all of the required outcomes for sewerage (pages 66 to 68).

Implementation of all outcomes required by the BPM framework is a pre requisite for payment of a dividend from the surplus of a utility's water or sewerage businesses (page 24). Each utility that meets these outcomes is encouraged to pay an 'efficiency dividend' to council's general revenue (required under National Water Initiative where practicable (page 12)).

Implementation of all outcomes is also required for financial assistance (page 24) towards the capital cost of backlog infrastructure (as at 1996) under the Government's Country Towns Water Supply and Sewerage (CTWSS) program (www.water.nsw.gov.au) and the Regional Water and Waste Water Backlog (RWWWB) program.

Data reliability

The performance indicators for the 29 LWUs serving over 10,000 connected properties, which is 74% of the connected properties in regional NSW, have been independently audited in accordance with the rigorous national auditing requirements (pages 32, 97) and reported in the *National Performance Report 2014-15* (www.bom.gov.au).

In addition, all 30 NWI financial performance indicators for all the NSW LWUs have been independently audited annually since 2006-07. Furthermore DPI Water undertakes comprehensive data validation (page 96) to assure the ongoing data reliability of the NSW Performance Monitoring System (page 1).

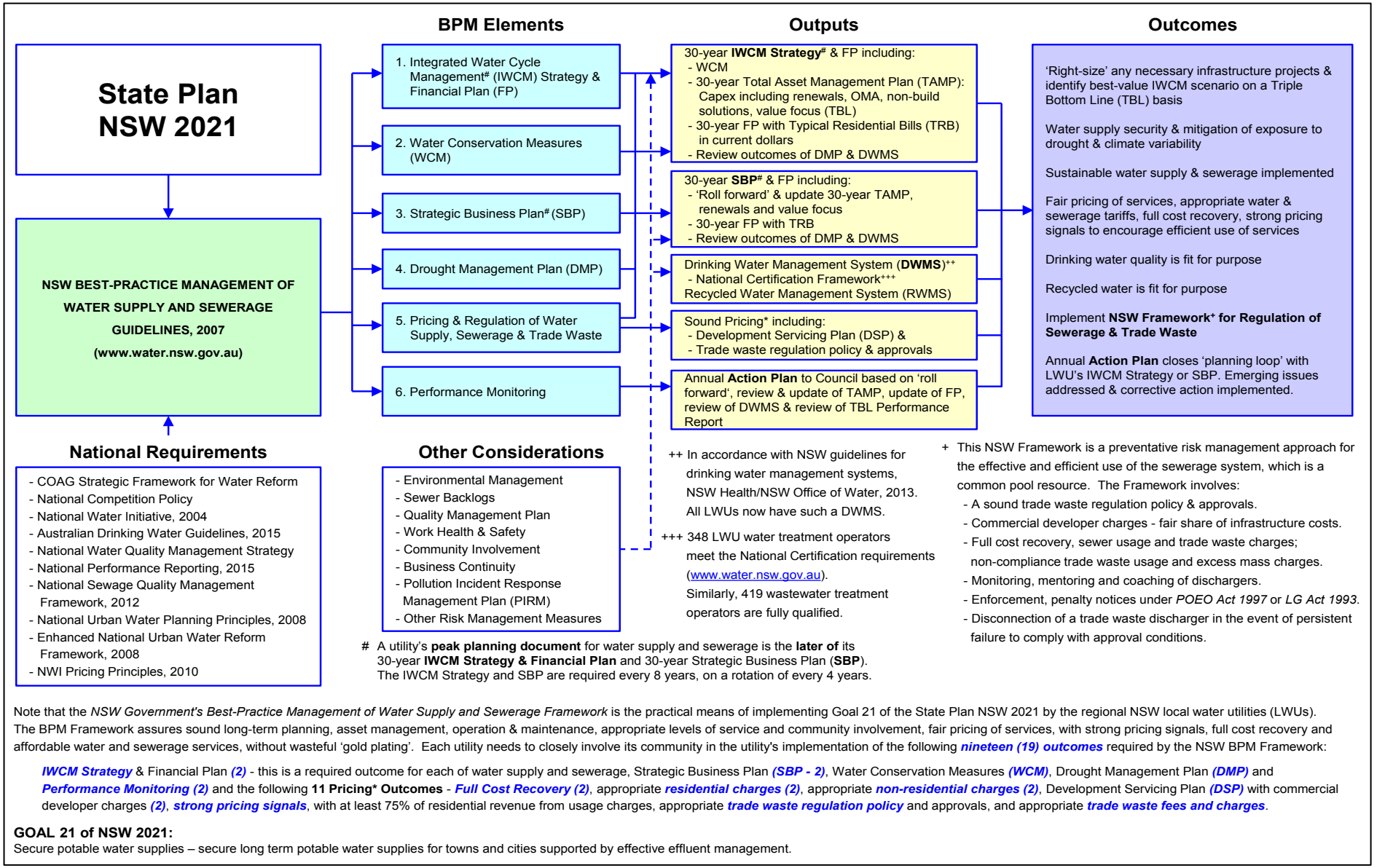


Chart 5 - NSW Best-Practice Management (BPM) of Water Supply and Sewerage Framework

1 NSW PERFORMANCE MONITORING SYSTEM

Performance monitoring and benchmarking are required under the National Competition Policy and the National Water Initiative, are important for public accountability, and have been strongly endorsed by both the NSW Independent Pricing and Regulatory Tribunal and the Productivity Commission. Performance monitoring is also a key outcome required by the *NSW Best-Practice Management of Water Supply and Sewerage Guidelines*[1], which drive the *NSW Best-Practice Management Framework* (page xii).

This Performance Monitoring Report presents the key NSW performance indicators (Figures 1 to 36 and Appendix D), discloses the statewide performance of the regional NSW local water utilities (page 2) and compares that performance with interstate utilities (page 17 and Appendix A). The characteristics of the Australian urban water sector are discussed in Appendix I. The full suite of performance indicators is provided in the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*, which contains benchmarking data to enable each local water utility (LWU) to monitor trends in its performance indicators over the past six years and to benchmark its performance against that of similar LWUs. The benchmarking report is available on the DPI Water website (www.water.nsw.gov.au). Independent auditing and data validation assure data reliability (page 95).

To facilitate comparisons, performance indicators have been prepared for each LWU's aggregated water businesses and aggregated sewerage businesses, rather than for individual water and sewerage systems.

1.1 Triple bottom line focus

To provide a balanced view of the long-term sustainability of the NSW utilities, this report uses a triple bottom line (TBL) accounting focus. This involves consideration of the later of a utility's 30-year Integrated Water Cycle Management (IWCM) strategy and financial plan and its 30-year strategic business plan and financial plan, together with its social and environmental management practices.

1.2 Statewide performance

The statewide performance of the NSW LWUs is outlined in section two, where the performance indicators are calculated on a 'percentage of connected properties basis', which gives weight to larger LWUs and reduces the effect of smaller LWUs (page 30).

1.3 Utility performance comparison

When comparing reported performance, utilities should consider the range of factors that can impact on their performance and typical residential bill, which is the principal indicator of the overall cost of a water or sewerage system. Such factors can produce a fundamental difference in performance.

For example, in the case of water supply, a utility that provides full water treatment and has its own bulk storage dam and raw water transfer mains and channels will have a much higher capital and operating cost structure than a utility that has a nearby good quality groundwater supply. Each utility can improve its productivity and performance by comparing its performance with utilities with similar characteristics. For more information on factors that impact on a utility's performance, refer to section 5.3 on page 28.

1.4 TBL reports and action plans

DPI Water provides each LWU with an annual TBL Performance Report and a template for its Action Plan to Council for both its water supply and sewerage businesses. The TBL report discloses the LWU's implementation of the BPM framework outcomes and its performance for over 50 key performance indicators, together with the statewide and national medians and the LWU's relative performance against similar sized LWUs.
TBL reports and action plans are discussed on page 25. An example TBL report (page 80) and action plan are provided in Appendix B.

[1] *Best-Practice Management of Water Supply and Sewerage Guidelines, NSW Government 2007* (www.water.nsw.gov.au).

2 STATEWIDE PERFORMANCE SUMMARY

The statewide performance of the regional NSW local water utilities (LWUs) for the key performance indicators is provided below. The full suite of performance indicators over the past six years is shown in the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*, which is available on the DPI Water website (www.water.nsw.gov.au).

To provide a balanced view of the long-term sustainability of NSW water utilities, this report provides a triple bottom line (TBL) focus with performance reported on the basis of social, environmental and economic indicators.

Performance monitoring and benchmarking are required under National Competition Policy and the National Water Initiative[2], are important for public accountability, and have been strongly endorsed by the Independent Pricing and Regulatory Tribunal[3] and the Productivity Commission[4].

2.1 Utility characteristics

Rainfall

2014-15 was a moderate year, with around 20 per cent of the state – mostly inland NSW - receiving a below average annual rainfall, with most coastal areas and north-west NSW experiencing above average rainfall. The statewide median rainfall was 116% of the long-term median. Fifty-eight per cent of water supply utilities received less than their long-term median annual rainfall. Brewarrina (70%), Hay (55%), Parkes (63%), Wakool (71%) and Walgett (63%) received the lowest percentage of their median annual rainfall. Coffs Harbour (145%), Hawkesbury (168%), Shoalhaven (151%), Snowy River (144%) and Wyong (163%) received the highest percentage of their median annual rainfall.

Charts 6 and 7[5] show the rainfall decile ranges for NSW and the total annual rainfall (mm) for NSW, indicating the moderate rainfall received statewide in 2014-15.

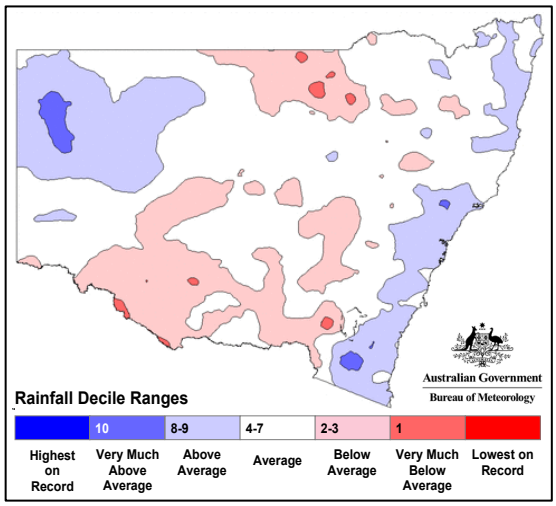


Chart 6 - NSW rainfall deciles - 1 July 2014 to 30 June 2015

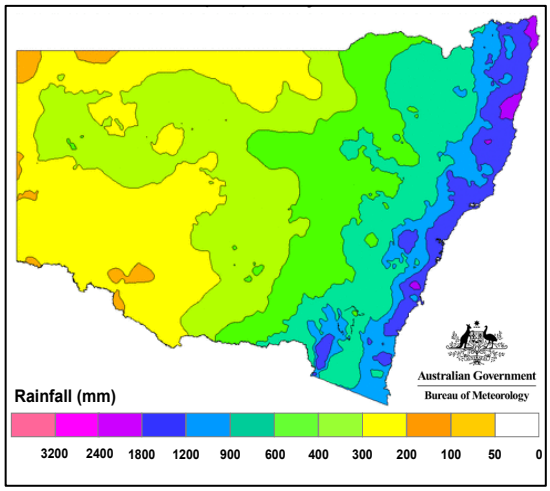


Chart 7 - NSW rainfall totals (mm) - 1 July 2014 to 30 June 2015

New residential dwellings

Median as a per cent of the existing residential properties was:

- 1.1% connected to water supply;
- 1.0% connected to sewerage.

Renewals expenditure

Median as a per cent of current replacement cost of system assets was:

- 0.4% for water supply;
- 0.5% for sewerage.

While this expenditure may appear low, it is considered appropriate as discussed in the box on page 3 and Item 9 on page 78.

[2] *National Performance Framework – 2013-14 Urban Performance Report Indicators and Definitions*, National Water Commission/Water Services Association of Australia, June 2014 (www.nwc.gov.au).

[3] *Pricing Principles for Local Water Authorities*, Independent Pricing and Regulatory Tribunal, NSW, 1996.

[4] *Australia's Urban Water Sector, Productivity Commission Inquiry Report No. 55*, August 2011 (www.pc.gov.au).

[5] Source: Australian Bureau of Meteorology, 2014 (www.bom.gov.au).

Infrastructure renewals

Assessment of infrastructure renewals requirements is a critical element of a utility's total asset management plan (TAMP), which must be documented in the utility's 30-year integrated water cycle management (IWCM) strategy and financial plan as well as its strategic business plan and financial plan (page 21). Details of each LWU's infrastructure asset condition, asset rehabilitation activities, renewals expenditure, financial performance, system performance, typical residential bill, strategic planning and best-practice management (BPM) implementation are provided in Tables 5C and 5D of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*.

For water supply and sewerage, it is misleading to measure annual renewals expenditure on the basis of a nominal percentage (say one or two per cent) of the current replacement cost of assets. Rather, the bulk of renewals expenditure will be required towards the end of the economic life of an asset (eg a new water main with an economic life of 80 years would be expected to have minimal renewal expenditure before year 80). Therefore, LWUs should ensure that their financial plan addresses all future capital expenditure, including renewals, identified in a soundly based 30-year total asset management plan (TAMP) – capital works plan, operation plan, including non-build solutions and maintenance plan. They should ensure their typical residential bill is in accordance with the projection in the later of their IWCM strategy and strategic business plan (page 104). They should also annually monitor income and expenditure and 'roll forward', review and update their TAMP and their 30-year financial plan (page 26). Funding in the financial plan involves an appropriate mix of the utility's annual income, accumulated cash and investments and borrowings.

Further guidance on developing a cost-effective and robust **30-year renewals plan** is available in Item 7F of the July 2014 Strategic Business Planning Check List (www.water.nsw.gov.au) and the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*. DPI Water can provide feedback and guidance for LWUs proposing significant renewals capital expenditure (Dilip.Dutta@dpi.nsw.gov.au or 9842 8499). Water main breaks for LWUs have remained much lower than all other states and capital city utilities, indicating **good** water main **asset condition** (pages 18, 9).

Properties served

Median per km of main was:

- 31 for water supply;
- 38 for sewerage.

Provision of reticulated sewerage

The 2014-15 population provided with a piped sewerage service was 1.74 million (96.3% coverage – blue line). For water supply, the population served was 1.83 million (98.0% coverage).

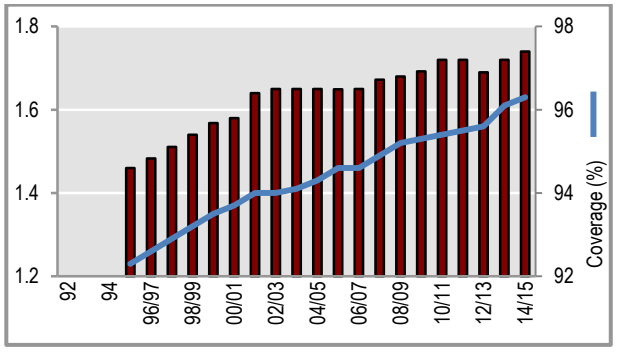
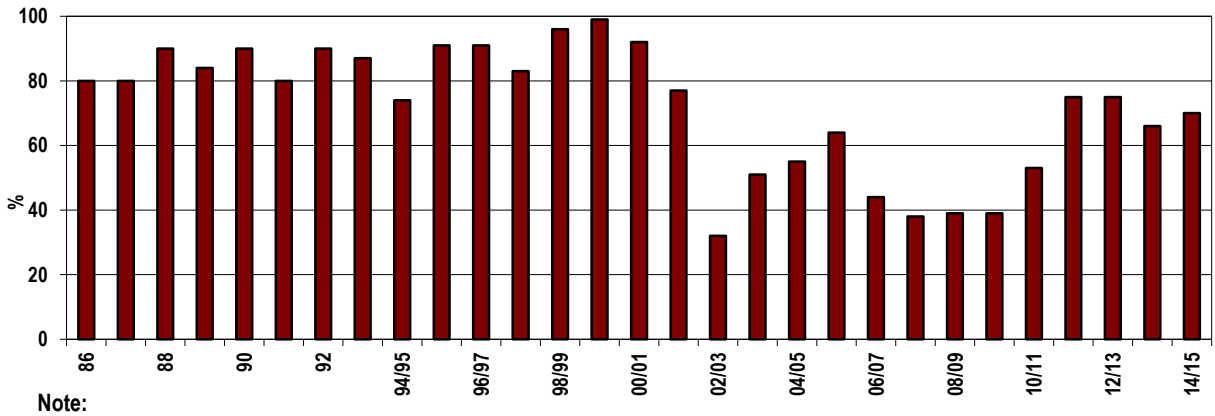


Chart 8 - Population with reticulated sewerage (millions)

Water restrictions

During at least part of 2014-15, 30% of LWUs applied drought water restrictions (see the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*). Ninety-seven per cent of LWUs have implemented a sound drought management plan (page 82).



Note:
The 29 years of results for the regional NSW local water utilities shown above indicate that:

1. For the 15 years from 1986 to 2000/01, on average, the NSW utilities did not apply any drought water restrictions for 87% of the years, which include the severe 1993 to 1994 drought. This is consistent with the implied target of no drought water restrictions in 90% of years in the NSW Security of Supply basis (commonly referred to as the "5/10/10 rule").
2. For the 29 years from 1986 to 2014/15, on average, NSW utilities did not apply any drought water restrictions for 72% of years. However, this period includes both the above 1993 to 1994 drought and the very severe Millenium Drought of 2001 to 2010.

Chart 9 - Per cent of utilities with no drought water restrictions

Business plans

A LWU's **peak planning document** for water supply and sewerage is the **later of** its 30-year **IWCM strategy and financial plan** (page 21) and 30-year **strategic business plan and financial plan** (www.water.nsw.gov.au).

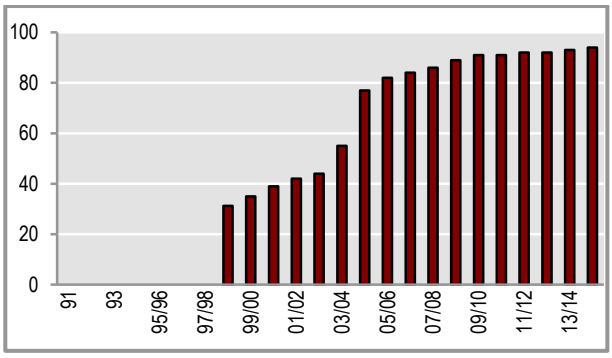


Chart 10 - Per cent of LWUs with 30-year strategic business plan

DPI Water reviews LWU strategic business plans to ensure they are soundly based (page 22). The percentage of utilities with a sound 30-year strategic business plan and financial plan has increased from 31% to 94% over the past 17 years. This now includes all LWUs serving over 3,000 properties. These utilities comply with National Competition Policy and cover over 99% of the connected properties in regional NSW. As the plans for 51 of these LWUs are now over four years old, they now need to prepare a new 30-year IWCM strategy, financial plan and report in accordance with the July 2014 IWCM check list (www.water.nsw.gov.au). Similarly, the 17 LWUs with an IWCM strategy over six years old need to prepare a new IWCM strategy, financial plan and report (page 82).

2.2 Social – charges/bills

Tariffs

All of the LWUs had both pay-for-use water pricing and full cost recovery for water supply. Ninety-eight per cent of LWUs had sound pricing with full cost recovery for sewerage (page 85) as required under the National Water Initiative. Since July 2012, all NSW utilities have had a metered potable water supply and pay-for-use water pricing.

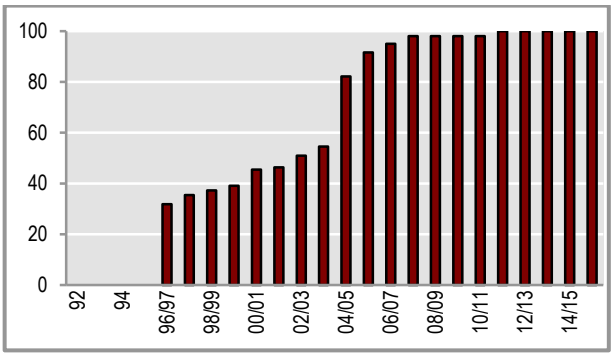


Chart 11 - Per cent of LWUs with pay-for-use tariff

Pay-for-use water supply tariff – since July 2012, 100 per cent of LWUs had a two-part tariff (ie an access charge and a usage charge for all potable water usage) or an inclining block tariff. These tariffs comply with National Competition Policy and the National Water Initiative.

Annual water allowance – since July 2007, all NSW utilities abolished the annual water allowances for their potable water supply.

Case study - The strategic benefits of the strong NSW pricing signals

1. The statewide median **residential water usage charge** has increased from effectively nil (ie a 'free water allowance') to 226 cents per kilolitre over the past 20 years (Chart 12). Although 68% of the NSW local water utilities had a 'free water allowance' in 1996-97, these were abolished by July 2007.

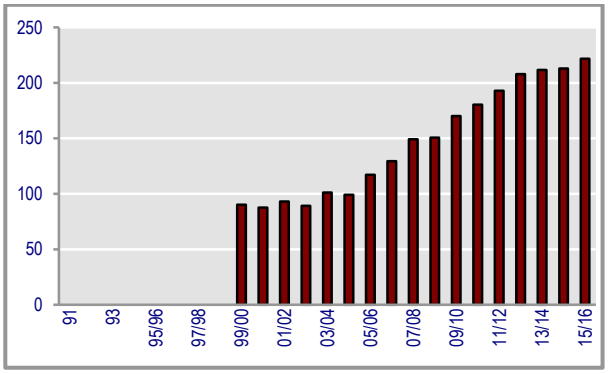


Chart 12 - Residential water usage charge (c/kL Jan 2016$)

2. The NSW LWUs have reformed their pricing through **strong pricing signals**, with **residential revenue from usage charges** increasing from 20% to **72%** over the past 20 years (Chart 13). These pricing signals are higher than country Victoria, the national median and the other Australian states and capital city utilities except for Sydney and Canberra (page 17).

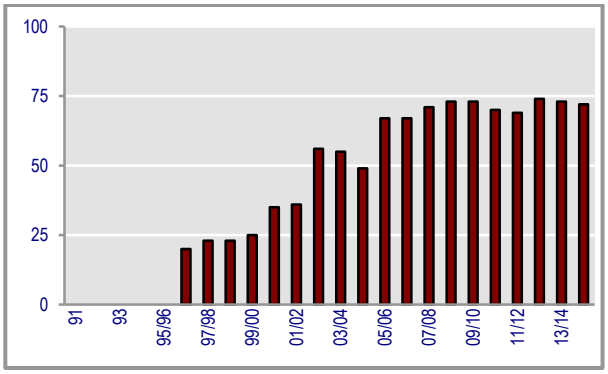


Chart 13 - Per cent of residential revenue from water usage charges

3. Increased water usage charges have sent strong pricing signals, which have assisted the NSW utilities to achieve a **50% reduction** in **residential water supplied** per property since 1991 (Chart 14). This equates to a saving of over 95 billion litres per year and **over $1 billion in capital expenditure savings** over the past decade for augmenting headworks and treatment capacity.

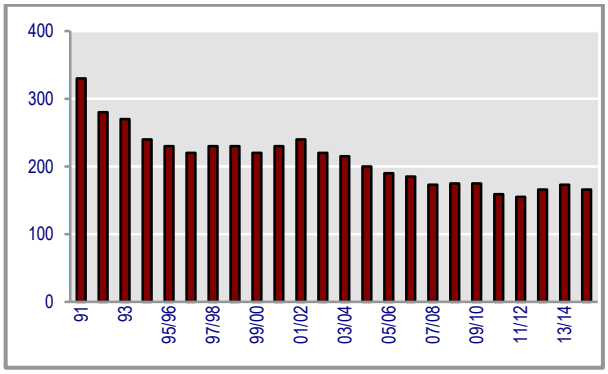


Chart 14 - Average annual residential water supplied (kL/connected property)

4. The strong pricing signals and efficient water use have enabled the NSW utilities to **limit the real increase in the water supply typical residential bill (TRB) to 18%** over the past 20 years (Chart 15). The water supply TRB is now lower than the national median and all other Australian states and capital city utilities except for Sydney, Melbourne and country Victoria (page 17).

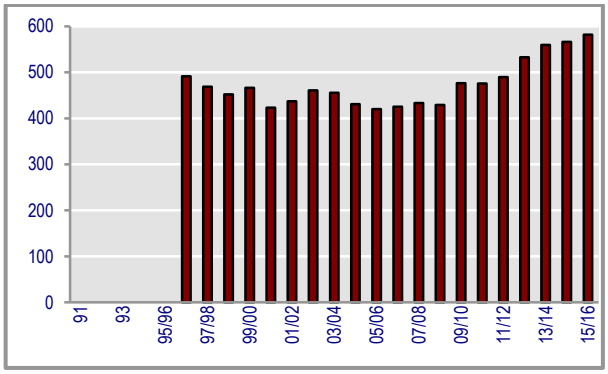


Chart 15 - Typical residential bill - water ($/property Jan 2016$)

Water usage charge

The statewide median residential revenue from water usage charges is 72%, which enables residents to influence the bulk of their water supply bill. Fifty-eight per cent of LWUs obtained at least 65% of their residential revenue from usage charges.

As noted above, the median water usage charge for the first step is 226 c/kL, which is relatively high. Together with the residential revenue from usage charges, this provides a strong pricing signal to encourage efficient water use. The real increase in the water supply typical residential bill (TRB) over the past 20 years has been limited to 18%, while the real TRB for water supply and sewerage has increased by 20% over this period.

LWUs are reminded that Circular LWU 11 of March 2011 has removed the need for the use of inclining block tariffs. **The NSW Government encourages LWUs to use a two-part tariff with a uniform water usage charge[6] per kL for all water use**. IPART has implemented such tariffs for Sydney, Hunter, Gosford, Wyong and Essential Energy.

Residential water billing in accordance with national guidelines

47% of LWUs now have residential water billing in accordance with the *National Guidelines for Residential Customers' Water Accounts, 2006*. A further 18% have made significant progress towards such billing.

Sewer usage charge

80% of water utilities had a non-residential sewer usage charge per kL to provide a strong pricing signal to commercial and industrial dischargers (page 38). The median sewer usage charge was 150 c/kL.

Access charge

Median residential access charge per assessment was:

- $174 for water supply
- $697 for sewerage.

Developer charges

Median typical developer charge was:

- $5,900 per equivalent tenement (ET) for water supply
- $5,100 per ET for sewerage.

The median current replacement cost of system assets for water supply and sewerage was $16,400 and $16,500 per assessment respectively. The typical developer charge for water and sewerage was $11,000, which is 33% of the current replacement cost of system assets per assessment.

Eighty-one per cent of LWUs have appropriate liquid trade waste fees and charges, compared with only 20% ten years ago. The non-residential water supply and sewerage charges and the trade waste fees and charges levied by each LWU are shown in the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*.

All LWUs should levy appropriate non-residential sewerage access and sewer usage charges, together with trade waste charges for **all** commercial and industrial dischargers to the sewerage system (page 101). Each utility's TBL Performance Report compares the percentage of sewage discharged or the percentage of water supplied for non-residential customers with the percentage of the revenue from access and usage charges paid by such customers. Where a significant cross-subsidy is identified, the utility should move to phase it out. For example, note 7 on page 80 shows that 25% of the water supplied was non-residential, and that these customers paid 24% of the revenue, indicating fair pricing of services across the residential and non-residential sectors.

Typical residential bill

Median 2015-16 typical residential bill per assessment was:

- $593 for water supply
- $697 for sewerage, ie a total of $1,290 for water and sewerage.

The typical residential bill (TRB) is the principal indicator of the overall cost for a water or sewerage system. It is the bill paid by a residential customer using the LWU's average annual residential water supplied (page 30).

As noted on page 5, the real increase in the statewide water supply TRB has been limited to 18% over the past 20 years and is now lower than the national median and all other Australian states and capital city utilities except for Sydney, Melbourne and country Victoria. The TRB for water and sewerage was $1,290 and has increased by 20% over this period.

[6] Refer to page 15 of the NSW Government's submission of May 2011 on the Productivity Commission's Draft Report 'Australia's Urban Water Sector, April 2011' (available at www.pc.gov.au and http://www.water.nsw.gov.au/Urban-Water/default.aspx#draft). Such a tariff is also recommended by the Productivity Commission's Report No. 55 on Australia's Urban Water Sector.

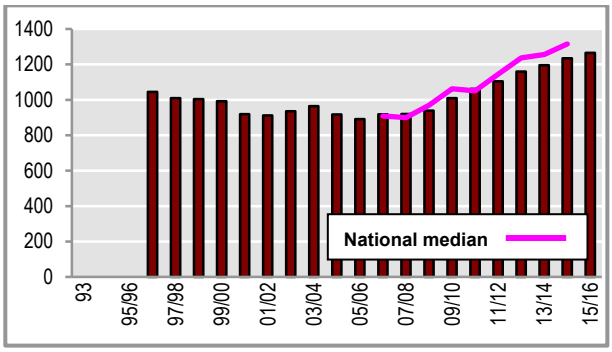


Chart 16 - Typical Residential Bill - water supply and sewerage - P8 ($/assessment Jan 2016$)

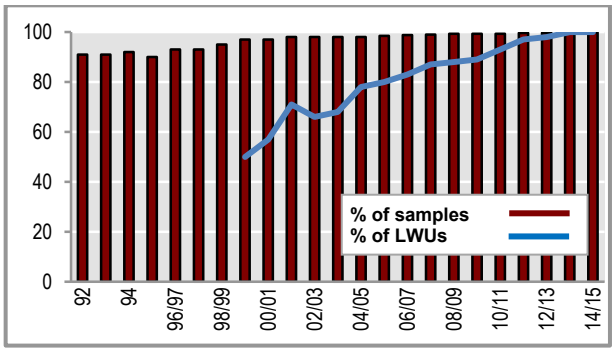


Chart 17 - Microbiological compliance (E. coli) with ADWG

2.3 Social – health

Population served

The NSW Government's Country Towns Water Supply and Sewerage (CTWSS) program (www.water.nsw.gov.au) has assisted the regional NSW local water utilities to achieve the present high levels of water supply and sewerage coverage[7] and the resulting public health and environmental protection for the urban population in regional NSW:

- water supply 98.0% coverage (1.83 million population served)
- sewerage 96.3% coverage (1.74 million population served).

Microbiological compliance for E. coli (health related)

Of the 19,400 samples tested for E. coli in 2014-15, 99.9% complied with 2011 NHMRC/ NRMMC Australian drinking water guidelines (ADWG), which was similar to other Australian utilities. All LWUs complied with microbiological quality, which is the primary health related indicator. Chart 17 shows that the percentage of LWUs complying with ADWG has increased from 50% to 100% (blue line) over the past 16 years. The 1996, 2004 and 2011 ADWG are more stringent than earlier guidelines. For example, while 89% of LWUs complied with the 1987 guidelines in 1998-99, only 50% of LWUs were able to comply with the 1996 guidelines one year later.

The basis for assessing drinking water quality compliance is set out in section G4.6 on page 99.

Chemical compliance (health related)

Of the 4,800 samples tested, 99.9% complied with the guidelines for chemical water. All of the LWUs complied with chemical quality guidelines.

Physical compliance

Of the 4,600 samples tested, 98.3% complied with the guidelines for physical water quality (aesthetic). All of the LWUs complied with the guidelines for physical water quality

From 2012 to 2015, the public drinking water supply for 99.9% of the urban population in regional NSW complied with the guidelines for microbiological and chemical water quality.

Over the past 14 years microbiological compliance has ranged from 97% to 99.9%, and chemical compliance has ranged from 95% to 99.9%.

For LWUs with a number of separate water treatment works or sewage treatment works, the 2014-15 compliance with drinking water quality guidelines and EPA licence conditions have been pro-rated based on the number of samples tested for each treatment works. The full 2014-15 results for each of the

236 LWU water treatment works/chlorinators are disclosed in Appendix D1 of the Benchmarking Report available on the DPI Water website. Appendix D2 of the Benchmarking Report discloses the full 2014-15 results for each of the 299 LWU sewage treatment works.

All 95 LWUs providing a drinking water supply have a risk-based drinking water *management system (DWMS),* in accordance with the *NSW guidelines for drinking water management systems 2013*.

A summary of sampling requirements under 2011 ADWG is provided in the *Benchmarking Report* (Appendix B). Each LWU should adhere to the sampling frequencies specified in part 3 of ADWG and to NSW Health's advice on the required sampling frequency for each of the utility's water sources.

[7] The systematic provision of backlog sewerage services for unsewered small towns under the NSW Government's CTWSS program has increased the sewerage coverage to 96.3% of the urban population, compared with 92.3% in 1996 (page 3).

In addition, in order to assure the continuing safety of drinking water supplies, Circular LWU 18 of June 2014 requires each LWU to carry out a detailed examination of each service reservoir and its roof to ensure it is secured from entry by birds, wasps, vermin, animals and windborne contaminants. Any deficiencies in the roof or mesh design will need to be rectified and a summary report provided to DPI Water.

Australian drinking water guidelines (ADWG) 2011

All NSW water supply utilities have now prepared a risk-based drinking water management system (DWMS) in accordance with *NSW guidelines for drinking water management systems*, NSW Health and Office of Water, 2013. Annual review of your DWMS is required (page 26).

A **high priority** for each local water utility is to provide a public drinking water supply that:

1. Complies with ADWG for microbiological quality (health related).
2. Complies with ADWG for chemical quality (health related).
3. Maintains the microbiological[8] and chemical drinking water quality through providing appropriate water supply and treatment infrastructure and carrying out the necessary operation and maintenance activities. These include adjusting treatment processes in response to changes in raw water characteristics and regular inspections of service reservoirs[9] in order to detect and repair any defects in the reservoir roof, wall or vermin proofing which may allow contamination of the stored water by birds, wasps, vermin, animals and windborne contaminants.
4. Maintains effective disinfection and the integrity of the utility's water supply distribution systems in accordance with Circular LWU 18 of June 2014.

Guidance on items 3 and 4 is available in the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*.

If a LWU has failed to achieve microbiological compliance in the last two financial years or has had any 'boil water alerts' in the last 18 months, corrective actions and outcomes must be reported in your annual action plan to council (page 26).

For help with this contact urbanwater.ctw@dpi.nsw.gov.au or (02) 9842 8495 or your regional water and sewerage treatment officer.

[8] While a boil water alert will be necessary to protect the community, for example if a LWU's raw water sources become highly turbid due to major flooding, over 80 per cent of recent boil water alerts in regional NSW were found to be avoidable through appropriate maintenance and chlorine residuals (page 10 of *2014-15 NSW Benchmarking Report*). LWUs need to follow the NSW Health response protocol if E. coli bacteria is found, or if there is failure of the disinfection system, or disinfection is otherwise ineffective eg due to poor treated water quality (http://www.health.nsw.gov.au/environment/water/Pages/nswhrp-microbiological.aspx).

[9] A copy of Circular LWU 18 – Assuring the Security of Urban Water Supplies is available in Appendix E of the *2014-15 NSW Benchmarking Report* (www.water.nsw.gov.au). Key results of the LWU service reservoir inspection reports are shown on page 13 of the *Benchmarking Report*.

2.4 Social – levels of service

Sewage odour complaints

The statewide median was 0.8 per 1000 properties. Odour complaints, which are a key sewerage system performance indicator, have remained low over the past 21 years.

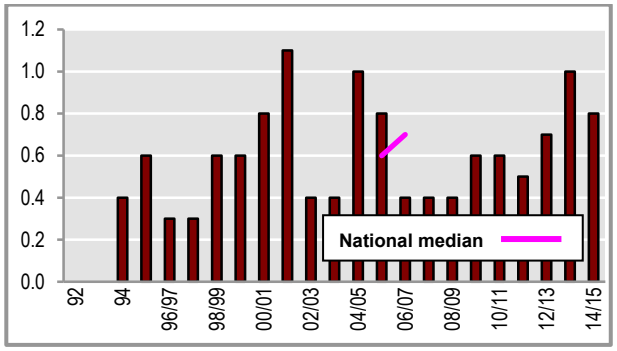


Chart 18 - Sewage odour complaints (per 1000 properties)

Sewerage service complaints

The statewide median was 6 per 1000 properties. Service complaints have fallen from 20 to 6 over the past 20 years.

Water service complaints

The statewide median was 6 per 1000 properties.

Water quality complaints

The statewide median was 3 per 1000 properties, similar to other Australian utilities.

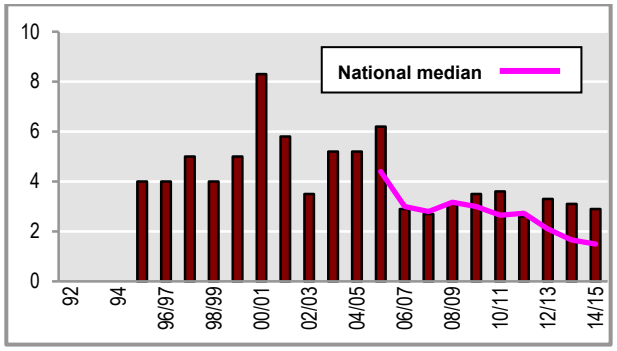


Chart 19 - Water quality complaints - C9 (per 1000 properties)

Water quality complaints have fallen from a maximum of eight to three over the past 20 years, while service complaints have decreased from seven to six. As indicated above, drinking water quality has improved over this period due to the commissioning of new water treatment facilities and improved operation and maintenance by LWUs.

Total complaints for water and sewerage

The statewide median was 19 per 1000 properties, down from a maximum of 49 over the past 10 years.

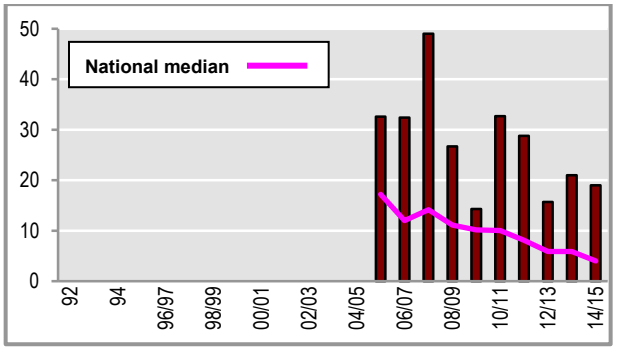


Chart 20 - Total water and sewerage complaints - C13 (per 1000 properties)

Water main breaks

The statewide median was 9 per 100km of main, which has remained much lower than all other Australian states and capital city utilities, indicating good water main asset condition.

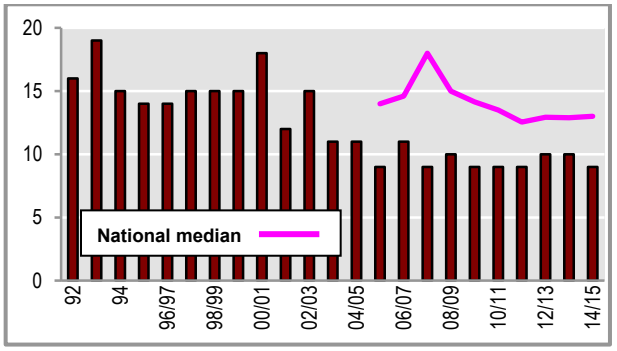


Chart 21 - Water main breaks - A8 (per 100km of water main)

2.5 Environmental – water usage and reuse

Average annual residential water supplied

The statewide median 'average annual residential water supplied' was 166 kL/connected property, which has fallen by 50% over the past 24 years.

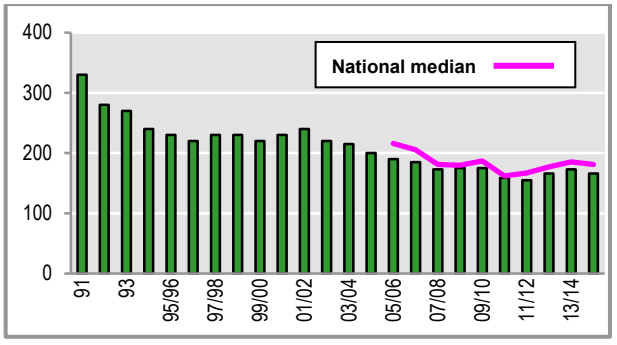


Chart 22 - Average annual residential water supplied - W12 (kL/connected property)

For inland water utilities the hotter and drier climate, together with the use of evaporative cooling, results in significantly higher residential water usage than coastal utilities. Water restrictions also affect this value. The weighted median 'average annual residential water supplied' for the inland utilities was 225 kL/connected property while the weighted median for coastal utilities was 150 kL/property.

Peak day water supplied

The statewide median was 1.2 kL/d/connected property. The statewide median for this indicator has fallen by 61% over the past 15 years. Each LWU should carefully review the data for this indicator in its TBL Performance Report or 20-year Planning Data Set (page 105) to ensure it 'right sizes' its water treatment works, service reservoirs and water supply distribution systems.

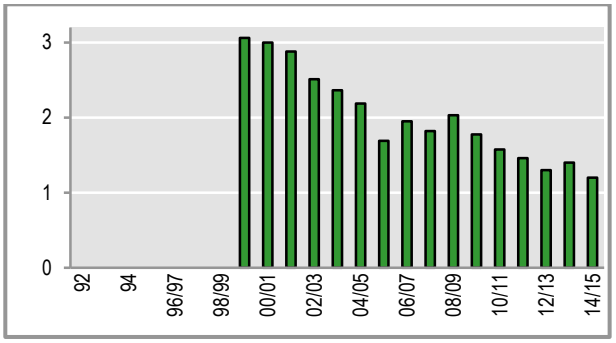


Chart 23 - Peak day water supplied (kL/d/connected property)

Water conservation

Ninety-seven per cent of LWUs have implemented sound water conservation measures, which is important for minimising wastage and reducing our environmental footprint. The water conservation measures implemented by each LWU are disclosed in Table 8C of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*.

Recycled water

Seventy per cent of LWUs carried out re-use of effluent, mostly for agriculture. The total volume of water recycled in the 2014-15 financial year was 39,000 ML. This was 22% of the total volume of sewage collected, compared with 14% in 1998-99. Twenty per cent of LWUs recycled over 50% of their effluent.

The highest volume recycled by one utility was 5,600 ML (Wagga Wagga) and a further five utilities (Albury, Bathurst, Dubbo, Orange and Tamworth) each recycled over 2,000 ML. The demand for recycled water in 2014-15 remained stable as a result of the moderate rainfall conditions (116% of the long-term median).

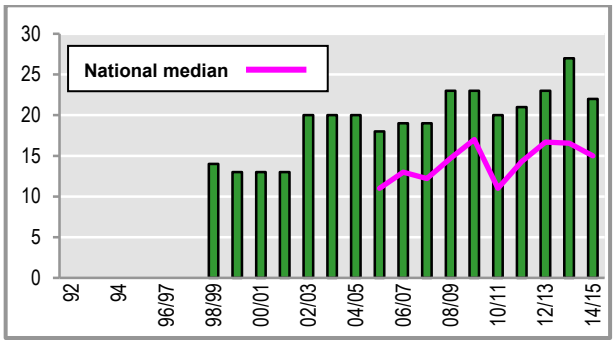


Chart 24 - Recycled water - W27 (% of effluent reused)

Real losses (leakage)

The statewide median real water loss was 60 L/connection/d, which is lower than the national median of 76 L/connection/d. As indicated in note 8 on page 31, 82 LWUs have recently carried out water loss management, including leakage testing, analysis and leakage reduction. The Regional NSW Water Loss Management Program has resulted in reductions in the average water losses for the 68 participating LWUs from 154 to 92 L/connection/d, or from 16% to 10% of the potable water supplied, a total saving of 5,500 ML/a.

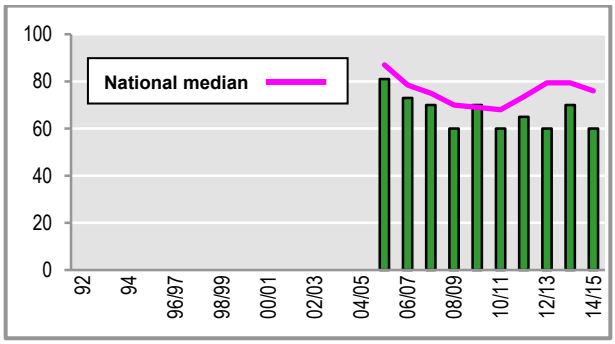


Chart 25 - Real losses (leakage) - A10 (L/connection/d)

Non-revenue water

The statewide median was 94 L/connection/d.

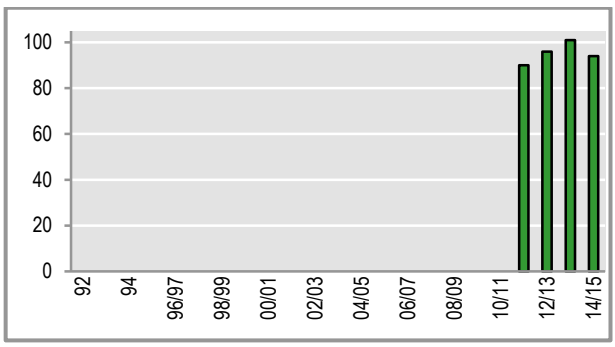


Chart 26 - Non-revenue water (NRW) - W10.1 (L/connection/d)

2.6 Environmental – effluent management

Sound sewerage and trade waste pricing and regulation are an essential pre-requisite to the effective and efficient management of a sewerage system. Refer to the NSW Framework for Regulation of Sewerage and Trade Waste on pages xii and 101.

Sewage effluent quality (BOD)

Ninety-six per cent of the 4,184 sampling days complied with the 90-percentile limits of the Environment Protection Authority (EPA) licences for Biochemical Oxygen Demand (BOD) and 89% of LWUs complied with the 90-percentile limit of their BOD licence (page 51). Over the past 21 years statewide compliance for BOD has ranged from 92% to 98%. The percentage of LWUs complying has increased from a low of 50% to 89% (blue line) over this period and licence limits for both BOD and Suspended Solids (SS) have become more stringent for many LWUs.

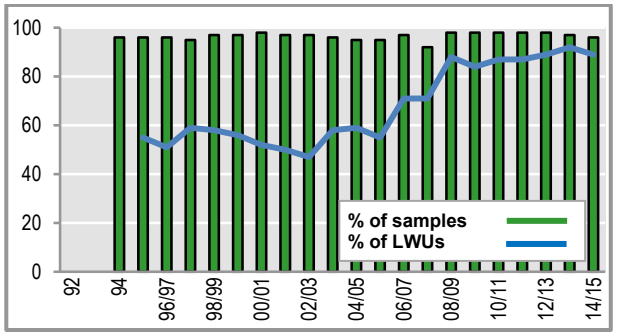


Chart 27 - Compliance with BOD in licence (%)

Sewage effluent quality (SS)

Ninety-two per cent of the 4,184 sampling days complied with the 90-percentile limits of the EPA licences for SS and 82% of utilities complied with 90-percentile limits of their SS licence (page 52). Over the past 21 years statewide compliance for SS has ranged from 86% to 96%. The percentage of LWUs complying has increased from a low of 30% to 82% (blue line) over this period. The major cause of non-compliance is the growth of algae in maturation ponds being measured as SS.

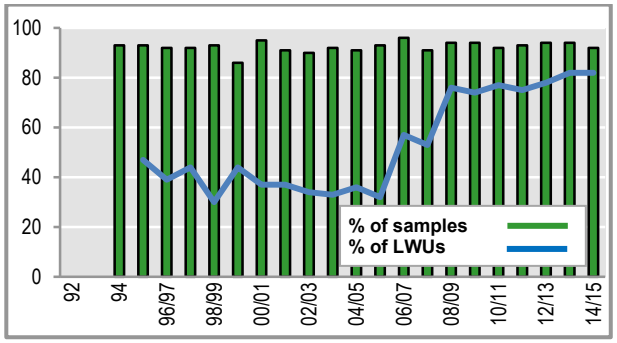


Chart 28 - Compliance with SS in licence (%)

Greenhouse gas emissions

Total greenhouse gas emissions was 410 tonnes per 1000 properties, which is similar to the national median (page 75).

Biosolids reuse

The statewide median LWU reuse of biosolids was 100% in 2014-15. This has increased from 43% in 1998-99 (page 74 and Table 15 of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*). As noted on page 10, 22% of the total sewage volume collected was recycled.

Sewage treated that was compliant

Median LWU sewage volume treated that was compliant was 100%, up from 90% nine years ago. Fifty-five LWUs fully complied with the regulator's requirements and 220 of the 299 LWU sewage treatment works were compliant at all times.

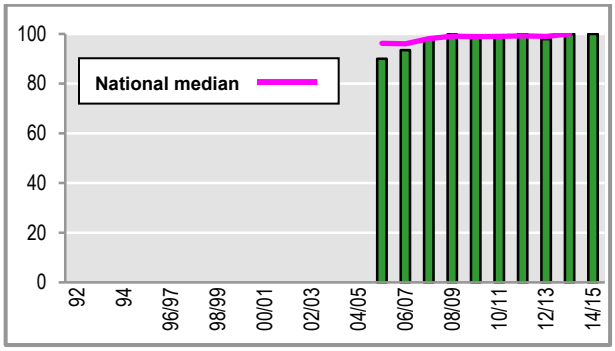


Chart 29 - Sewage treated that was compliant (% of volume)

Sewer main breaks and chokes

The statewide median was 35 per 100 km of main. This has fallen from 75 to 35 over the past 23 years, partly as a result of the revision of the national definition for this indicator in 2009-10. However, the NSW result is double the national median of 17 (page 75).

Sewer overflows reported to the environmental regulator

The statewide median was 0.9 per 100km of main, which is higher than the national median of 0.5. However, it is difficult to compare the results as they are dependent on the requirements of each state's regulator (page 75).

2.7 Economic – financial

Economic real rate of return

The statewide median was:

- 1.6% for water supply;
- 1.7% for sewerage.

The economic real rate of return (ERRR) for water supply and sewerage was 1.4%. This has declined

over the past 20 years and was the same as country Victoria but lower than the national median and other capital city utilities. The 2001-2010 millennium drought and the high rainfalls in 2010-11 and 2011-12 (pages 4 and 2) adversely impacted water supply and sewerage ERRRs.

Full cost recovery

Full cost recovery was achieved by:

- 100% of utilities for water supply;
- 98% of utilities for sewerage.

There are two sewerage utilities that are not achieving full cost recovery (page 60). The basis for achieving long-term financial sustainability of water supply and sewerage services in regional NSW is discussed in Appendix G of the *2010-11 NSW Performance Monitoring Report* (www.water.nsw.gov.au).

Achieving full cost recovery for water supply

Some NSW utilities have been using a long-term financial model requiring input of water supply access and usage charges and projected volumes of water supplied to determine the required future revenue. A number of these utilities have experienced significant revenue shortfalls in recent years as a result of reduced water sales due to more efficient water use by residents and above average rainfall and/or drought water restrictions.

Accordingly, it is recommended that utilities do not use models involving access and usage charges in order to avoid such revenue shortfalls as well as potentially misleading customers on the required future access and usage charges. Rather, utilities should use a 30-year total asset management plan (TAMP) and a model such as the NSW Financial Planning Model (FINMOD) – refer to pages 131 and 132 of the NSW Strategic Business Planning Guidelines (www.water.nsw.gov.au), which determines the required future typical residential bill and annual revenue in current dollars.

Your utility can then set each year's water supply tariff in accordance with Circular LWU 11 of March 2011 using an evidence based estimate of the residential water to be supplied in the next financial year, together with the access and usage charges required to yield the typical residential bill and annual revenue in accordance with your 30-year financial plan.

Such an approach is transparent as the financial modelling discloses the required typical residential bill (and annual revenue) in current dollars as required by Items 1 and 16 of the strategic business planning check list, July 2014 (www.water.nsw.gov.au).

In addition, annually setting your water supply tariff in accordance with Circular LWU 11 will minimise the risk of revenue shortfalls while maintaining typical residential bills in accordance with your LWU's financial plan. DPI Water can help you (urbanwater.ctw@dpi.nsw.gov.au or (02) 9842 8508).

Each LWU that meets all the outcomes of the *Best-Practice Management Framework*, including a current IWCM strategy and financial plan, is encouraged to **pay a dividend** from the surplus of its water and sewerage businesses to the council's general revenue. A LWU that pays such an 'efficiency dividend' will be moving towards **upper bound pricing**, which is required under the National Water Initiative, where practicable.

Refer also to:

- page 6, which notes that the NSW Government and the Productivity Commission encourage all LWUs to use a 2-part tariff with a uniform water usage charge per kL for all water use
- page 5, which highlights the strategic benefits of the strong NSW pricing signals, and the resulting efficient water use and affordable typical residential bills
- note 3 on page 79 and page 104, which indicate that comparing your typical residential bill (TRB) with the projection in the later of your IWCM strategy and financial plan and your strategic business plan is **mandatory in preparing your annual action plan to council**. If you are not achieving full cost recovery, you will need to review and increase your access and/or usage charges in order to do so.

Each LWU should continue to review its annual water, sewerage and trade waste tariffs, its developer charges, its operation, maintenance and administration costs, and its projected volume of water to be supplied to customers and the resulting revenue in order to ensure it achieves full cost recovery. This will ensure the utility meets this key outcome required by the *Best-Practice Management Guidelines* (http://www.water.nsw.gov.au/ArticleDocuments/36/town_planning_water_utilities_best-practice_management_of_water_supply_and_sewerage_guidelines_2007.pdf.aspx) and the National Water Initiative.

Further guidance on achieving full cost recovery and assessing infrastructure renewal needs is provided on pages 3 and 12. Refer also to Tables 5C and 5D of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report* (www.water.nsw.gov.au).

Revenue (less grants for capital works)

Total revenue was $1420M comprising:

- $757M for water supply;
- $663M for sewerage.

Net debt to equity

The statewide median net debt to equity was -1% for water supply and sewerage.

Refer also to the box on page 12 and to footnote 10 below.

Increased borrowing

Utilities facing significant capital investment are encouraged to make greater use of borrowings[10] to reduce their required typical residential bill (TRB). As most water and sewerage assets are long-lived (eg. water mains have an economic life of 80 years), **20-year loan terms are strongly recommended** to avoid placing an unfair financial burden on existing customers and to facilitate **inter-generational equity** (urbanwater.ctw@dpi.nsw.gov.au or (02) 9842 8508).

Refer also to section 12 of the *NSW Water and Sewerage Strategic Business Planning Guidelines, July 2011* (www.water.nsw.gov.au).

2.8 Economic – efficiency

Operating cost per property

The statewide median operating cost (OMA)* per connected property was:

- Water Supply - $400 per property
- Sewerage - $420 per property

* OMA – Operation, maintenance and administration

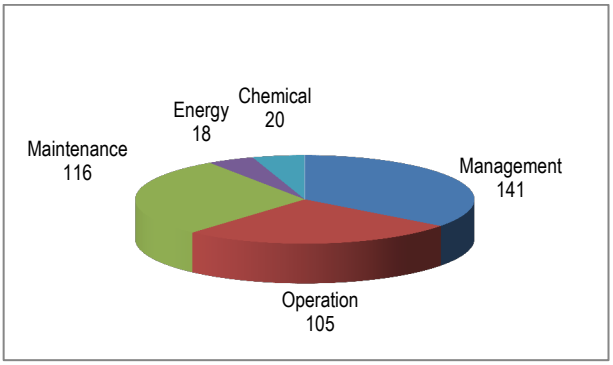


Chart 30 - Water components of operating cost (OMA) ($/property)

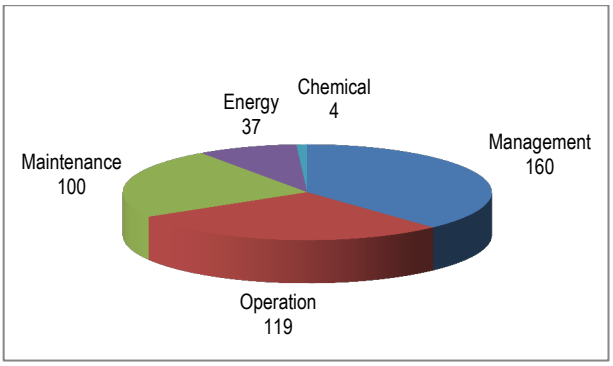


Chart 31 - Sewerage components of operating cost (OMA) ($/property)

[10] It is important to note that most NSW LWUs have relatively little borrowings at present. In 2014-15 the statewide median net debt to equity for LWU water and sewerage was -1% (range -37% to 22%). The 2014-15 net debt to equity for major Australian utilities include 98% for Sydney Water, 134% for ICON Water, 168% for Melbourne Water, 56% for Yarra Valley Water, 63% for Queensland Urban Utilities, 53% for Water Corporation (WA), 120% for SA Water and 81% for Hunter Water (*National Performance Report 2014-15 for Urban Water Utilities*). Refer also to page 76. Providing your utility has a soundly based 30-year IWCM strategy or strategic business plan, which includes a 30-year total asset management plan (TAMP) and 30-year financial plan (including sensitivity analysis – Item 17 of the 2014 strategic business planning check list (www.water.nsw.gov.au)), net debt to equity of up to 50% when financing a major capital works program for growth and/or improved levels of service, would be satisfactory for NSW LWUs. Refer also to footnote 34 on page 103.

The median operating cost for water supply of $400/property was lower than Brisbane, Melbourne, Adelaide, the national median and the country utilities in all other Australian states but higher than Sydney, Canberra and Perth. The median operating cost for sewerage of $420/property was higher than country Victoria, the national median and capital city utilities. Refer also to page 19.

Operating cost (OMA)

The statewide median operating cost was $820/property for water supply and sewerage. This has increased from $527 to $820 (Jan 2015$) over the past 23 years, largely due to more stringent standards for sewage treatment and to increasing management costs.

LWUs with higher operating costs than the above medians should carefully examine their operations to determine whether they can improve their cost-effectiveness (page 27).

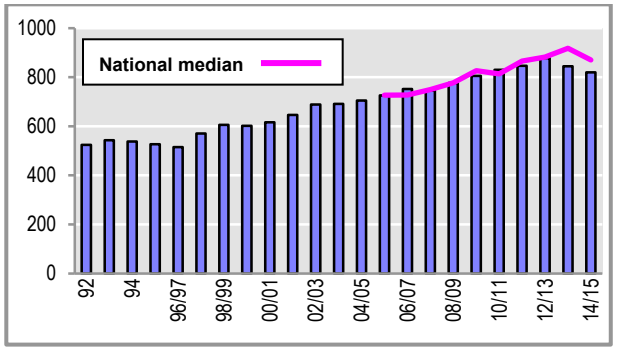


Chart 32 - Operating cost (OMA) - water and sewerage - F13 ($/property Jan 2015$)

Water supply operating cost

The statewide median water supply operating cost was 129 c/kL (Jan 2015$). This has risen from 95 c/kL over the past 20 years largely due to the reduced volume of water supplied per property and higher management costs.

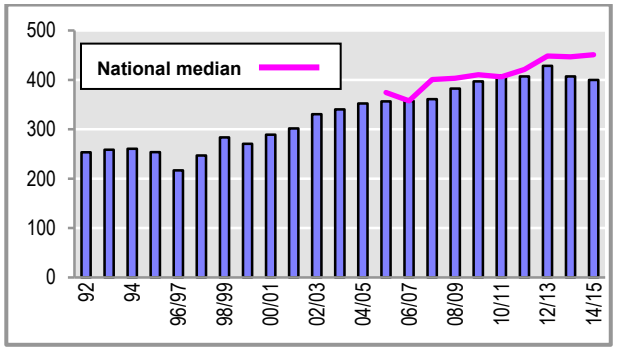


Chart 33 - Operating cost (OMA) - water supply - F11 ($/property Jan 2015$)

Sewerage operating cost

The statewide median sewerage operating cost was 193 c/kL (Jan 2015$). This has risen from 100 c/kL over the past 20 years due to more stringent standards for sewage treatment, reduced sewage volumes and increasing management costs (page 92 and Figure 62 of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*).

Management cost

The statewide median management cost was $301/property for water supply and sewerage. The management cost per property has increased from $170 to $301 (Jan 2015$) over the past 23 years. The median management cost per property for water supply was $141. The median management cost for sewerage was $160.

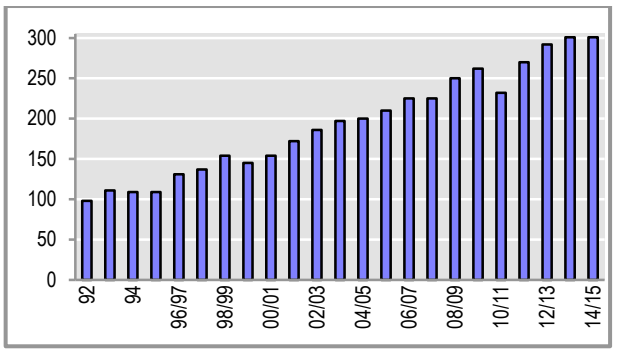


Chart 34 - Management cost - water and sewerage ($/property Jan 2015$)

Treatment cost

The statewide median treatment cost per property was:

- $58 for water treatment*
- $145 for sewage treatment (including chemical and energy costs).

* Only the 61 utilities with water treatment works involving at least filtration and disinfection for over 50% of their supply have been considered.

Pumping cost

The statewide median pumping cost per connected property (including energy) was:

- $31 for water supply
- $72 for sewerage.

Water main and sewer main cost

The statewide median water and sewer main cost per connected property was:

- $74 for water mains
- $51 for sewer mains.

Number of employees

The statewide median number of employees was 3.0 per 1000 properties for water supply and sewerage, which was lower than the last reported values for country Victoria, Sydney and Hunter. This indicator has fallen from a maximum of 3.3 over the past 23 years. Each LWU's results are shown on page 65 and Figures 8 and 39 of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*. Refer also to items 7 and 8 on page 28.

Water supply employees per 1000 properties have fallen by over 15% from a maximum of 1.7 to 1.4. Sewerage employees per 1000 properties have fallen by over 10% from a maximum of 1.8 to 1.6.

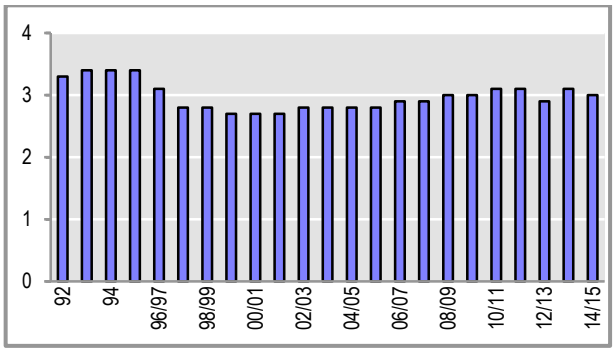


Chart 35 - Employees - water and sewerage (per 1000 properties)

Software, guidelines and training

DPI Water provides comprehensive software, guidelines and check lists (pages 22 and 23) to assist LWUs in developing appropriate water supply and sewerage strategic business plans (page 22), financial plans (page 22), community involvement[11], pricing (pages 22 and 101), including water supply tariffs (page 22), sewerage tariffs (page 22), liquid trade waste fees and charges (page 102), developer charges (page 102), total asset management plans (TAMP - capital works plan, operation plan including non-build solutions and a maintenance plan (pages 21 and 108)), asset valuation[12], integrated water cycle management (IWCM) strategies (page 21), water conservation and demand management (page 22), drought management (page 22), assessing future urban water security (page 24), greenhouse gas calculation (page 56) and trade waste regulation policies (page 102).

The NSW Government also provides **nationally certificated training** (page 16) for water utility operators in water treatment, wastewater treatment, fluoridation, dam safety inspection and trade waste regulation (www.water.nsw.gov.au; urbanwater.ctw@dpi.nsw.gov.au or (02) 9842 8508). Training courses on assuring the safety of water supply distribution systems, water treatment operation for engineers and risk management for water recycling projects are also provided.

In addition, the NSW Government provides update seminars in water treatment, wastewater treatment, trade waste regulation and best-practice management for updating employee training and skills, which is required at least every 3 years (www.water.nsw.gov.au).

[11] NSW Water and Sewerage Community Involvement Guidelines – consultation draft, October 2012, NSW Office of Water (available on request from urbanwater.ctw@dpi.nsw.gov.au).

[12] NSW Reference Rates Manual for Valuation of Water Supply, Sewerage and Stormwater Assets, 2015, NSW Office of Water (www.water.nsw.gov.au).

National certification framework for water treatment operators

Appendix I of the 2014-15 NSW Benchmarking Report discloses that **each** of the **91 NSW LWUs** responsible for providing water treatment[#] has at least one **fully qualified water treatment operator*** to operate the 163 LWU water treatment works and 73 chlorinators and aerators[+].

The LWUs have a total of **348** fully qualified **operators** who **meet** the requirements of the **national certification framework** for water treatment operators. Continuing professional development and updating of operator training and skills is required at least every 3 years.

In addition, 419 LWU operators are fully qualified wastewater treatment operators, with a Certificate III in Water Operations (Wastewater Treatment) or equivalent and are employed in operating a LWU sewage treatment works.

[#] Excludes the 9 LWUs responsible for sewerage only (page iii), reticulators Cootamundra, Harden, Queanbeyan and Young, and Cobar Water Board which provides a bulk raw water supply.

* An operator of a water treatment works must have a Certificate III in Water Operations (Water Treatment) or equivalent and must be employed in operating a LWU treatment works (refer to page 23 of *NSW Guidelines for drinking water management systems*, NSW Health and NSW Office of Water, 2013 (http://www.health.nsw.gov.au/environment/water/Documents/NSW-Guidelines%20for-Drinking-Water-Management-Systems.pdf)).

[+] An operator of a chlorinator or aerator must have a DPI Water Part 1 Certificate (Chemical Dosing Systems) or equivalent, must have also completed chlorine safety training and must be employed in operating a LWU chlorinator/aerator (refer to page 23 of *NSW Guidelines for drinking water management systems*).

3 INTERSTATE COMPARISONS

To provide an overall assessment of NSW Local Water Utilities (LWUs), the key performance indicators are compared below with those reported by interstate utilities[13] for the 2014-15 financial year. For detailed graphs on interstate performance comparisons over the past 23 years and an explanation of the utility abbreviations, refer to Appendix A[14] on page 69. For a discussion of the characteristics of the Australian urban water sector, refer to Appendix I on page 114.

It is noted that many performance indicators are significantly affected by the density of development (ie the number of properties served per km of water main or sewer main), which for country NSW, Victoria and Queensland utilities reporting in the *2014-15 National Performance Report*, is significantly lower than the capital city utilities (page 70). Also, the performance of smaller utilities such as the NSW LWUs and the other country utilities is adversely affected by a lack of economy of scale[15].

3.1 Social

Compliance with microbiological water quality guidelines for NSW LWUs was high (99.9% of the 19,400 samples tested) and similar to most other Australian utilities (pages 72, 42, 85). Also, **water quality complaints** of 3 per 1000 properties were low and similar to most other Australian utilities (pages 72, 43).

The NSW LWUs are continuing to provide strong pricing signals through their **residential revenue from usage charges** of 72% (NWI Indicator F4), which was higher than the national median (note 9 on page 70) and all other Australian states and capital city utilities except for Sydney and Canberra (pages 71, 5, 36, 85).

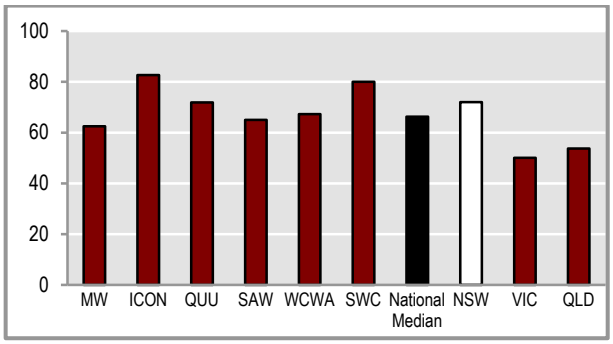


Chart 36 - Residential revenue from usage charges - water - F4 (2014-15) (%)

Typical residential bill (TRB) is the principal indicator of the overall cost of a water supply or sewerage system. It is the bill paid by a residential customer using the utility's average annual residential water supplied. The median **water supply TRB** for the NSW LWUs (NWI Indicator P3) is now lower than the national median and all the other Australian states and capital city utilities except for Sydney, Melbourne and country Victoria (pages 71, 5, 34, 85).

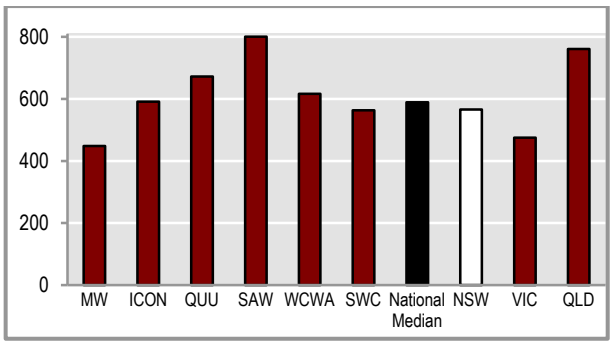


Chart 37 - Typical residential bill - water - P3 (2014-15) ($/assessment)

The median **sewerage TRB** for the NSW LWUs (NWI Indicator P6) was lower than Perth, similar to the national median and the 19 reporting country Queensland utilities (refer to note 6 on page 70) but higher than country Victoria and other capital city utilities (pages 71, 41, 85).

[13] Queensland Urban Utilities (QUU) commenced operation in July 2010 to provide water and sewerage services to former customers of Brisbane Water and 4 neighbouring councils (note 3 on page 70). From 2013-14, SA Water results include the country results due to the amalgamation of SA Water Adelaide and Country. Refer also to the **legend** and **notes 5, 6, 9 and 10** on page 70.

[14] Note 10 on page 70 explains why Hobart and Darwin have not been included in the comparisons. Although Notes 4 to 7 on page 70 indicate that statewide results for the country utilities are only available for Victoria and NSW, it is possible to also compare the results for country NSW and country Victoria with the reported results for country utilities for a few key NWI Indicators such as F4, P3, P8, A8 and W12 above. This has been done using the reported results for 19 country utilities in Queensland and 7 country utilities in Western Australia in the *National Performance Report 2014-15 for Urban Water Utilities* (www.bom.gov.au).

[15] The lack of economy of scale and the lower development density in small towns result in a **capital cost per property** for providing water supply trunk mains to a town of 300 properties being typically over **3 times** that required for servicing a contiguous city of 15,000 properties. The capital cost per property for other structures such as water treatment works, service reservoirs, pumping stations and dams is similarly affected. This highlights the importance of Government financial assistance towards the capital cost of servicing backlog areas (eg footnote 7 on page 7) and why appropriate standards should be used, such as those in the *National Handbook on Affordable Water Supply and Sewerage for Small Communities, ARMCANZ/WSAA, 1999* (available on request from urbanwater.ctw@dpi.nsw.gov.au).

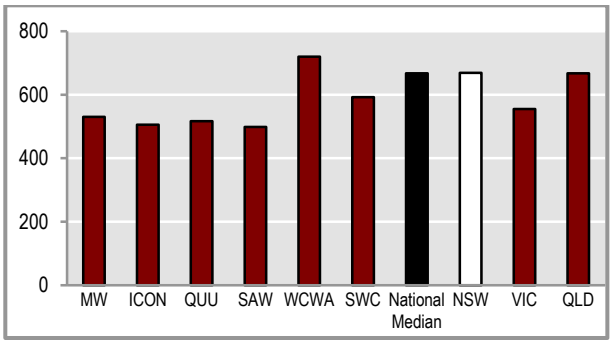


Chart 38 - Typical residential bill - sewerage - P6 (2014-15) ($/assessment)

The median **water and sewerage TRB** for the NSW LWUs (NWI Indicator P8) was lower than country Queensland, the national median, Perth and Adelaide, but higher than country Victoria and all other capital city utilities (pages 71, 7, 33, 85). However, the first step water usage charge for NSW LWUs of 226 c/kL and the residential revenue from usage charges (Indicator F4 on page 17) are relatively high and provide strong pricing signals to encourage efficient water use.

Water main breaks of 9 per 100 km for the NSW LWUs (NWI Indicator A8) have remained much lower than all the other Australian states and the capital city utilities, indicating good water main asset condition (pages 72, 9, 47, 85).

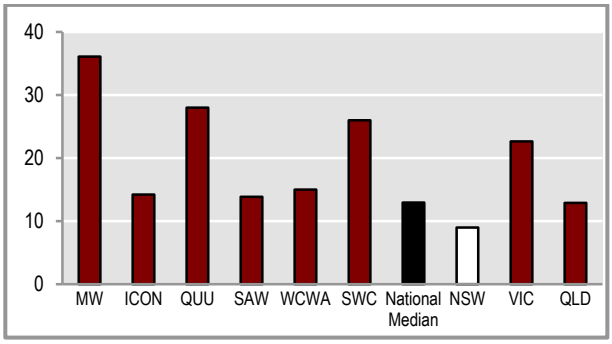


Chart 39 - Water main breaks - A8 (2014-15) (No. per 100km of main)

3.2 Environmental

Annual residential water supplied (NWI Indicator W12) was 166 kL per connected property, which was similar to country Victoria and lower than the national median and all other Australian states and capital city utilities except for Melbourne and Brisbane (pages 73, 9, 46, 85).

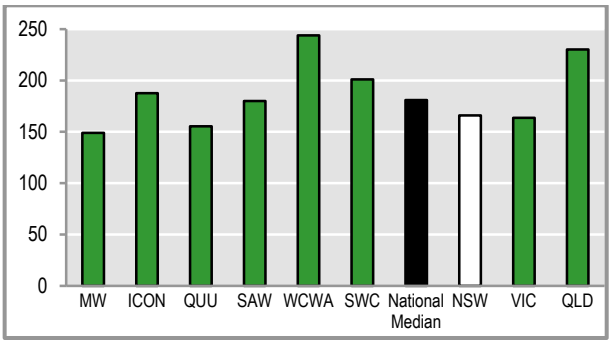


Chart 40 - Annual residential water supplied - W12 (2014-15) (kL per property)

The **sewage collected per property** of 238 kL (NWI Indicator W19) was lower than Sydney but higher than country Victoria, country Queensland, the national median and the other capital city utilities (page 73 and Table 15 of the *Benchmarking Report*).

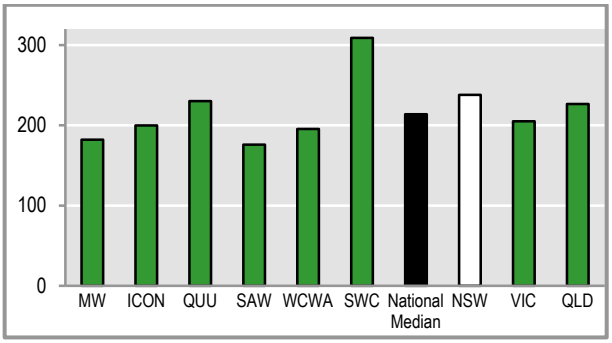


Chart 41 - Sewage collected per property - W19 (2014-15) (kL per property)

Real losses (leakage) of 60 L/connection/d (NWI Indicator A10) were similar to Canberra but lower than the national median, the country utilities in all the other states and all the other capital city utilities (pages 73, 49, 18, 85 and Figure 26 and Tables 8A, 10 and 10A of the Benchmarking Report).

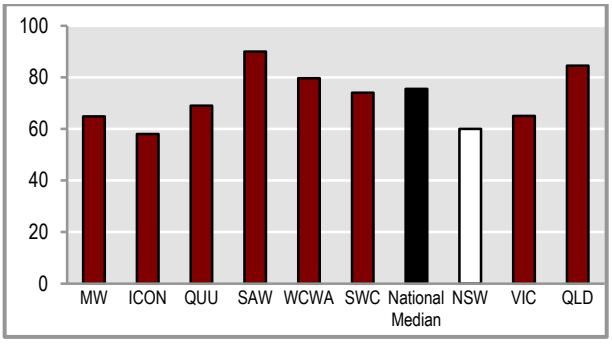


Chart 42 - Real losses - A10 (2014-15) (L/service connection/d)

The **percentage of sewage treated to a tertiary level** of 97% (NWI Indicator E3) was similar to Canberra, Brisbane and Adelaide but higher than country Victoria, country Queensland, the national median and the other capital city utilities (page 73 and Table 15 of the *Benchmarking Report*).

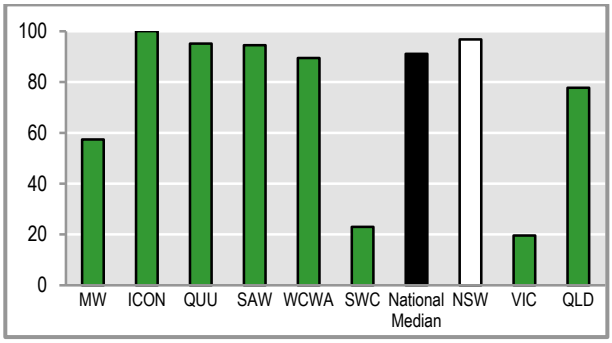


Chart 43 - Per cent of sewage treated to a tertiary or advanced level - E3 (2014-15) (%)

In total, 39,000 ML of **effluent** was **recycled** in regional NSW in 2014-15, which was 22% of the volume of sewage collected. This percentage (NWI Indicator W27) was lower than country Victoria but higher than country Queensland, the national median and all the capital city utilities except Adelaide (pages 74, 10, 55, 85). The total volume recycled by each LWU (NWI Indicator W26) is shown on page 85.

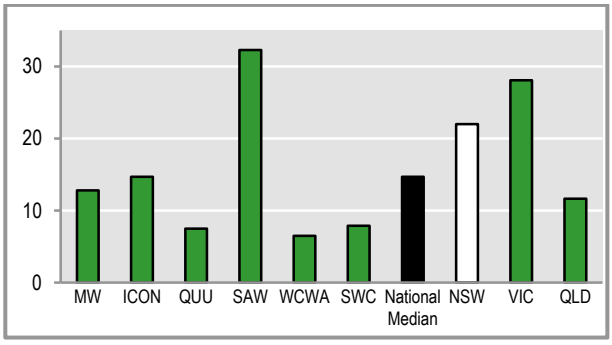


Chart 44 - Per cent of effluent recycled - W27 (2014-15) (%)

Sewer overflows reported to the environmental regulator (NWI Indicator E13) of 0.9 per 100 km of main were higher than the national median (pages 75 and 11 and Table 15 of the *Benchmarking Report*), as were the **sewer main breaks and chokes** (NWI Indicator A14) of 35 per 100 km of sewer main (pages 75, 11, 54, 85).

Total **greenhouse gas emissions** (NWI Indicator E12) was 410 tonnes per 1000 properties (pages 75, 56), which was lower than country Victoria and Perth, but higher than the national median and the other capital city utilities.

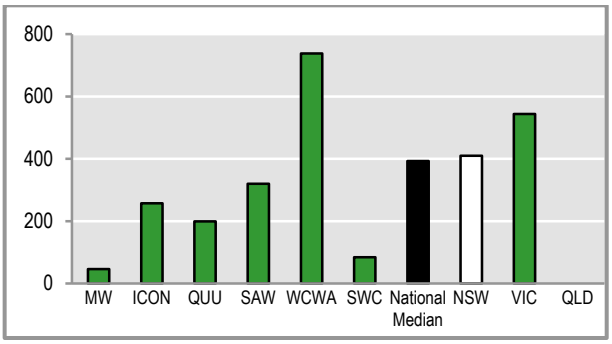


Chart 45 - Greenhouse gas emissions - water and sewerage - E12 (net tonnes CO2-equivalents per 1000 properties)

3.3 Economic

Economic real rate of return for water supply and sewerage (NWI Indicator F19) of 1.4% (pages 75, 11, 58) was the same as country Victoria but lower than country Queensland, the national median and the capital city utilities. Refer also to pages 59, 60 and 85.

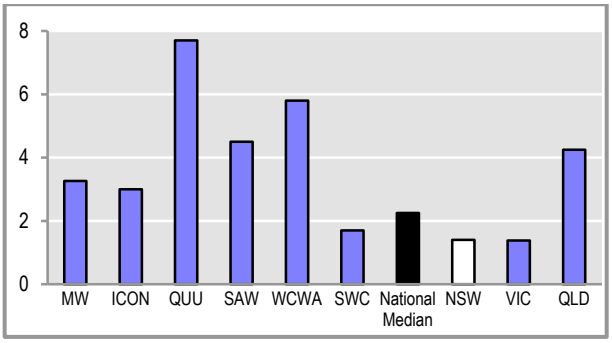


Chart 46 - Economic real rate of return - F19 (2014-15) (water and sewerage %)

Annual median operating cost (OMA) for water supply (NWI Indicator F11) was $400 per connected property (pages 76, 14, 61), which was lower than Brisbane, Melbourne, Adelaide, the national median and the country utilities in all other states but higher than Canberra, Sydney and Perth. Water and sewerage OMA costs are shown in columns 31 and 32 on page 85.

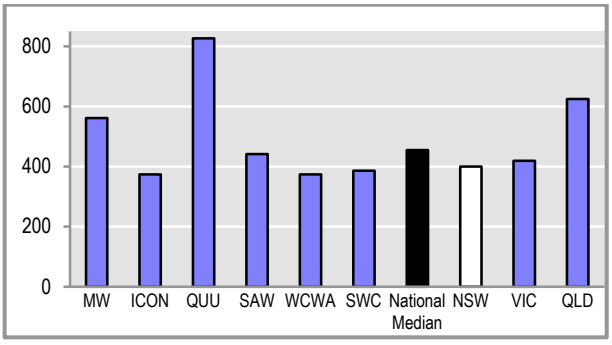


Chart 47 - Water supply operating cost (OMA) - F11 (2014-15) ($ per connected property)

The median operating cost for sewerage (NWI Indicator F12) was $420 per connected property (pages 76, 14, 62), which was higher than country Victoria, country Queensland, the national median and the capital city utilities.

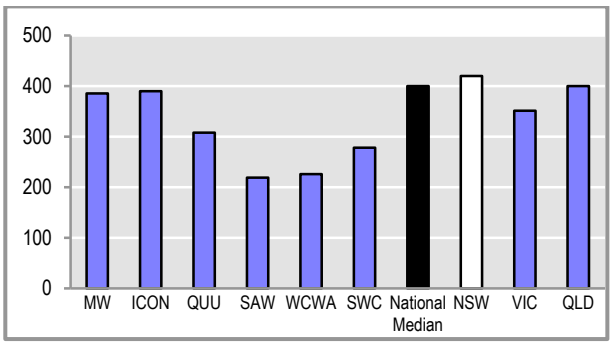


Chart 48 - Sewerage operating cost (OMA) - F12 (2014-15) ($ per connected property)

Water and sewerage capital expenditure per property (NWI Indicators F28 + F29) of $359 (pages 77, 85) was lower than country Queensland, the national median and Perth but higher than country Victoria and the other capital city utilities.

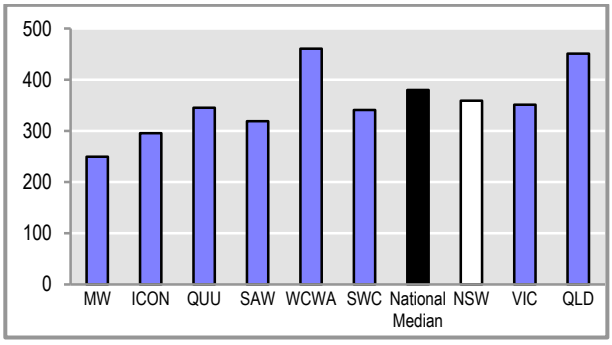


Chart 49 - Capital expenditure - water and sewerage - F28+F29 (2014-15) ($ per connected property)

Written down replacement cost per property for water supply (NWI Indicator F9/C4) of $10,000 (page 77 and Table 11 of the *Benchmarking Report*) was higher than country Victoria, country Queensland, the national median and all the capital city utilities except Canberra and Adelaide.

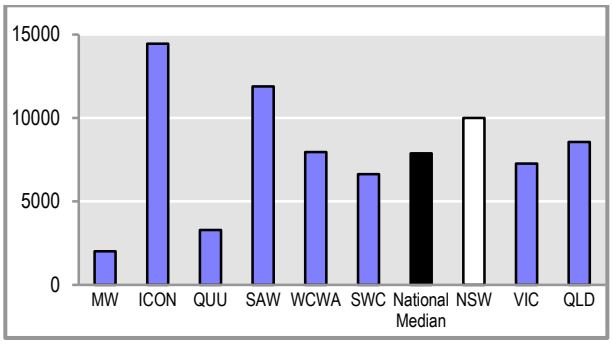


Chart 50 - Written down replacement cost - water supply - F9/C4 (2014-15) ($ per connected property)

Written down replacement cost per property for sewerage (NWI Indicator F10/C8) of $11,600 (page 77 and Table 16 of the *Benchmarking Report*) was higher than country Victoria, country Queensland, the national median and all the capital city utilities except Sydney.

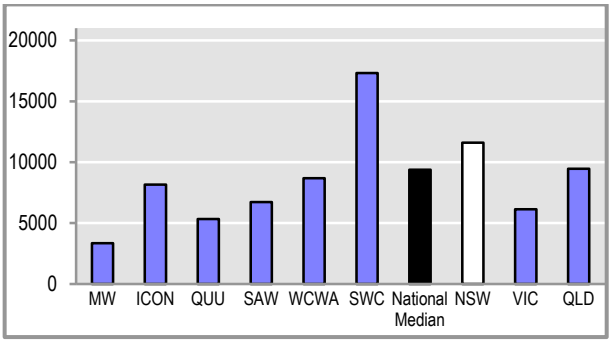


Chart 51 - Written down replacement cost - sewerage - F10/C8 (2014-15) ($ per connected property)

Net debt to equity (NWI Indicator F22) of -1% (pages 76, 13, 85) was lower than country Victoria, country Queensland, the national median and all the capital city utilities. Refer also to footnote 10 on page 13 and Table 5A of the *Benchmarking Report*.

Revenue from community service obligations (NWI Indicator F8) of 1.3% (page 77 and Table 5A of the *Benchmarking Report*) was lower than country Victoria, the national median and all the capital city utilities, but higher than country Queensland.

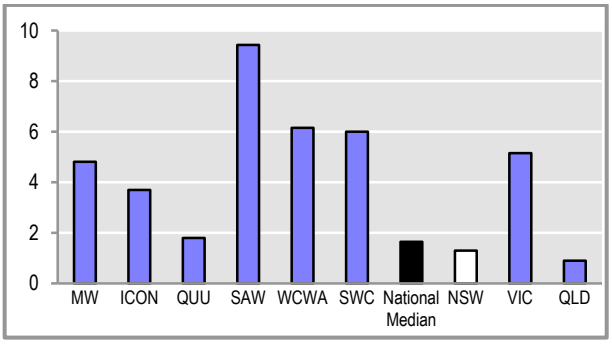


Chart 52 - Revenue from community service obligations - F8 (2014-15) (%)

4 BEST-PRACTICE MANAGEMENT

4.1 Best-practice management framework

The NSW Government's *Best-Practice Management (BPM) of Water Supply and Sewerage Framework* (page xii (www.water.nsw.gov.au)) is the practical means of implementing Goal 21 of the State Plan NSW 2021 and the goal of the NSW Government's Country Towns Water Supply and Sewerage program (www.water.nsw.gov.au) by the regional NSW urban water utilities through sound planning, pricing and management of services. It is based on the Best-Practice Management of Water Supply and Sewerage Guidelines (www.water.nsw.gov.au), which were updated in 2007. The BPM framework addresses the 10 key national requirements (page xii) and is the key driver for reform of planning, pricing, management, operation and maintenance and for continuing productivity and performance improvement by each utility.

Implementing the 19 outcomes required by the BPM framework will enable each utility to achieve appropriate, affordable, cost-effective and sustainable piped water supply and sewerage services. A utility must demonstrate implementation of the outcomes to pay a dividend from the surplus of its water supply and sewerage businesses or to seek financial assistance towards the capital cost of backlog infrastructure under the Country Towns Water Supply and Sewerage program or the Regional Water and Waste Water Backlog (RWWWB) program.

All the utilities need to implement the above outcomes (footnote 39 on page 106), which involve the following six interrelated elements:

1. Integrated water cycle management
2. Water conservation and demand management
3. Strategic business planning
4. Drought management
5. Pricing and regulation of water supply, sewerage and trade waste
6. Annual performance monitoring

As noted on page 104, the NSW Best-Practice Management Framework has been streamlined to minimise the regulatory burden and the cost to LWUs.

9 documents[16] previously required over an 8 year cycle have been deleted. However, the analysis and responses for these documents have been subsumed into the IWCM strategy and financial plan and the strategic business plan (SBP) and financial plan, which will need to be prepared every 8 years on a rotation of every 4 years (Chart 53).

A LWU's **peak planning document** for water supply and sewerage is the **later** of its 30-year **IWCM strategy and financial plan** and 30-year **SBP and financial plan**. Refer also to pages 108 and 110.

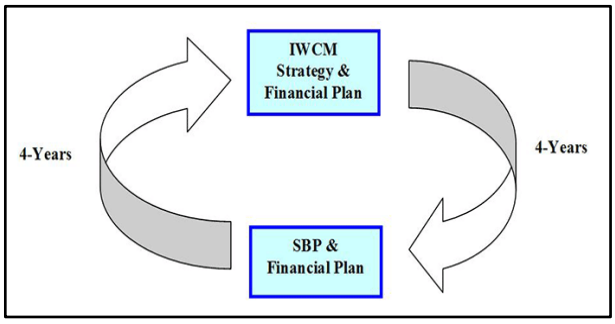


Chart 53 - IWCM strategy & financial plan and SBP & financial plan

Accordingly, in addition to the 11 pricing outcomes (page 101) and the annual performance monitoring (page 102), the streamlined implementation of the BPM framework involves preparation of an IWCM strategy and financial plan and a strategic business plan and financial plan every 8 years on a rotation of every 4 years (pages 21 and 105). In addition, pages 26 and 108 show each LWU needs to annually 'roll forward', review and update its 30-year total asset management plan (TAMP) and its 30-year financial plan and to review its Drinking Water Management System (DWMS) and TBL performance report in order to identify and address any emerging issues and necessary corrective action in its annual action plan to council. Importantly, this closes the 'planning loop' with the LWU's IWCM strategy or SBP.

1. **Integrated water cycle management (IWCM) strategy and financial plan** – the IWCM strategy 'right sizes' any necessary infrastructure projects and identifies a 30-year strategy for water supply, sewerage and stormwater, which provides the best value for money on the triple bottom line (TBL) basis of

[16] The 9 deleted documents are 4 water conservation plans, 2 IWCM evaluation studies, 1 IWCM strategy, 1 strategic business plan and 1 drought management plan. Refer also to pages 105 and 109.

social, environmental and economic considerations. The IWCM strategy and financial plan identify the best mix of capital works, non-build solutions, policies and operation and maintenance activities in a 30-year total asset management plan (TAMP), need to be undertaken in accordance with the July 2014 IWCM check list (www.water.nsw.gov.au) and made available on the utility's website. Note that the 19 outcomes required by the BPM framework aid the development of a robust IWCM strategy through the required sound planning, pricing and management of services. Refer also to pages 105, 108 and 110.

2. **Water conservation and demand management** are essential for ensuring efficient use of our valuable water resources and to improve environmental outcomes. These are undertaken as part of the IWCM strategy (July 2014 check list) (www.water.nsw.gov.au).

   Each LWU should develop and implement **cost-effective water conservation measures**, which consider:

   - active intervention – eg retrofit programs, rebates for water efficient appliances or rainwater tanks, and building code programs (including BASIX)
   - water pricing reform (element 5 on page 22), community education, and cost-effective water loss (ie leakage) reduction programs (page 10).

3. **Strategic business planning (SBP).** The community and governments are demanding increased accountability, increased levels of service and increased efficiency from water utilities. In addition, regulatory authorities are imposing more stringent environmental and health regulations. The LWU's 30-year strategic business plan facilitates sound asset management by addressing these issues and providing a framework for the utility to negotiate appropriate levels of service with the community and develop its 30-year total asset management plan (TAMP). This involves a cost-effective capital works program[17] that discloses each of the growth, improved standards and renewals (box on page 3) components, together with a sound operation plan, which includes cost-effective non-build solutions, and a maintenance plan. The SBP and financial plan need to be prepared in accordance with the July 2014 strategic business planning check list (www.water.nsw.gov.au) and be made available on the utility's website.

   The strategic business plan must include the utility's proposed levels of service, 30-year total asset management plan, and a sound 30-year financial plan that identifies the resulting typical residential bill (in current dollars) over this period. Refer also to pages 4, 105, 108 and 110.

   The Integrated Planning and Reporting (IPR) Framework for local government in NSW, March 2013 has been designed to complement and avoid duplication with the *Best-Practice Management (BPM) of Water Supply and Sewerage Guidelines*. Page 106 highlights that under IPR, each **council is required to implement the outcomes required by the BPM Framework** for water supply and sewerage. The inputs to the IPR framework from the BPM framework for water and sewerage are discussed on page 106 and illustrated on page 111. Refer also to pages 4, 95 and 99 of the *NSW Water and Sewerage Strategic Business Planning Guidelines, July 2011* (www.water.nsw.gov.au).

4. **Drought management** is a fundamental responsibility of the LWU to ensure continuity of supply. This needs to be documented in a drought management plan with an adopted schedule of trigger points for timely implementation of appropriate drought water restrictions and supplementary water sources. This is now implemented as part of the strategic business plan (July 2014 check list) (www.water.nsw.gov.au).

5. **Pricing and regulation of water supply, sewerage and trade waste**. Best-practice pricing and regulation are fundamental to the effective delivery of water supply, sewerage and trade waste services, resulting in fair pricing of services, removal of significant cross-subsidies, and protection of our valuable water resources and the environment.
   The strong pricing signals encourage efficient water use by all users and compliance with discharge limits and waste minimisation by commercial and industrial dischargers.
   Refer also to the boxes on pages 5 and 12 and to page 101, which outlines the 11 pricing outcomes required by the BPM framework.

   DPI Water has published comprehensive *Water Supply, Sewerage and Trade Waste Pricing Guidelines 2002 and Liquid Trade Waste Regulation Guidelines 2009* (http://www.water.nsw.gov.au/ArticleDocument

[17] I.e. fit for purpose and without wasteful 'gold plating'. Refer also to the 8th and 9th paragraphs of page 99.

s/36/town_planning_water_utilities_liquid_trade_waste_guidelines.pdf.aspx).

These documents provide guidance for best-practice pricing and regulation by LWUs. Such pricing meets the key national requirements (page xii). The comprehensive software and guidance provided for LWUs are noted on page 15.

6. **Annual performance monitoring** is required under National Competition Policy and the National Water Initiative and is essential for monitoring and improving productivity and performance and for public accountability.

   Each LWU needs to continue to lodge its data on the NSW Performance Monitoring database by 15 September each year (page 82). Each LWU also needs to annually 'roll forward', review and update its 30-year TAMP and 30-year financial plan and review its DWMS and the TBL Performance reports and the Section 61 Reports (page 104) provided by DPI Water to prepare and implement a sound action plan to council, which addresses any emerging issues or areas of underperformance (page 26).

   Guidance for councillors on understanding and using your TBL performance report and action plan is provided in Appendix G of the *NSW Water and Sewerage Strategic Business Planning Guidelines, July 2011* (www.water.nsw.gov.au). This appendix will also assist the water and sewerage manager to prepare a sound action plan to council. An updated version of this appendix is provided annually to each LWU with its TBL performance reports.

4.2 Implementation of framework

Water utilities are required to report whether they have implemented each of the 19 planning, pricing and management outcomes required by the Best-Practice Management Framework (ten for water supply and nine for sewerage – page xii) in Notes 2 and 3 of the Special Purpose Financial Statements of their 2014-15 annual financial statements. The current implementation of the outcomes is shown in Appendix C on page 82.

A LWU that prepares an IWCM strategy and financial plan in accordance with the 2014 IWCM check list (www.water.nsw.gov.au – shown as Yes[s]) will meet 6 of the 19 BPM outcomes (IWCM (W, S), Strategic Business Planning (W, S), Water Conservation and Drought Management). After 4 years, the LWU will need to carry out a mid-term review of its IWCM strategy and prepare a strategic business plan and financial plan in accordance with the 2014 strategic business planning check list (www.water.nsw.gov.au).

Page 105 shows that annual performance monitoring and preparing and implementing a sound annual action plan to council addresses a further 5 outcomes (performance monitoring (W, S), full cost recovery (W, S), strong pricing signals – NWI Indicator F4 (residential revenue from water usage charges), with the remaining 8 outcomes addressed by sound residential pricing, non-residential pricing, commercial developer charges, a sound trade waste regulation policy and approvals and appropriate trade waste pricing.

As previously noted, the overall level of implementation of the above outcomes was 90%, comprising 91% for water supply and 89% for sewerage. 45% of the utilities have implemented all the outcomes for water supply and 55% have implemented all the outcomes for sewerage.

- **Strategic business plan and financial plan** - As shown on page 4, 94% of LWUs have a sound 30-year strategic business plan, financial plan and asset management plan (page 85).
- **Pricing and cost recovery** - All LWUs now have both pay-for-use water supply pricing and full cost recovery for water supply, while 98% have both appropriate pricing and full cost recovery for sewerage (page 82). As noted on page 12, all LWUs have full cost recovery for water supply and 98% have full cost recovery for sewerage.
- **Residential revenue from usage charges** - 72% of utilities have achieved the required outcome including 30 utilities (64%) with 4,000 or more connected properties (75%/25% split) and 40 utilities (87%) with fewer than 4,000 connected properties (50%/50% split).
- **Non-residential charges** - 85% of LWUs have appropriate non-residential water supply charges while 80% have appropriate non-residential sewerage charges.
- **DSP and developer charges** - 83% of LWUs have an appropriate water supply development servicing plan (DSP) with commercial developer charges and 85% of LWUs have a sewerage DSP.
- **Liquid trade waste policy, fees and charges** - 85% of LWUs have an appropriate liquid trade waste regulation policy and have issued a liquid trade waste approval to all their trade waste dischargers and 81% of LWUs have appropriate liquid trade waste fees and charges (page 82).

- **Water conservation plan** - As noted on page 10, 97% of LWUs have implemented a sound water conservation plan.
- **Drought management plan** - As noted on page 3, 97% of LWUs have implemented sound drought management.
- **IWCM strategy** - 79% of LWUs reported that they have commenced their IWCM evaluation or strategy (page 82). As noted on page 84, 69 LWUs have completed an IWCM evaluation, 48 of which have also completed an IWCM strategy. As noted on page 4, 17 of these utilities now need to prepare an IWCM strategy, financial plan and report in accordance with the July 2014 IWCM check list.

4.3 Eligibility for payment of a dividend

Appendix C on page 82 indicates that only 5% of the utilities are proposing to pay a dividend from the surplus of their water supply or sewerage businesses.

Following an update of the *Best-Practice Management Guidelines* in 2007, the utilities have steadily increased their implementation of the 19 planning, pricing and management outcomes required by the Guidelines and the *Best-Practice Management Framework* (page xii). As noted on page 23, 45% and 55% of the NSW utilities have implemented all the BPM outcomes for water supply and sewerage, respectively. These utilities have appropriate, affordable, cost-effective and sustainable piped water supply and sewerage services.

As noted in the final paragraph in the box on page 12, each utility which has implemented all the outcomes of the BPM framework, including a current IWCM strategy and financial plan, is encouraged to pay an 'efficiency dividend' from the surplus of its water supply and sewerage businesses to the council's general revenue.

4.4 Climate variability

The NSW Government is tackling the challenge of the impact of climate variability on regional local water utilities by developing climate variability guidelines[18] that build on the existing robust[19] **NSW Security of Supply basis** for sizing of urban water supply headworks. The guidelines are informed by the results of a pilot study[20] on 11 existing water supplies in regional NSW. A Climate Change Steering Group involving the National Water Commission, CSIRO, Local Government NSW, the NSW Water Industry Directorate, NSW Public Works and DPI Water is responsible for overseeing the pilot study and the development of the guidelines.

The NSW Security of Supply basis for sizing water supply headworks was developed in response to the experiences and lessons learnt from the severe 1979-1983 drought. This basis for sizing headworks is commonly referred to as the "**5/10/10 rule**" and is designed to maintain water supply to customers with only moderate water restrictions during a more severe drought than had been experienced over the previous 100 or more years. Refer also to Chart 9 on page 4.

The pilot study has developed a sound basis for LWUs to assess the impact of future climate variability on the secure yield of their urban water supply. The impact is influenced by the location of the LWU and the utility's headworks system.

Future 30-year IWCM strategies (pages 21 and 105) will need to include assessment of the secure yield of the utility's water supply in accordance with the new climate variability guidelines.

[18] Assuring future urban water security: Assessment and adaption guidelines for NSW local water utilities, NSW Office of Water, Draft – December 2013 (available on request from urbanwater.ctw@dpi.nsw.gov.au).

[19] *Impacts of the 2001-2007 Drought and Climate Change on Security of Water Supplies in Country NSW* – Peter Cloke, NSW Public Works and Sam Samra, NSW Office of Water, Institution of Engineers Australia, 32nd Hydrology and Water Resources Symposium, Newcastle, December 2009 (available on request from urbanwater.ctw@dpi.nsw.gov.au).

[20] *NSW Response for Addressing the Impact of Climate Change on the Water Supply Security of Country Towns* – Sam Samra, NSW Office of Water and Peter Cloke, NSW Public Works, Institution of Engineers Australia, *Practical Responses to Climate Change National Conference*, Melbourne, October 2010 (available on request from urbanwater.ctw@dpi.nsw.gov.au).

5 TBL REPORTS AND ACTION PLANS

5.1 Triple bottom line (TBL) performance reports

DPI Water provides each utility and IPART with an annual triple bottom line (TBL) performance report for the utility's water supply business and for its sewerage business (a sample report is shown on pages 80 and 81).

Each LWU's annual TBL performance report provides a brief description of the LWU's water supply or sewerage system together with a summary of the LWU's performance for over 50 key performance indicators. The TBL report also discloses whether the LWU has implemented each of the ten water supply and nine sewerage outcomes required by the Best-Practice Management Framework.

Each TBL report groups the performance indicators under characteristics, social, environmental and economic factors. For each indicator, the LWU's result is shown against the statewide and national medians, and ranked against all LWUs and also against similar sized LWUs. These rankings help each LWU to quickly understand its relative performance. The rankings are based on quintile groupings, with the top 20% of LWUs for each indicator being ranked 1 and the bottom 20% being ranked 5 (LWUs in the range 40% to 60% are ranked 3).

LWUs will appreciate that each of the performance indicators is a 'partial' indicator only and therefore cannot be interpreted in isolation. It is also emphasised that the rankings are indicative only and do not take account of the wide range of factors that can impact on a LWU's performance as discussed in section 5.3 on page 28. The rankings help LWUs to quickly identify any areas of apparent under-performance in comparison with similar sized LWUs.

The second page of the TBL report provides graphs with the LWU's performance and statewide medians over the past 10 years for 15 key indicators. These graphs enable the LWU to compare its performance with the statewide median and review trends over time for each indicator, which provide the most meaningful assessment of performance.

Each LWU needs to review its performance using its annual TBL performance report and to prepare and implement a sound annual action plan to council, which addresses any emerging issues or areas of underperformance, as outlined in section 5.2.

Following the review of its TBL performance report, each LWU should 'roll forward', review and update its 30-year total asset management plan and 30-year financial plan. A brief report[21] to council should be provided on the updated financial plan and any necessary corrective action must be noted in the action plan to council (Item 4 of page 26).

5.2 Review performance and preparation of an action plan

Each utility should aim to provide the levels of service negotiated with its community at the lowest sustainable typical residential bill. This is done by setting cost-reflective developer charges, non-residential charges, and liquid trade waste fees and charges, and then minimising the typical residential bill (TRB) on a sustainable basis. Utilities that have implemented the Best-Practice Management framework and wish to pay an 'efficiency dividend' (box on page 12) to the council's general revenue should also include the dividend amount.

Each LWU is required to prepare and implement a sound annual action plan to council, based on its review of the TBL performance report, its DWMS, any section 61 reports and its updated TAMP and financial plan. The action plan addresses any areas of under-performance and documents any target dates for remedial actions. It should also report results for the financial year for the key actions set out in the later of the utility's strategic business plan and IWCM strategy. Refer also to pages 104 and 108.

Guidance for councillors on quickly understanding and using your TBL Performance Report and Action Plan is provided in Appendix G of the *NSW Water and Sewerage Strategic Business Planning Guidelines, July 2011* (www.water.nsw.gov.au). This appendix will also assist the water and sewerage manager in preparing a sound Action Plan to Council. An updated copy of this appendix is emailed annually by DPI Water to each LWU with the LWU's TBL Reports and Action Plan templates.

[21] An example report to council on the updated financial plan is provided in Appendix H of the *NSW Water and Sewerage Strategic Business Planning Guidelines, July 2011* (www.water.nsw.gov.au).

Preparation of an action plan

Each LWU should follow these steps to review performance and prepare an annual action plan:

1. **Check level of implementation of BPM framework** and highlight the required outcomes (pages xii and 23) that have not been implemented. These outcomes must be addressed as a priority to achieve sound planning, pricing and management of services by each LWU.
2. **Review performance** using the indicators shown on the first page of the TBL performance report for each of water and sewerage (example TBL report on pages 80 and 81). Particular note should be taken of indicators that appear to be less than satisfactory ie with a ranking of 4 or 5.
   - **DWMS** - review your DWMS in accordance with the NSW guidelines (page 8) and document any required corrective action.
   - **Section 61 reports**[22] – include any required corrective action from the DPI Water section 61 reports in the action plan if the work has not yet been completed.
3. **Identify any trends** over the past 10 years in the selected performance indicators shown on the second page of the TBL performance report, and compare the latest values with the statewide median values and the top 20%. In undertaking a review of indicators and trends in performance, LWUs should consider the many factors that may contribute to apparent underperformance (section 5.3 on page 28).
4. **Update financial plan**. Annually 'roll forward', review and update your 30-year total asset management plan for projects completed, modified or deferred and input the results, together with your latest annual financial statements to prepare an update of your 30-year financial plan (pages 22, 104 and 108). Include any warranted corrective action in your action plan.
5. **Prepare action plan**. Use the action plan template provided to your LWU together with your TBL reports. An example review and action plan is provided on pages 80 and 81. Consider any emerging issues and address areas of under-performance and document remedial actions (with target dates). Review targets set out in the later of your IWCM strategy and financial plan and strategic business plan (SBP) (particularly whether this year's **TRB** is consistent with your projection and any corrective action required from the above update of your 30-year financial plan (section 5.1 on page 25) and document appropriate actions. Include corrective action required from the review of your DWMS and any section 61 reports.

   Examples of 'emerging issues' which should be addressed in your utility's IWCM strategy include:
   - What is your secure yield based on the "5/10/10 rule" (NSW Security of Supply Basis)?
   - What is the impact of climate variability on water supply secure yield (section 4.4 - page 24)?
   - Has your IWCM strategy addressed 'liveability'[23]?

If further analysis is warranted (eg if performance indicator ranking is low and remains unexplained or other factors suggest apparent under-performance), then steps 6 and 7 below may also be required.

6. Compare selected performance indicators with those of similar utilities using the figures showing performance trends for four utility size ranges over the past six years in the Benchmarking Report (provided on the DPI Water website www.water.nsw.gov.au). Where in-depth investigation is warranted for selected indicators, the LWU can also undertake process benchmarking.
7. Process benchmarking for selected indicators for areas of apparent under-performance, eg where the LWU has a low ranking (ie 4 or 5) relative to LWUs with similar characteristics.

[22] Information for each LWU on the DPI Water section 61 reports on the LWU's water and sewage treatment works since January 2015 is available in the NSW Performance Monitoring Database (login required).

[23] Water supply, sewerage and stormwater systems can contribute to the 'liveability' of towns and cities, including watering of parks, gardens and playing fields and the use of water sensitive urban design to encourage the greening of urban areas and healthy urban creeks and waterways. Appropriate financial contributions from the beneficiaries of such 'broader solutions' (eg a large water user or council's planning, parks and gardens, stormwater and/or roads functions) should be included in the IWCM strategy. Refer to page 16 and Appendix J of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report* (www.water.nsw.gov.au). Refer also to recommendation 10 of the National Water Commission's report on *Urban Water in Australia Future Directions 2011* (www.nwc.gov.au).

A key role of the annual action plan is to **'close the planning loop'** with the later of your IWCM strategy and financial plan and strategic business plan. The utility's **TRB** must therefore be compared with its projection and any necessary corrective action documented in the action plan (box on page 12 and note 3 on page 79).

An example action plan is shown on pages 80 and 81. DPI Water will continue to provide a template for each LWU's action plan together with the annual TBL reports for each LWU. The template will show your LWU's results, the drivers for each indicator, and the ranking relative to similar sized LWUs followed by the ranking relative to all LWUs. Space is provided for the LWU to document its proposed actions and its findings (the right hand column on pages 80 and 81).

To prepare and implement a sound action plan to council, each LWU should review its performance indicators under 'health', 'levels of service', 'environmental' and 'economic', taking into account factors that may affect performance as outlined in section 5.3. If the indicators are unsatisfactory, the LWU will need to develop options to improve performance.

It is important to note that the **typical residential bill** is the **principal indicator of the overall cost** of a water supply or sewerage system and is the annual bill paid by a residential customer using the utility's average annual residential water supplied (section 1.3 on page 1 and note 4 on page 30). A critical element in minimising the typical residential bill and providing value for money for the community is to ensure that the operating cost (OMA) is efficient. Each LWU therefore needs to carry out an ongoing review of the components of its operating cost. Particular attention is required for components with a low ranking (ie 4 or 5).

The components[24] of operating cost highlight the significant differences that can arise depending on the type of infrastructure (eg. whether a bulk storage dam is provided or whether the utility has a groundwater supply) and the type of service (eg. pumped vs gravity, full treatment vs chlorination). Components are:

Management cost – includes administration, engineering and supervision and is typically almost 40% of the total operating cost (Figure 32 on page 64).

Treatment cost (water) – dependent on the type and quality of the water source and the extent of treatment provided. There are great economies of scale for the operation of water treatment works.

Treatment cost (sewage) – dependent on the type of treatment and the discharge requirements. Where discharge licence conditions are stringent (eg low levels of phosphorus), treatment costs will be high. There are significant economies of scale for operation of treatment works.

Pumping cost (water) – dependent on topography and the location of the water source. For example, Essential Energy has a high pumping cost due to the long distance required to pump from the water source, while Fish River is almost a fully gravitational supply, with negligible pumping costs. There are significant economies of scale in pumping cost per property.

Pumping cost (sewage) – dependent on topography. There are significant economies of scale in pumping cost per property.

Energy cost – for water supply, this is mainly a consequence of pumping requirements. Energy cost may be reduced by maximising pumping in off-peak periods or by obtaining a competitive energy rate from the energy supplier (eg maximising off-peak pumping has provided annual savings in energy costs of over $200,000 for a number of large water supplies).

For sewerage, energy cost is a component of pumping and treatment costs. Significant cost savings may be available by optimising energy use in the treatment process (eg optimising energy use has provided annual savings of over $100,000 for a number of large sewage treatment works).

Water and sewerage mains cost – this is dependent on the age and condition of the mains, the ground conditions, and the number of connected properties per kilometre of mains.

[24] Figures 31 to 37, Figures 60 to 66 and Tables 11, 13, 16 and 18 of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report* detail these components for each LWU. Page 81 shows that each LWU's TBL Performance Report provides graphical comparisons of the components of its operating cost. Refer also to pages 79 and 80.

5.3 Factors affecting performance

Many factors including the extent of the services provided by each utility, geography and climate impact on a water utility's performance and make the comparison of utilities complex. An understanding of these factors is vital for valid interpretation of performance data.

The most meaningful indicators for each utility are trends over time for each utility. However, even with these, care needs to be exercised due to changes in the factors over time. For comparison between utilities (Item 6 on page 26), each utility should benchmark its performance against utilities with similar characteristics. An example of some of the factors affecting performance of a utility's water supply system are outlined below.

Location

1. **Climate** – the variability of rainfall is a key driver of water supply costs in relation to water demand and water supply security during droughts. This will affect both capital and operating costs. For example, the average annual residential water supplied in inland NSW is approximately 50% higher than coastal NSW (pages 9, 46, 47).
2. **Geography** – The geology, geography and topography can have a significant effect on water and sewage transportation costs, particularly with pumped systems compared to gravity systems.
3. **Water Resources Availability and Proximity** – Bulk storage and/or long water transfer mains and channels can incur significant capital and operating costs (note 10 on page 32). Such costs would not apply for utilities relying on a nearby groundwater source or those receiving a regulated supply from a Water NSW dam.

Utility characteristics

4. **Asset life cycle** – Recently constructed systems have much lower maintenance and renewals costs compared with older systems (page 3).
5. **Development density** – Distribution networks are a major investment component of a water supply system. The density of urban development has a large effect on the infrastructure cost (eg the number of properties served per km of main varies in regional NSW from 3 to over 70). Another key factor is the number of small discrete urban water supply systems operated by the utility that tend to greatly increase the operating cost per property. Refer also to footnote 15 on page 17.
6. **Size of LWU** – there are significant economies of scale for large utilities, particularly the capital cost of infrastructure and the operating cost of water treatment works.
7. **Employees** – the number of employees per 1,000 properties is a good indicator of operating and management costs (page 65). If the number of employees per 1,000 properties is significantly higher than the median for the size of LWU, you should examine the management structure and identify the reasons for the difference and provide a brief explanation or your proposed remedial action in the action plan. However, it is important to note that a higher number of employees per 1,000 properties is necessary for **small** non-contiguous **water supply systems** and for **small water or sewage treatment works**.
8. **Employee awareness and training** is of strategic importance in the safe and effective delivery of water supply and sewerage services, eg refer to Element 7 of the *NSW guidelines for drinking water management systems*, NSW Health and NSW Office of Water, 2013 (www.health.nsw.gov.au/environment/water). In particular, LWUs need to ensure that water treatment operators, wastewater treatment operators, dam safety officers, trade waste officers and engineers update their training and skills at least every 3 years. Refer to the boxes on pages 15 and 16. LWUs should provide an average of at least 2 days/a of appropriate training for each employee. Refer to Notes 11 and 12 of your water supply and sewerage TBL Performance Reports and Tables 9 and 14 of the *2014-15 NSW Benchmarking Report* (www.water.nsw.gov.au) for the training currently provided by each LWU.

Social – levels of service

9. **Service standards** – increasingly stringent standards for water quality and environmental health may result in additional capital and operating costs to the utility. Similarly, requirements for minimum pressures or rates of flow can also affect costs.
10. **Filtered supply** – will incur both a high capital cost per property and a high treatment cost per property for small discrete urban water supply systems (utilities without 'unfiltered' or 'groundwater' after their name in Appendices C to E have water treatment involving at least filtration and disinfection for over 50% of their water supply) (note 11 on page 32).

Environmental

11. **High residential water supplied per property** – such utilities should examine opportunities for achieving efficient water use through water demand management and providing appropriate water pricing signals to customers including the residential water usage charge/kL (page 37) and the residential revenue from water usage charges (page 36). As noted on pages 36 and 37, many utilities with 3,000 to 10,000 connected properties are providing relatively weak pricing signals to their residential customers through their water usage charges. These utilities should review their tariff structure to provide appropriate pricing signals. Assistance is available from DPI Water (page 15). Refer also to page 5.

Economic

12. **High loan payment per property** – indicates a relatively high capital cost per property, recent construction of significant capital works or use of short-term loans. Twenty-year loan terms are strongly recommended in order to avoid unfairly burdening existing customers and to facilitate inter-generational equity. Refer also to the boxes on pages 12 and 13.
13. **High pumping cost** – is influenced mainly by topography and geography. As noted on page 27, the LWU may be able to achieve significant savings in energy cost.

Similar considerations apply to sewerage. In addition, a significant cost impactor is whether the LWU is operating nutrient removal facilities at its treatment works or providing filtration and disinfection of its treated sewage effluent. Refer also to page 13 and 14.

5.4 Benchmarking

Each LWU can improve its performance in areas of apparent under-performance by benchmarking its key work processes with those of one or two high-performing similar LWUs and implementing the identified best practices. This will provide better customer service, reduced environmental impact, and better value for the community.

Each LWU should also undertake ‘syndicate benchmarking’ with a group of LWUs with similar characteristics to determine current best practice and to identify existing practices that could be improved. A pilot study undertaken with a number of LWUs found that such process benchmarking should be highly cost-effective for all LWUs.

6 GENERAL NOTES

1. **Triple bottom line (TBL) focus** – To provide a balanced view of the long-term sustainability of the regional local water utilities (LWUs), a triple bottom line accounting focus has been adopted, with performance reported on the basis of social, environmental and economic indicators.
2. **Data validation** – the comprehensive data validation procedures for the NSW Performance Monitoring System are shown in Appendix G on page 95. These procedures include matters such as aggregated businesses, assessments, connected properties, the utility's pricing signals and typical residential bill, urban water used and recycled, greenhouse gas emissions, the fair value of assets and asset condition, including water main breaks and real water loss (leakage), sewerage main breaks and chokes, operating cost, whether the utility has achieved full cost recovery, drinking water management system (DWMS), drinking water quality compliance, sewage treatment works compliance and each utility's level of implementation of the 19 planning, pricing and management outcomes required by the NSW Best-Practice Management Framework.
3. **Statewide medians** – This report refers to statewide medians for the regional local water utilities, which are calculated on a 'percentage of connected properties' basis. These are a weighted median on the basis of connected properties and best reveal statewide performance by giving due weight to larger LWUs and reducing the effect of smaller LWUs. LWU rankings on a 'percentage of LWUs' basis are also provided where appropriate (eg for comparison of LWUs in the 'ranking' columns of the two-page TBL performance report (example in Appendix B on page 80)).
4. **Typical residential bill (TRB)** – The typical residential bill per assessment is the annual bill paid by a residential customer using the LWU's average annual residential water supplied and is the principal indicator of the overall cost of a water supply or sewerage system. Pensioners pay a lower amount due to the $87.50 pensioner rebate as do owners of vacant lots as they pay no water usage charges. Refer also to pages 6 and 17.

   Calculation of TRB – The 2015-16 typical residential bill is based on a customer of the LWU's principal water supply or sewerage system using the LWU's 2014-15 average annual residential water supplied per connected property. Refer also to section G4.3 on page 98. These bills and tariff details are shown in Appendices E and F on pages 89 and 92. The typical residential bill for 2014-15 and previous years is based on the reported average annual residential water supplied for that year (2014-15 residential water supplied is shown in column 17 of Appendix D on page 85 and column 14b of Appendix E on page 89). As noted on pages 91 and 94, the charges, bills and costs shown in Appendices E and F are those applicable for the relevant financial year and involve no CPI adjustment.
5. **Average annual residential water supplied** – The average annual residential water supplied per connected property (NWI Indicator W12) is shown on page 85 and includes both potable and non-potable water supplied. W12 is also shown on page 89; column 14c on page 89 shows the residential water supplied (potable + non-potable) per capita; column 14a on page 89 shows the potable water supplied per connected property. Where a LWU has not separately reported its residential water supplied, such volume has been estimated using the statewide average of 58% of the LWU's total potable water supplied. The potable residential water supplied per property is shown in column 14a on page 89. As indicated in note 6 below, the potable water supplied and the total water supplied (potable + non-potable) have been separately reported for the 12 LWUs with a dual water supply. Refer also to pages 9 and 18.
6. Dual supplies – Twelve LWUs had a dual water supply to over 50% of their residential customers in July 2014 (ie with a potable supply for indoor use and a non-potable supply for outdoor use).

   The total annual residential water supplied (ie potable + non-potable) in kilolitres per property for those LWUs with a dual water supply is shown below, together with their potable residential water supplied in brackets. These volumes were: Balranald 660 (167), Berrigan 399 (241), Bourke 1,243 (284), Brewarrina 1,391 (614), Central Darling 581 (128), Hay 1,048 (159), Jerilderie 1,242 (219), Murray 280 (168), Wakool 502 (142), Walgett 1,341 (720), Warren 752 (328) and Wentworth 504 (99).

The TRB has been calculated for those LWUs with a dual supply using the above volumes.

7. **Water losses** – For consistency with national and international performance reporting, water losses comprise *Real Losses* (mostly leakage) plus *Apparent Losses* (under-registration of customer meters and illegal use). *Unbilled Water* supplied (fire fighting and mains flushing) is not a water loss but is a component of non revenue water (NRW) (below and note 8). Real losses and NRW apply to the potable water supply only.

   As noted on page 15 of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*, NWI Indicator A10 (real losses in L/connection/d) is the relevant measure for **tracking a LWU's leakage performance over time**. Each LWU's real losses (L/connection/d) are shown on page 49 and column 41 of Table 10 of the Benchmarking report.

   Due to perverse impacts shown on page 15 of the above *Benchmarking report*, it is inappropriate to track a utility's leakage as a percentage of the total water supplied. Similarly, use of Unaccounted for Water (**UFW**) is not appropriate. Rather '**Non Revenue Water (NRW)**' (L/connection/d) should be used, as recommended by the International Water Association – Reference: Kenneth J Brothers, Assessing UFW and Variable Water Rate Impacts, Use and Loss Metrics in a Declining Water Consumption Environment, IWA Water Loss Conference, 2012, February 2012, Manila, Philippines.

   NRW (L/connection/d) is shown in Figure 18 on page 50 and column 41f of Table 10 of the *Benchmarking Report*. In addition, the 2014-15 adopted volume of NRW (NWI Indicator W10.1) and NRW as a percentage of the total potable water supplied are shown in columns 15 and 16 of Table 8A of the *Benchmarking Report*.

8. **Minimum real loss and NRW** – Further to note 7 above, the NSW Performance Monitoring System determines minimum values for each LWU's real loss and NRW as shown below.

   Leakage studies for 74 NSW LWUs indicate an average leakage from potable water supply distribution systems of 3% to 13% of total potable water supplied, as shown in column 41e of Table 10 of the *Benchmarking Report*. These utilities have recently carried out a reservoir drop test, waste metering or night flow analysis to determine their real losses and opportunities for leakage reduction. Only 10 of these utilities had a real loss of under 6%. In addition, Table 10A of the *Benchmarking Report* discloses the real losses for 68 LWUs 'before' and 'after' leakage reduction under the Regional NSW Water Loss Management Program[25]. For these LWUs, Table 10A indicates average real losses of 10% of the potable water supplied after leakage reduction.

   Accordingly, a **minimum real loss** (mostly leakage) of 6% of the total potable urban water supplied (NWI Indicator W11.1) has been adopted. Reported real losses of less than 6% have only been accepted where the utility has provided evidence to support the adoption of a lower value. Where such evidence has not been provided, real losses have been increased to 6% of W11.1 and are shown in italics bold in column 8 of Table 8 of the *Benchmarking Report*. Refer also to the final paragraph below on NRW and to page 10.

   Similarly, statewide analysis of **NRW** (*real losses*, *apparent losses* and *unbilled water* supplied (refer to note 7 above)) for NSW water utilities other than bulk water suppliers, indicates a minimum of 10% of the potable water supplied.

   Accordingly, a **minimum NRW** of 10% of the total potable urban water supplied (W11.1) has been adopted. Where a LWU has reported NRW of less than 10% of the potable water supplied, the reported NRW has been increased to 10%, unless the LWU has provided evidence of a Real Loss of less than 6%. In such cases, the adopted value for NRW has been determined as the Real Loss plus 4%. Any increases to the real loss (above) or to the NRW (W10.1) have also been applied to W11.1. The adjusted values of the 2014-15 volumes of real loss, NRW (W10.1) and the total potable urban water supplied (W11.1) are shown in italics bold in columns 8, 9 and 10 of Table 8 of the *Benchmarking Report*.

9. **Sydney Water, Hunter Water and Water NSW** (formerly Sydney Catchment Authority (page iii)) – The performance indicators for Sydney Water, Hunter Water and Water NSW were obtained from the *National Performance*

[25] Refer to Table 10A of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*. In addition, results from the Regional NSW Water Loss Management Program (WLMP) are available at http://www.lgnsw.org.au/policy/water.

Report 2014-15 for Urban Water Utilities (www.bom.gov.au).

10. **Bulk storage** – utilities that provide bulk storage dams for their water supply incur significant capital and operating costs for these facilities, resulting in a higher typical residential bill and operating cost per property (refer to Item 3 on page 28). The following 45 regional utilities provided such bulk storage: Armidale, Ballina, Bathurst, Bega Valley, Bourke, Brewarrina, Byron (Mullumbimby), Cabonne, Central Tablelands, Clarence Valley, Cobar, Coffs Harbour, Essential Energy, Eurobodalla, Fish River, Glen Innes-Severn, Gosford, Goulburn Mulwaree, Guyra, Inverell, Kempsey, Kyogle, Lachlan, Leeton, Lithgow, MidCoast, Mid-Western Regional, Moree Plains, Orange, Palerang, Parkes, Port Macquarie-Hastings, Richmond Valley, Rous, Shoalhaven, Tamworth, Tenterfield, Tweed, Upper Hunter, Upper Lachlan, Uralla, Warrumbungle, Wingecarribee, Wyong, Yass Valley. Details of each utility's major sources of water are shown in Table 5B of the *2014-15 NSW Benchmarking Report*.

11. Unfiltered – a utility where over 50% of its supply is an unfiltered surface water supply ie the utility does not have a water treatment works providing filtration and disinfection for >50% of its supply.

    Groundwater – a utility with >50% of its supply comprising good quality unfiltered groundwater.

    Reticulator – a utility that purchases >70% of its source water from a bulk supplier and reticulates water to householders in its area.

    Bulk supplier – a utility that provides a bulk water supply to other utilities, rather than reticulating water to householders.

    Dual supply – a utility with a potable reticulated water supply for indoor uses and a separate non-potable supply reticulated for outdoor uses to over 50% of its residential customers (page 30).

12. **National Water Initiative (NWI) indicators** – There are 32 NSW water utilities with >10,000 connected properties including 3 metropolitan utilities and 29 regional utilities. These utilities reported their performance in the *National Performance Report 2014-15* based on a nationally agreed framework of indicator definitions.

13. **Reported NWI indicators** –

    Appendix D reports the results for NWI indicators C4, W11, F4, P3, P6, P8, H3, H4, C9, C15, A8, C13, W12, A10, E4, A14, W27, F1+F2, F22, F28+F29, F16, F17, F18, F11 and F12.

    Appendix E reports indicators P1, P1.2, P1.12, P1.3, P1.4, P3, F17, F4, P2.1, W12 and C4.

    Appendix F reports indicators P4.1, P4.2, P6, F18, W19 and C8.

    The 2014-15 results for indicators F4, H4, H3, C9, C13, A8, W12, A10, W10.1, E4, A14, W27, E12, W19, F19, F17, F18, F11 and F12 are shown in Figures 4, 9, 10, 11, 12, 13, 14, 17, 18, 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30.

    The 2015-16 results for indicators P8, P3, P6 and P1.3 are shown in Figures 1, 2, 3 and 5.

    All the NSW LWUs have complied with indicator H1. Results for indicator H5 are reported in Table 12 of the *NSW Benchmarking Report*.

14. **Appendix D** shows that for 2014-15, the total number of connected properties served in NSW was 2,943,000, the total urban water supplied was 890 GL and total revenue was $4,370M.

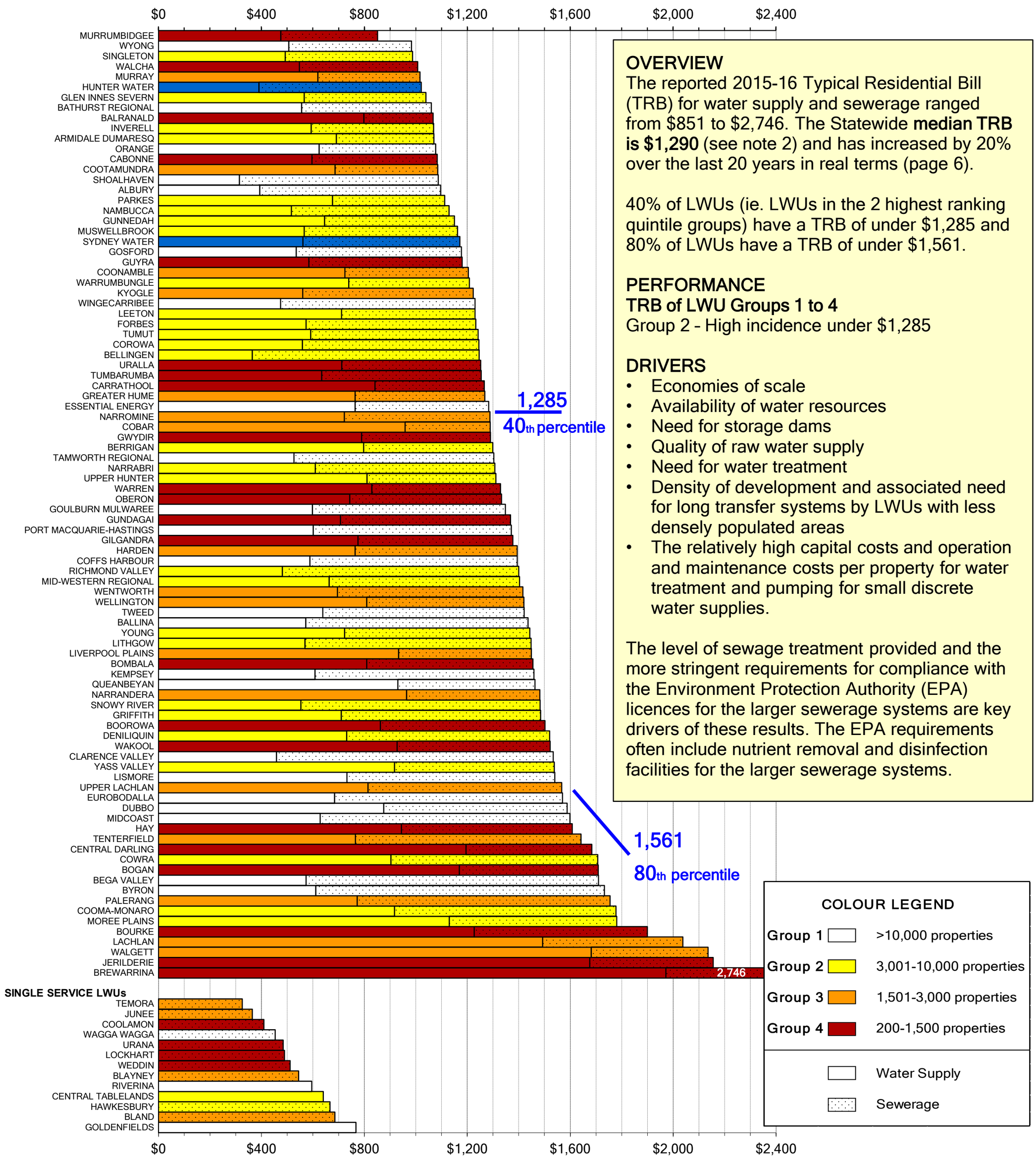
15. Appendix I discusses the **characteristics of the Australian urban water sector.**

    NSW vs Australian Totals – Appendix I shows that the total populations receiving water supply and sewerage services in NSW are 32% and 34% respectively of the Australian totals of 22.2 million and 20.7 million. The volume of urban water supplied in NSW is 32% of the Australian total of 2,760 GL, and the recycled water supplied in NSW is 32% of the Australian total of 269 GL.

    The water and sewerage revenue for NSW is 25% of the Australian total of $17.4 billion, the operating cost is 25% of the Australian total of $8.3 billion and capital expenditure is 31% of the Australian total of $3.6 billion.

    NSW has 30% of the 201,000 km of Australian water mains, 33% of the 151,000 km of Australian sewerage mains and channels, 32% of the 558 Australian water treatment works and 40% of the 869 Australian sewage treatment works.

Figure 1: Typical Residential Bill ($ per assessment) - Water & Sewerage 2015-16 - P8



OVERVIEW

The reported 2015-16 Typical Residential Bill (TRB) for water supply and sewerage ranged from $851 to $2,746. The Statewide **median TRB is $1,290** (see note 2) and has increased by 20% over the last 20 years in real terms (page 6).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have a TRB of under $1,285 and 80% of LWUs have a TRB of under $1,561.

PERFORMANCE

TRB of LWU Groups 1 to 4

Group 2 – High incidence under $1,285

DRIVERS

- Economies of scale
- Availability of water resources
- Need for storage dams
- Quality of raw water supply
- Need for water treatment
- Density of development and associated need for long transfer systems by LWUs with less densely populated areas
- The relatively high capital costs and operation and maintenance costs per property for water treatment and pumping for small discrete water supplies.

The level of sewage treatment provided and the more stringent requirements for compliance with the Environment Protection Authority (EPA) licences for the larger sewerage systems are key drivers of these results. The EPA requirements often include nutrient removal and disinfection facilities for the larger sewerage systems.

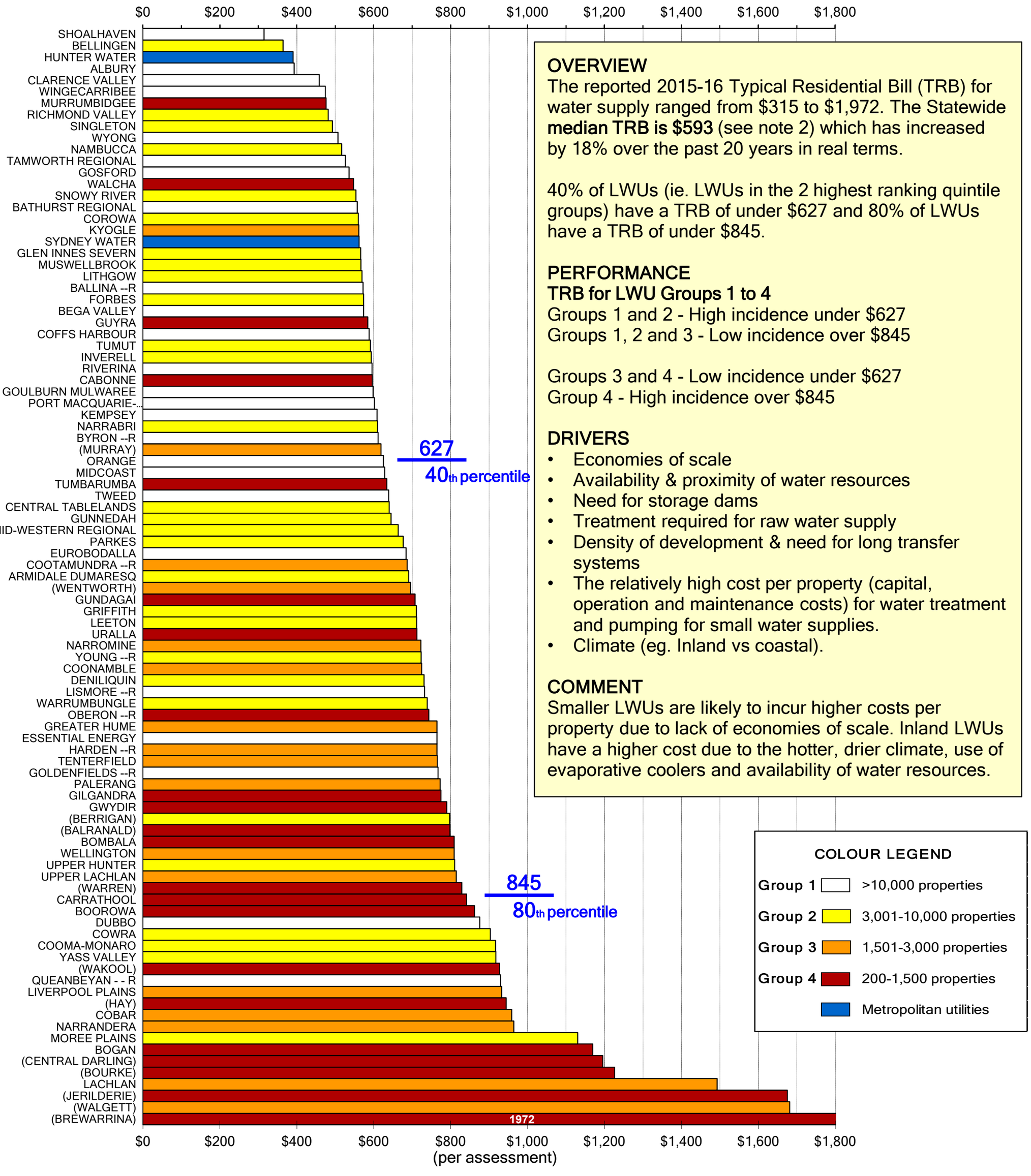
(per assessment)

Parameter: (2014-15 Average Residential Water Supplied x 2015-16 Water Usage Charges) + 2015-16 Water and Sewerage Access Charges

Notes:

1. This figure shows ranked values of the 2015-16 typical residential bill for water supply and sewerage [NWI Indicator P8] for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 7, 18, 71 and 85.
4. For general notes see page 30.

Figure 2: Typical Residential Bill ($ per assessment) - Water Supply 2015-16 - P3

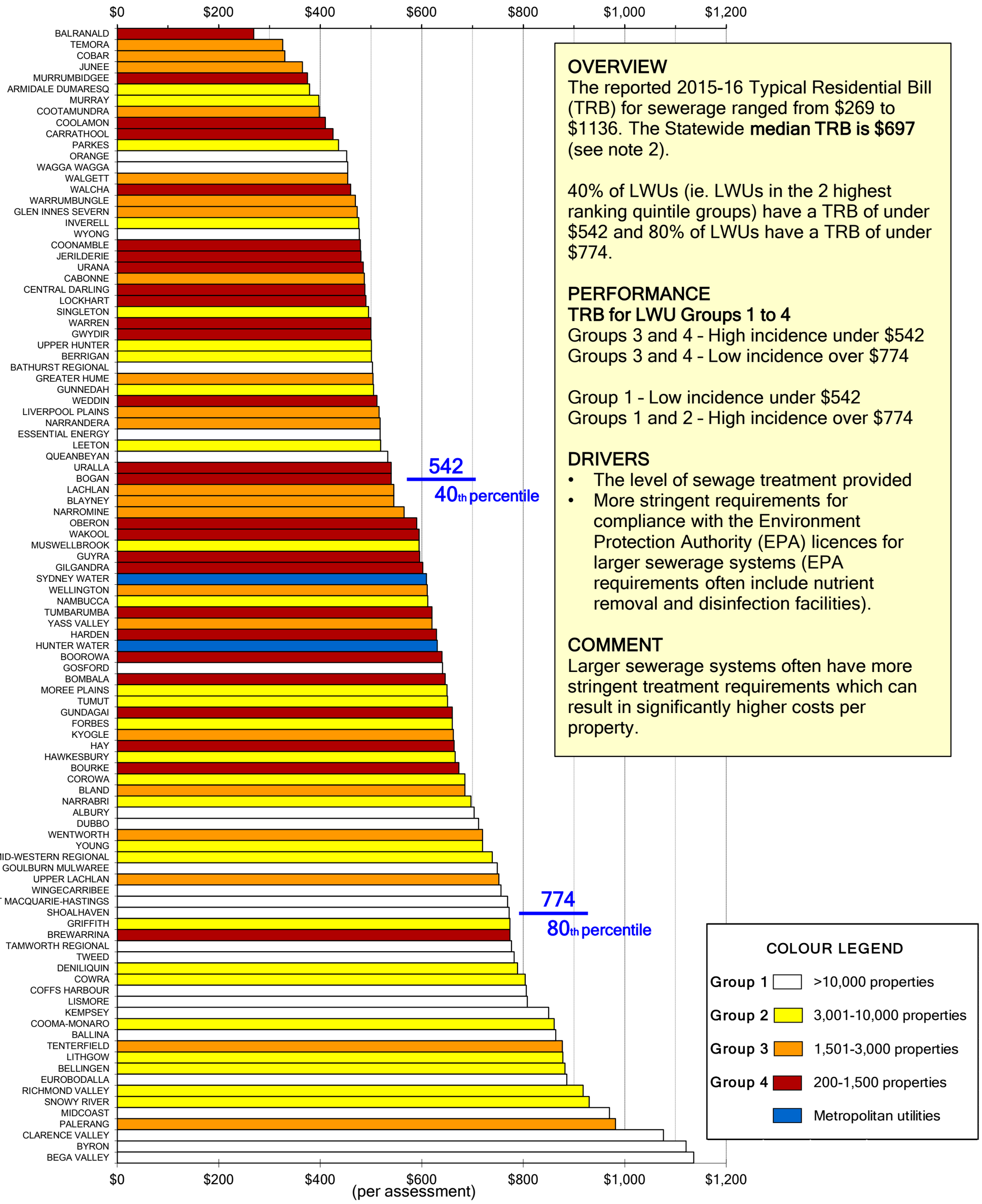


Parameter: (2014-15 Average Residential Water Supplied x 2015-16 Water Usage Charges) + 2015-16 Water Access Charge

Notes:

1. This figure shows ranked values of the 2015-16 typical residential bill for water supply [NWI Indicator P3] for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. As shown in the box on page 5, the increase in the real water supply Typical Residential Bill (TRB) over the past 20 years has been limited to 18%.
4. Refer also to pages 5, 6, 71, 85 and 89.
5. The 12 LWUs with a dual water supply (ie. a potable supply for indoor use and a non-potable supply for outdoor use) are enclosed in brackets. Reticulators are suffixed by --R. Refer also to Notes 4 and 6 on page 32.
6. For general notes see page 30.

Figure 3: Typical Residential Bill ($ per assessment) - Sewerage 2015-16 - P6



OVERVIEW

The reported 2015-16 Typical Residential Bill (TRB) for sewerage ranged from $269 to $1136. The Statewide **median TRB is $697** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have a TRB of under $542 and 80% of LWUs have a TRB of under $774.

PERFORMANCE

TRB for LWU Groups 1 to 4

Groups 3 and 4 – High incidence under $542
Groups 3 and 4 – Low incidence over $774

Group 1 – Low incidence under $542
Groups 1 and 2 – High incidence over $774

DRIVERS

- The level of sewage treatment provided
- More stringent requirements for compliance with the Environment Protection Authority (EPA) licences for larger sewerage systems (EPA requirements often include nutrient removal and disinfection facilities).

COMMENT

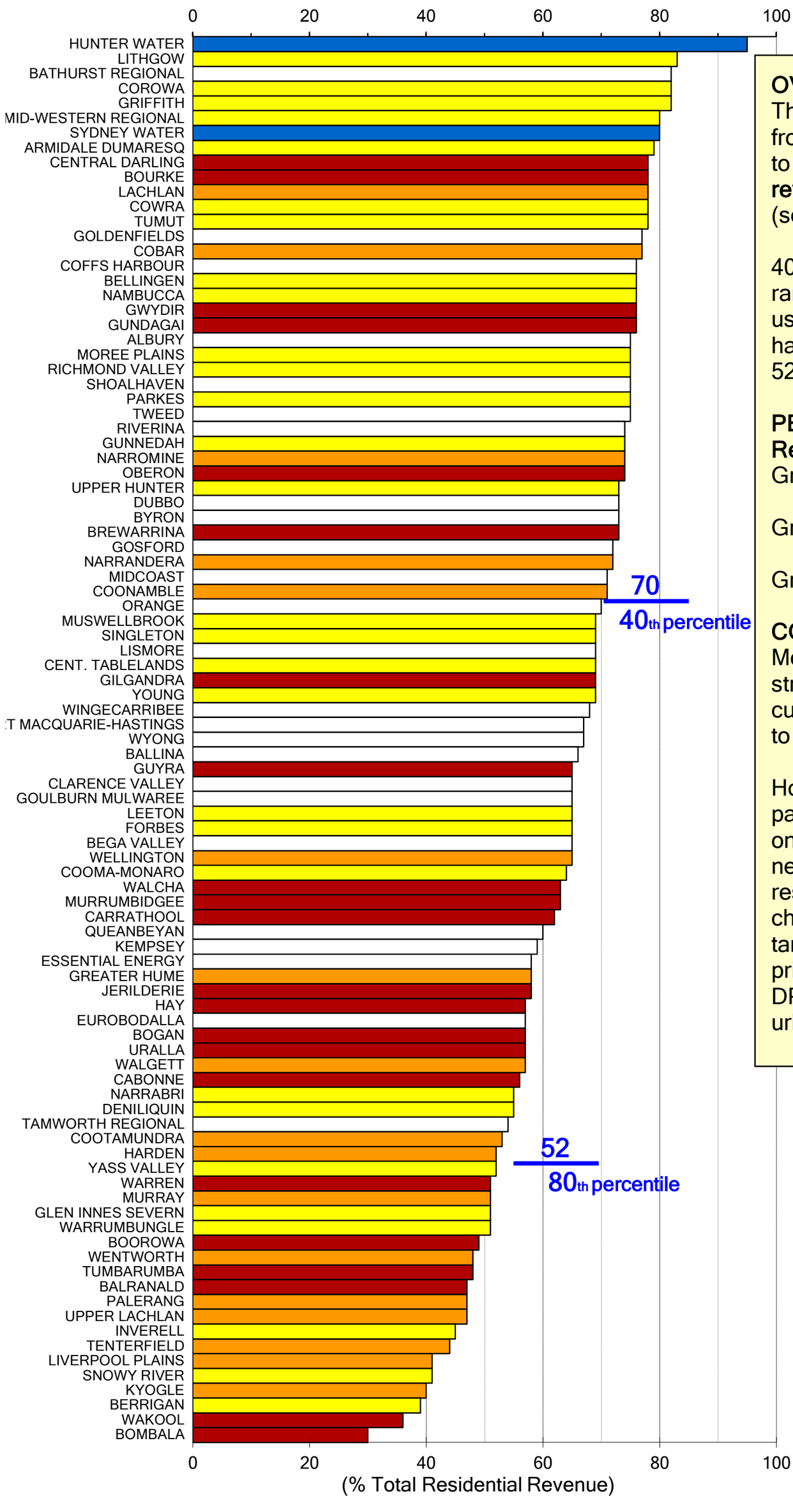
Larger sewerage systems often have more stringent treatment requirements which can result in significantly higher costs per property.

Parameter: Residential Access Charge

Notes:

1. This figure shows ranked values of the 2015-16 typical residential bill for sewerage [NWI Indicator P6] for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 6, 71, 85 and 92.
4. For general notes see page 30.

Figure 4: Residential Revenue from Usage Charges - Water Supply 2014-15 - F4



OVERVIEW
The reported 2014-15 residential revenue from water usage charges ranged from 95% to 29%. The Statewide **median residential revenue from water usage charges is 72%** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have revenue from usage charges of over 70% and 80% of LWUs have revenue from usage charges of over 52%.

PERFORMANCE
Revenue from usage of LWU Groups 1 to 4
Groups 1, 2 and 4 – High incidence over 70%

Group 1 – Nil incidence under 52%

Groups 2 and 3 – High incidence under 52%

COMMENT
Most of the Group 1 LWUs are providing strong pricing signals to their residential customers through their water usage charges to encourage efficient water use.

However, contrary to the guidelines on pages 21 and 22, many Group 2 LWUs and one Group 1 LWU are failing to provide the necessary strong pricing signals to their residential customers through their usage charges. These LWUs should revise their tariff structures in order to provide appropriate pricing signals. Assistance is available from DPI Water ((02) 9842 8508 or urbanwater.ctw@dpi.nsw.gov.au).

(% Total Residential Revenue)

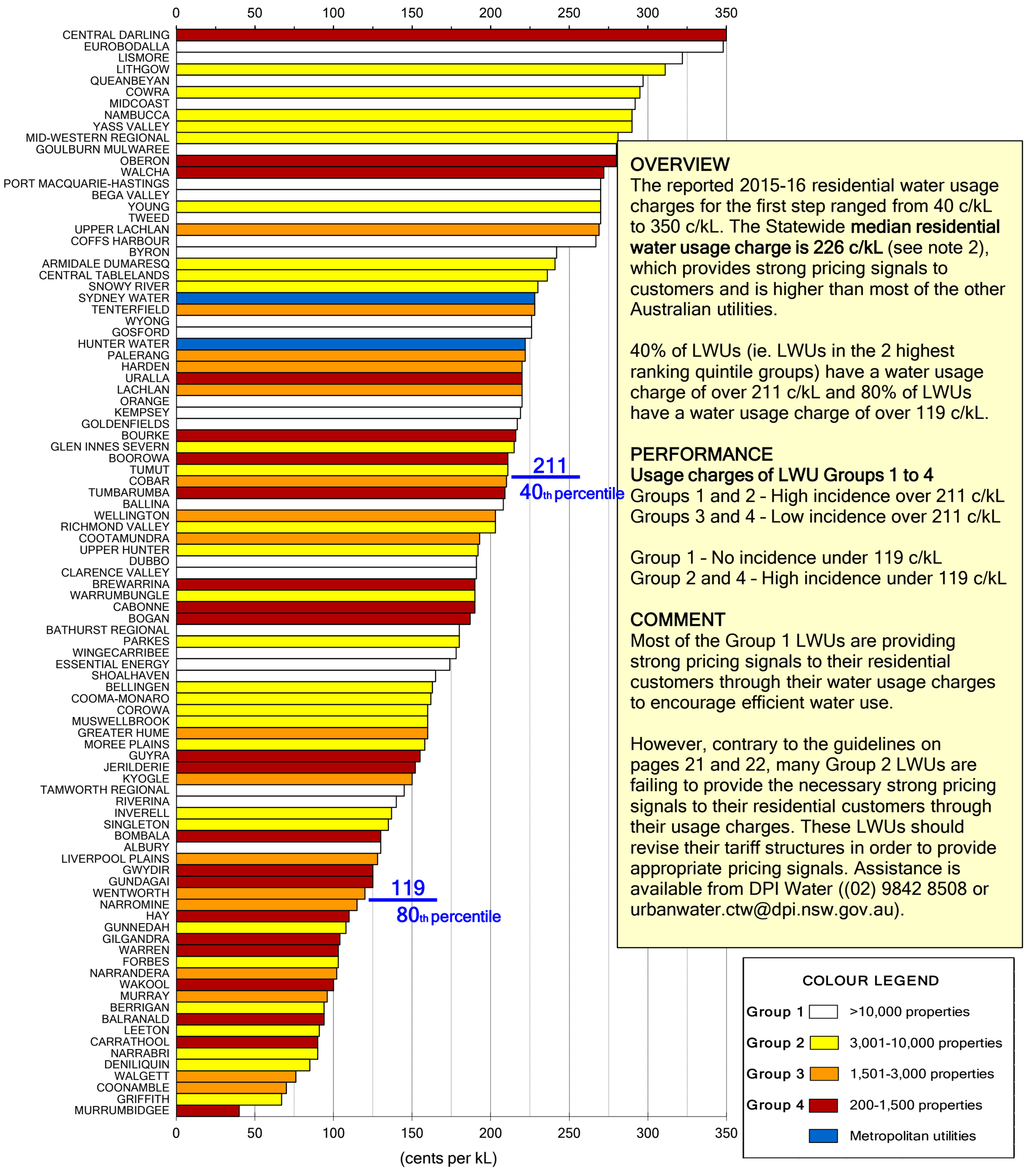
Parameter:

$$\frac{\text{Revenue from Residential Water Usage Charges (W\_7b) x 100}}{\text{Revenue from Residential Access Charges (W\_7a) + Revenue from Residential Water Usage Charges (W\_7b)}}$$

Notes:

1. This figure shows ranked values of the 2014-15 percentage revenue from residential water usage charges [NWI Indicator F4] for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. As shown in the box on page 5, the increase in the real water supply Typical Residential Bill (TRB) over the past 20 years has been limited to 18%.
4. Refer also to the box on page 5 and pages 17, 71, 85 and 89.
5. For general notes see page 30.

Figure 5: Residential Water Usage Charge 2015-16 - P1.3

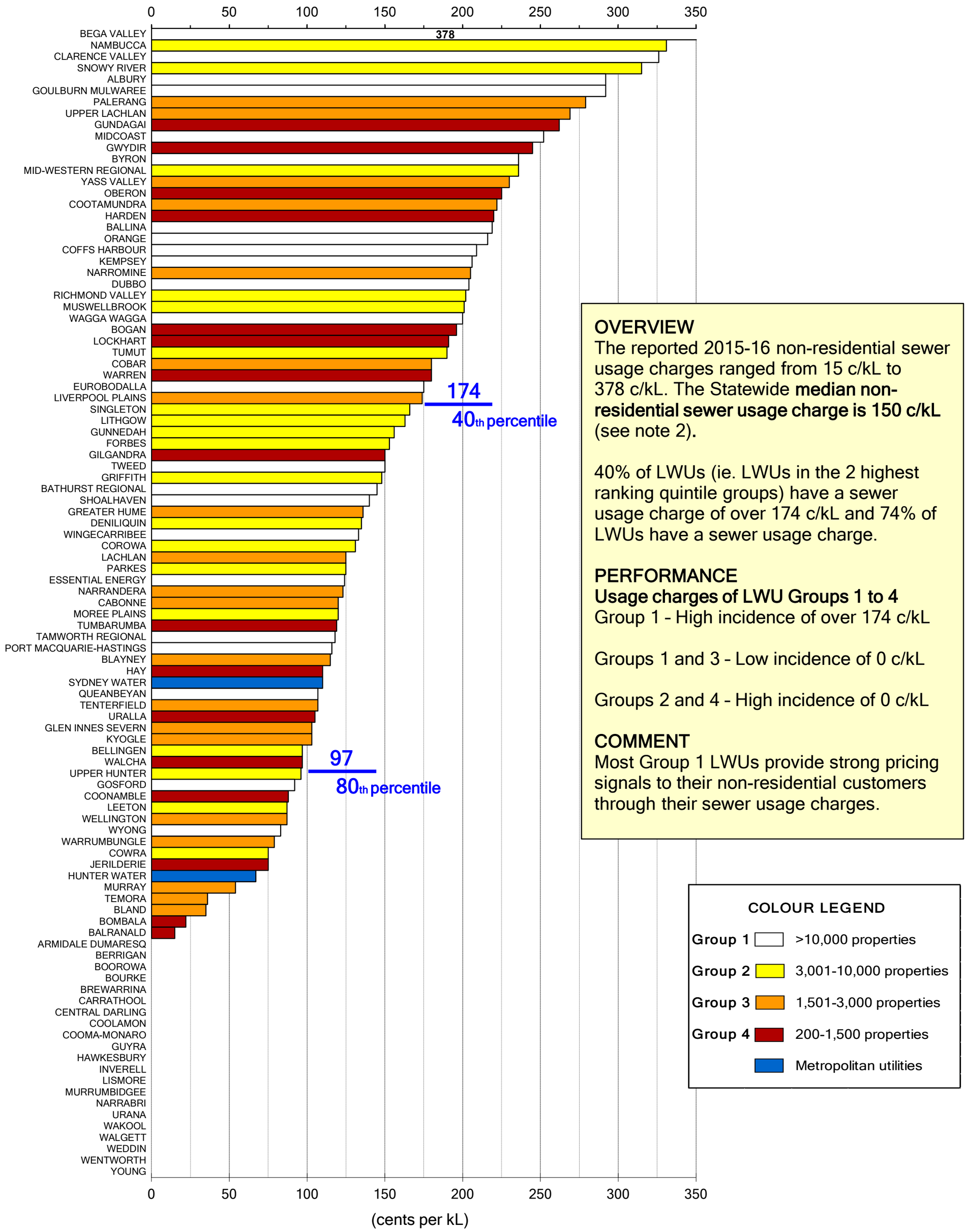


Parameter: Residential Water Usage Charge

Notes:

1. This figure shows ranked values of the 2015-16 residential water usage charge [NWI Indicator P1.3] for the first step for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. As shown in the box on page 5, the real increase in the Statewide median water supply Typical Residential Bill (TRB) over the past 20 years has been limited to 18%.
4. Refer also to pages 5, 71 and 89.
5. For general notes see page 30.

Figure 6: Non-residential Sewer Usage Charge 2015-16

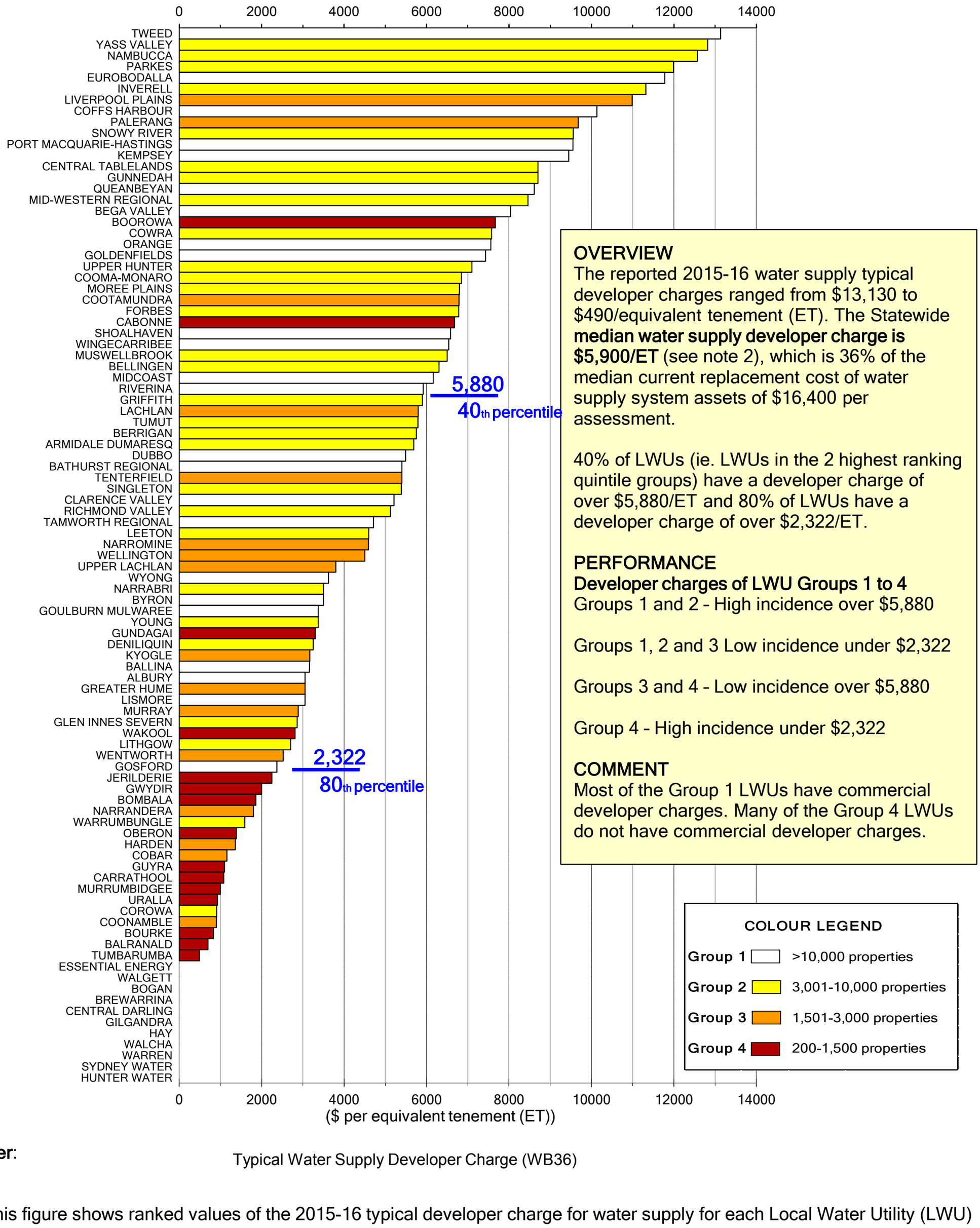


Parameter: Non-residential Sewer Usage Charge

Notes:

1. This figure shows ranked values of the 2015-16 non-residential sewer usage charge for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 6 and 92.
4. For general notes see page 30.

Figure 7: Typical Developer Charges - Water Supply 2015-16



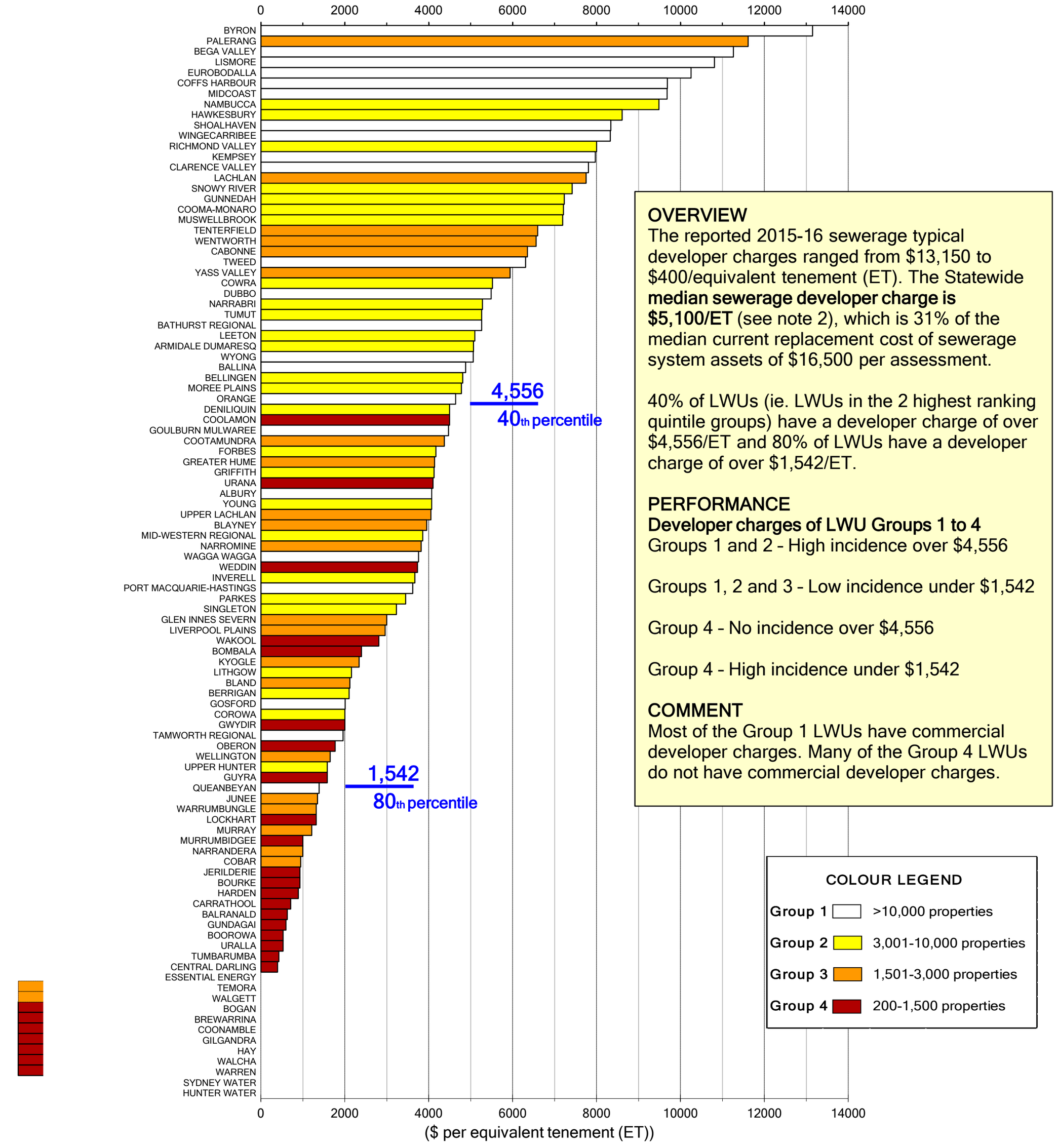
Parameter:

Typical Water Supply Developer Charge (WB36)

Notes:

1. This figure shows ranked values of the 2015-16 typical developer charge for water supply for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. 85 LWUs levied water supply developer charges.
4. 83% of LWUs have an appropriate water supply Development Servicing Plan (DSP) with commercial developer charges. This includes the following 12 utilities which have received an exemption from needing to levy commercial water supply developer charges due to their low growth of under 5 lots/a - Bogan, Boorowra, Bourke, Brewarrina, Central Darling, Coonamble, Essential Energy, Gilgandra, Hay, Kyogle, Tumbarumba and Warren.
5. Refer also to pages 6 and 89.
6. For general notes see page 30.

Figure 8: Typical Developer Charges - Sewerage 2015-16

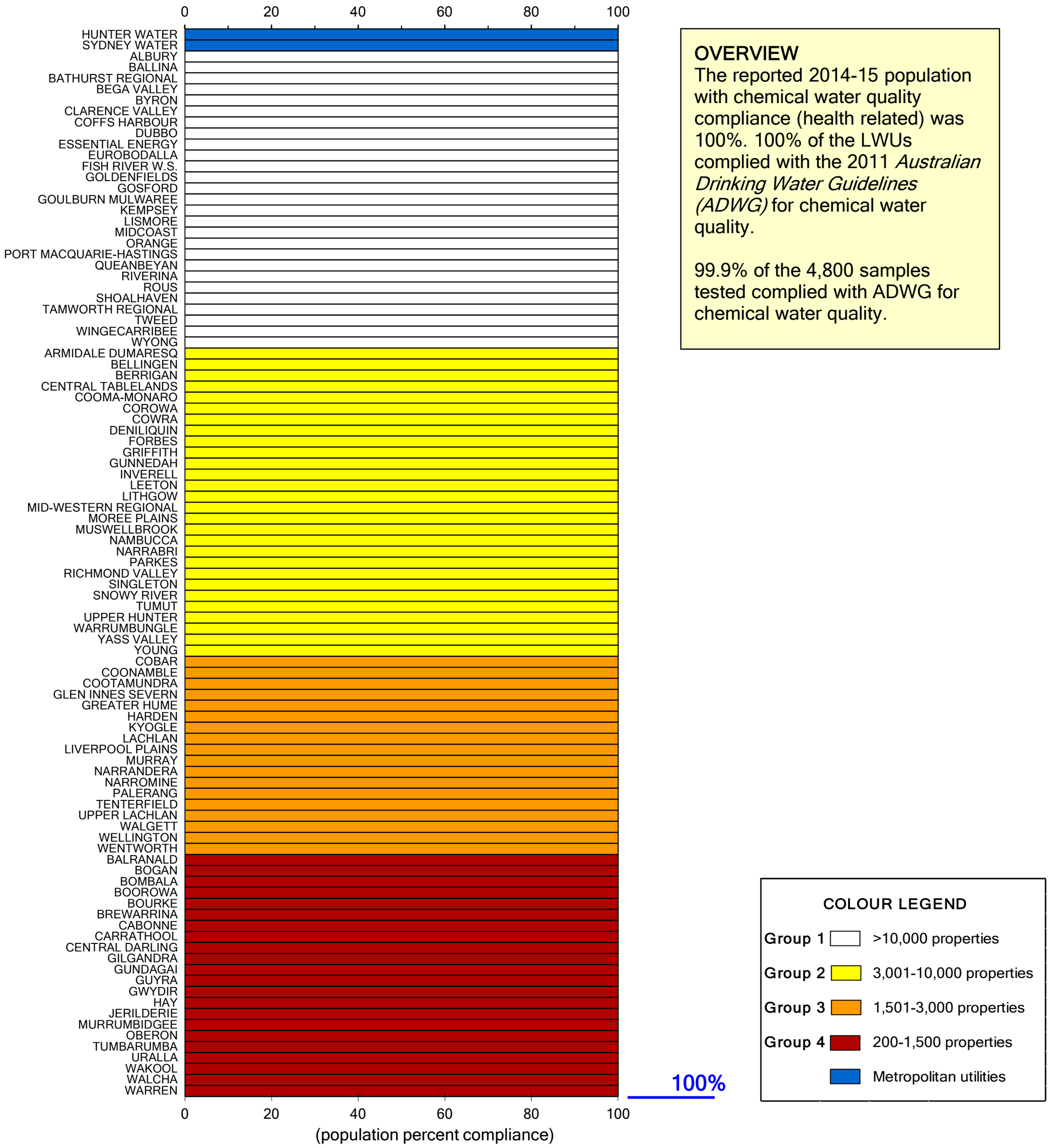


Parameter: Typical Sewerage Developer Charge (SB36)

Notes:

1. This figure shows ranked values of the 2015-16 typical developer charge for sewerage for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. 90 LWUs levied sewerage developer charges.
4. 85% of LWUs have an appropriate sewerage Development Servicing Plan (DSP) with commercial developer charges. This includes the following 12 utilities which have received an exemption from needing to levy commercial sewerage developer charges due to their low growth of under 5 lots/a - Bogan, Boorowa, Bourke, Brewarrina, Central Darling, Coonamble, Essential Energy, Gilgandra, Hay, Kyogle, Tumbarumba and Warren.
5. Refer also to pages 6 and 92.
6. For general notes see page 30.

Figure 9: % Population with Chemical Compliance - Water Supply 2014-15 - H4



OVERVIEW
The reported 2014-15 population with chemical water quality compliance (health related) was 100%. 100% of the LWUs complied with the 2011 *Australian Drinking Water Guidelines (ADWG)* for chemical water quality.

99.9% of the 4,800 samples tested complied with ADWG for chemical water quality.

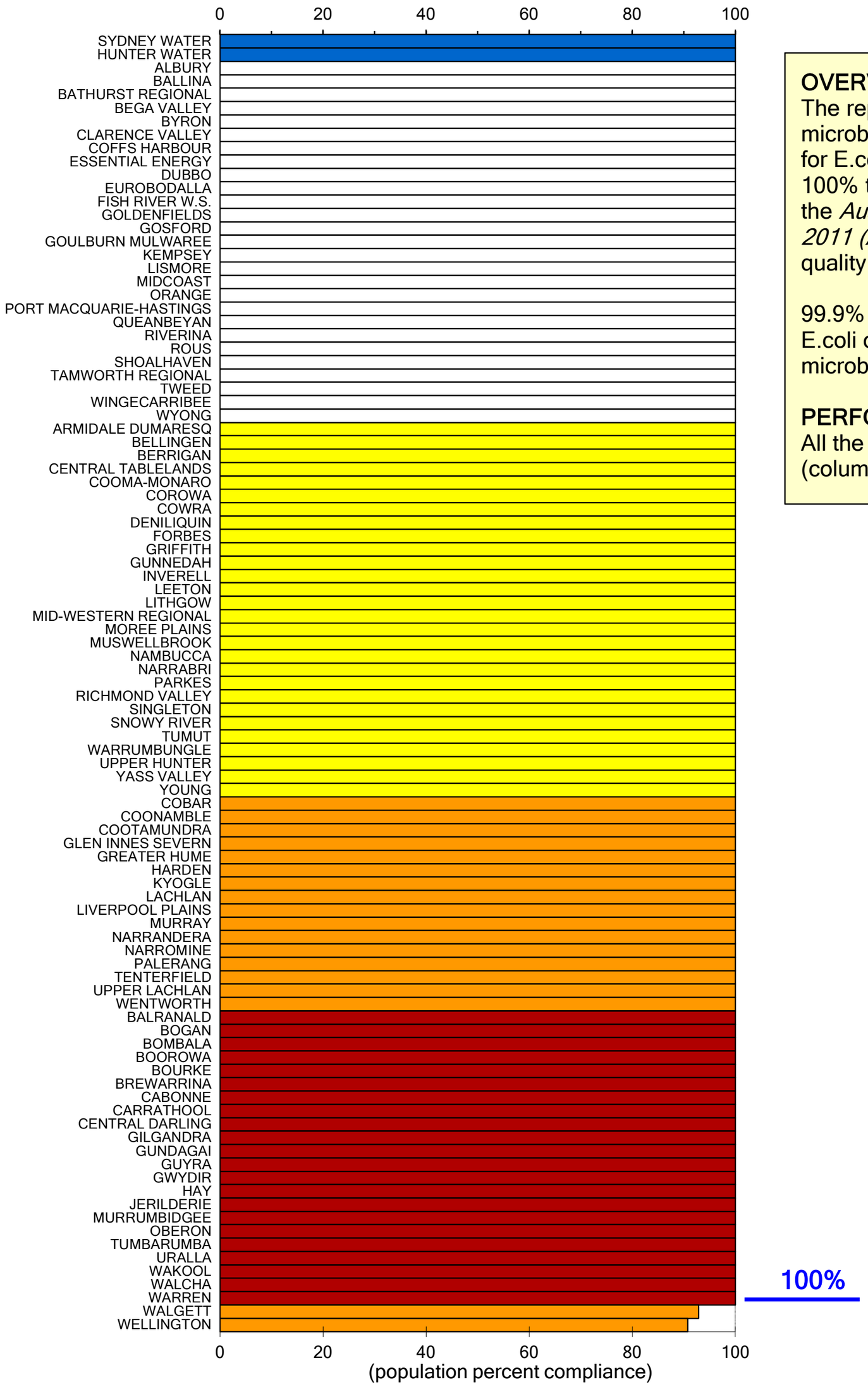
Parameter:

Percentage of population complying with the chemical criteria of the *2011 NHMRC/NRMMC Australian Drinking Water Guidelines* .

Notes:

1. This figure shows ranked values of the 2014-15 percent population with chemical water quality compliance (health related) [NWI Indicator H4] with the 2011 NHMRC/NRMMC Australian Drinking Water Guidelines (ADWG) for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. For a LWU to comply with the 2011 ADWG for chemical water quality (health related), the required number of samples must be tested and the 95th percentile of results must be less than the guideline value for each chemical. Non-potable supplies are excluded.
3. For LWUs with more than one water treatment works, the reported compliance has been pro-rated on the basis of the population serviced by each treatment works.
4. For 2014-15, the public drinking water supply for 99.9% of the urban population in regional NSW complied with 2011 ADWG for both microbiological and chemical water quality, as did all of the regional utilities (column 11 on page 85).
5. Refer also to pages 7, 8, 85 and 99.
6. For general notes see page 30.

Figure 10: % Population with Microbiological Compliance - Water Supply 2014-15 - H3



OVERVIEW
The reported 2014-15 population with microbiological water quality compliance for E.coli (health related) ranged from 100% to 91%. All the LWUs complied with the *Australian Drinking Water Guidelines, 2011 (ADWG)* for microbiological water quality.

99.9% of the 19,400 samples tested for E.coli complied with ADWG for microbiological water quality.

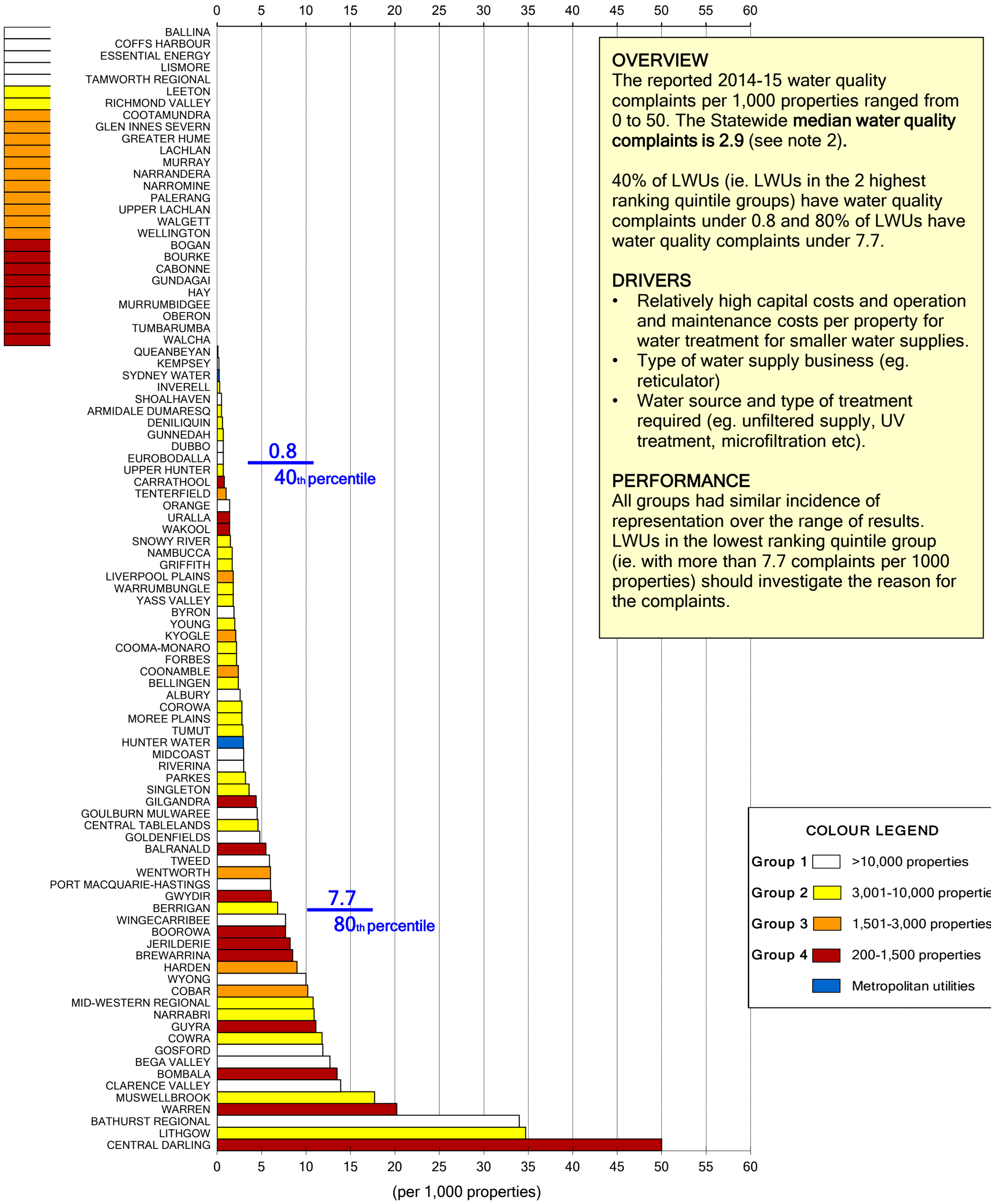
PERFORMANCE
All the LWUs complied with the Guidelines (column 9 on page 87).

Parameter: Percentage of population complying with the microbiological criteria of the *2011 NHMRC/NRMMC Australian Drinking Water Guidelines* .

Notes:

1. This figure shows ranked values of the 2014-15 percent population with microbiological water quality compliance (health related) [NWI Indicator H3] with the 2011 NHMRC/NRMMC Australian Drinking Water Guidelines for E. coli for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. For a LWU to comply with the 2011 Australian Drinking Water Guidelines for microbiological water quality (health related), the required number of samples must be tested and at least 98% of the samples must contain no E.coli. Non-potable water supplies are excluded.
3. For LWUs with more than one water treatment works, the reported compliance has been pro-rated on the basis of the population serviced by each treatment works.
4. For 2014-15, the public drinking water supply for 99.9% of the urban population in regional NSW complied with 2011 ADWG for both microbiological and chemical water quality, as did all of the regional utilities (column 9 on page 85).
5. Refer also to pages 7, 8, 72, 85 and 99.
6. For general notes see page 30.

Figure 11: Water Quality Complaints - Water Supply 2014-15 - C9



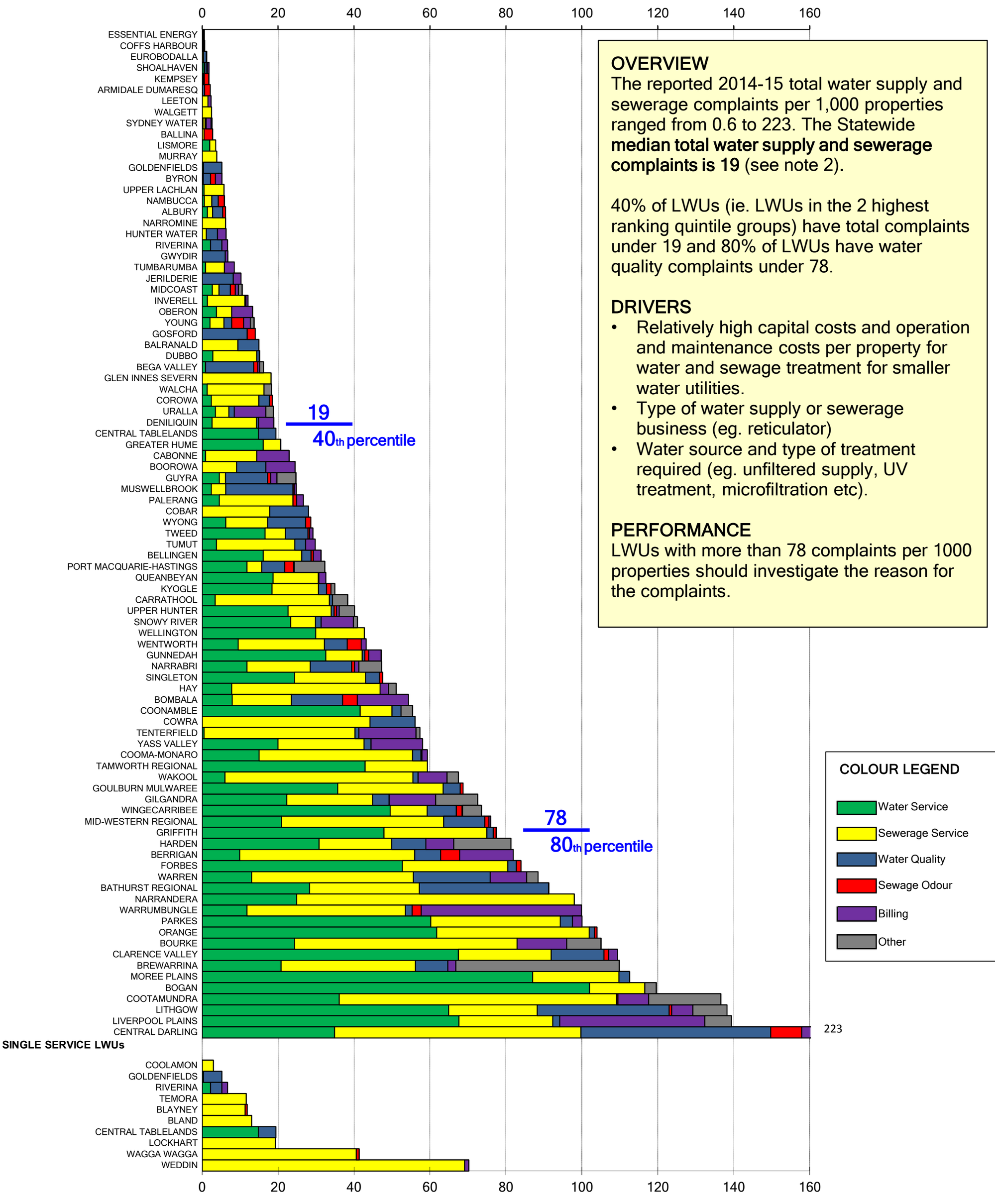
Parameter:

$$\frac{\text{Number of water quality complaints (WB101b)} \times 1{,}000}{\text{No. connected properties}}$$

Notes:

1. This figure shows ranked values of the 2014-15 number of water quality complaints [NWI Indicator C9] per 1000 connected properties for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 9, 72 and 85.
4. For general notes see page 30.

Figure 12: Total Complaints - Water Supply and Sewerage 2014-15 - C13



OVERVIEW

The reported 2014-15 total water supply and sewerage complaints per 1,000 properties ranged from 0.6 to 223. The Statewide **median total water supply and sewerage complaints is 19** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have total complaints under 19 and 80% of LWUs have water quality complaints under 78.

DRIVERS

- Relatively high capital costs and operation and maintenance costs per property for water and sewage treatment for smaller water utilities.
- Type of water supply or sewerage business (eg. reticulator)
- Water source and type of treatment required (eg. unfiltered supply, UV treatment, microfiltration etc).

PERFORMANCE

LWUs with more than 78 complaints per 1000 properties should investigate the reason for the complaints.

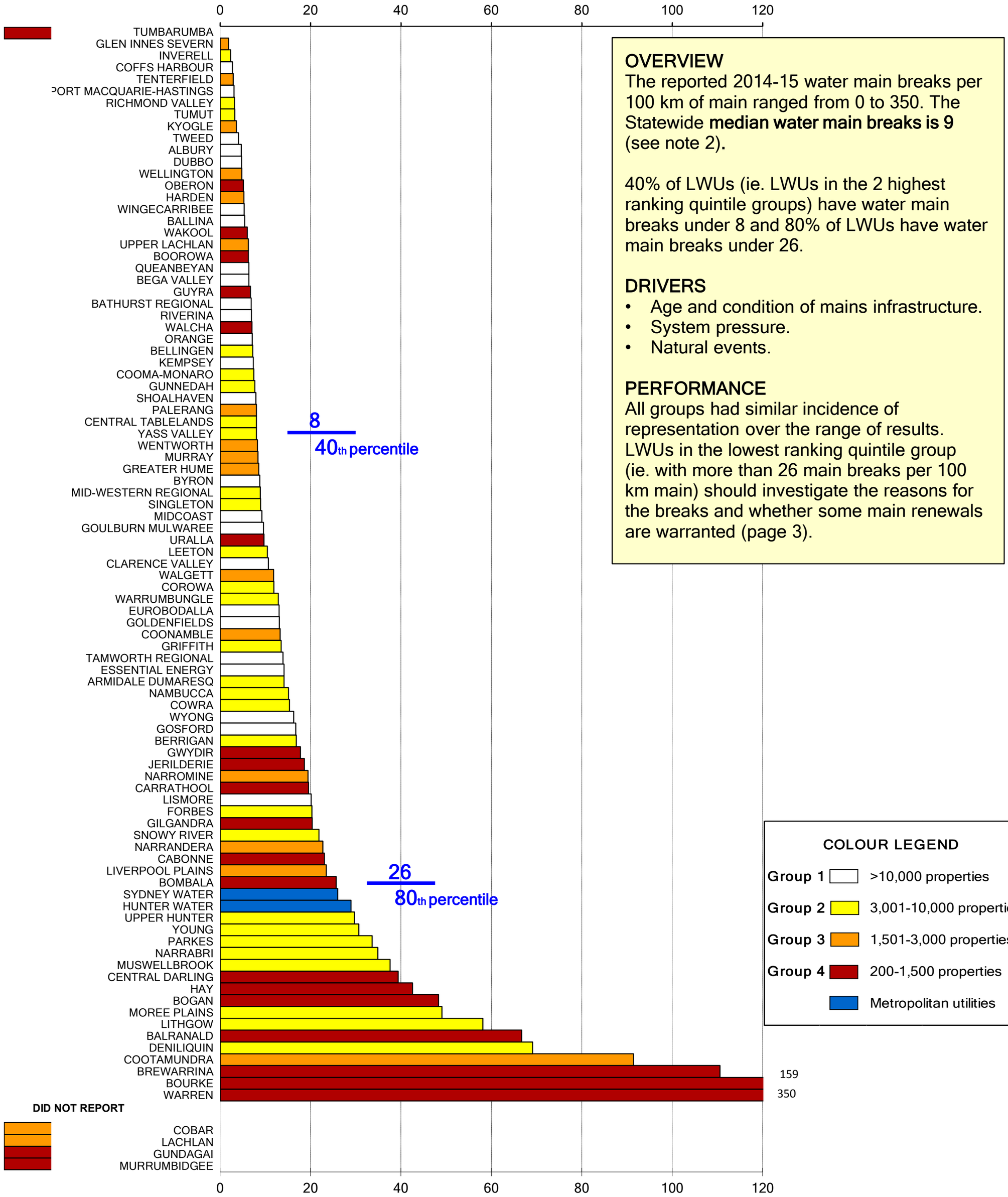
Parameter:

$$\frac{\text{[No. of water complaints (WB102) + No. of sewerage complaints (SB40)]} \times 1{,}000}{\text{No. connected properties}}$$

Notes:

1. This figure shows ranked values of the 2014-15 number of total complaints for water supply and sewerage [NWI Indicator C13] per 1000 connected properties for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 9 and 85.
4. For general notes see page 30.

Figure 13: Main Breaks - Water Supply 2014-15 - A8



OVERVIEW

The reported 2014-15 water main breaks per 100 km of main ranged from 0 to 350. The Statewide **median water main breaks is 9** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have water main breaks under 8 and 80% of LWUs have water main breaks under 26.

DRIVERS

- Age and condition of mains infrastructure.
- System pressure.
- Natural events.

PERFORMANCE

All groups had similar incidence of representation over the range of results. LWUs in the lowest ranking quintile group (ie. with more than 26 main breaks per 100 km main) should investigate the reasons for the breaks and whether some main renewals are warranted (page 3).

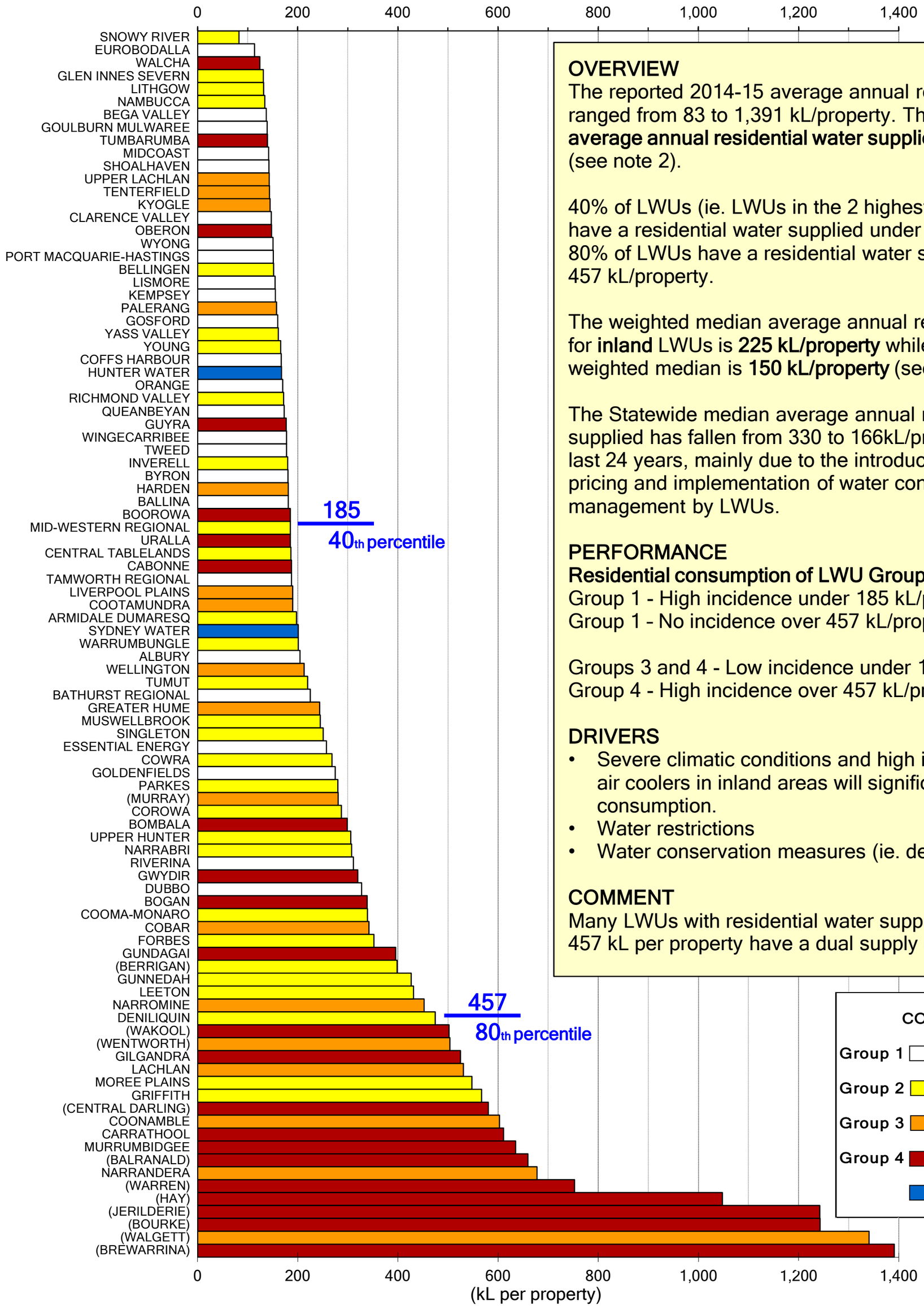
Parameter:

$$\frac{\text{No of pipeline breaks (WB104)} \times 1{,}000}{\text{Length of distribution and trunk mains (WB22)}}$$

Notes:

1. This figure shows ranked values of the 2014-15 number of water main breaks [NWI Indicator A8] per 100 km of main for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 9, 18, 72 and 85.
4. For general notes see page 30.

Figure 14: Average Annual Residential Water Supplied 2014-15 - W12



OVERVIEW

The reported 2014-15 average annual residential water supplied ranged from 83 to 1,391 kL/property. The Statewide **median average annual residential water supplied is 166 kL/property** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have a residential water supplied under 185 kL/property and 80% of LWUs have a residential water supplied under 457 kL/property.

The weighted median average annual residential water supplied for **inland** LWUs is **225 kL/property** while for **coastal** LWUs the weighted median is **150 kL/property** (see Figure 13).

The Statewide median average annual residential water supplied has fallen from 330 to 166kL/property (50%) over the last 24 years, mainly due to the introduction of pay-for-use water pricing and implementation of water conservation and demand management by LWUs.

PERFORMANCE

Residential consumption of LWU Groups 1 to 4

Group 1 - High incidence under 185 kL/property
Group 1 – No incidence over 457 kL/property

Groups 3 and 4 - Low incidence under 185 kL/property
Group 4 - High incidence over 457 kL/property

DRIVERS

- Severe climatic conditions and high incidence of evaporative air coolers in inland areas will significantly increase water consumption.
- Water restrictions
- Water conservation measures (ie. demand management).

COMMENT

Many LWUs with residential water supplied greater than 457 kL per property have a dual supply (Note 3).

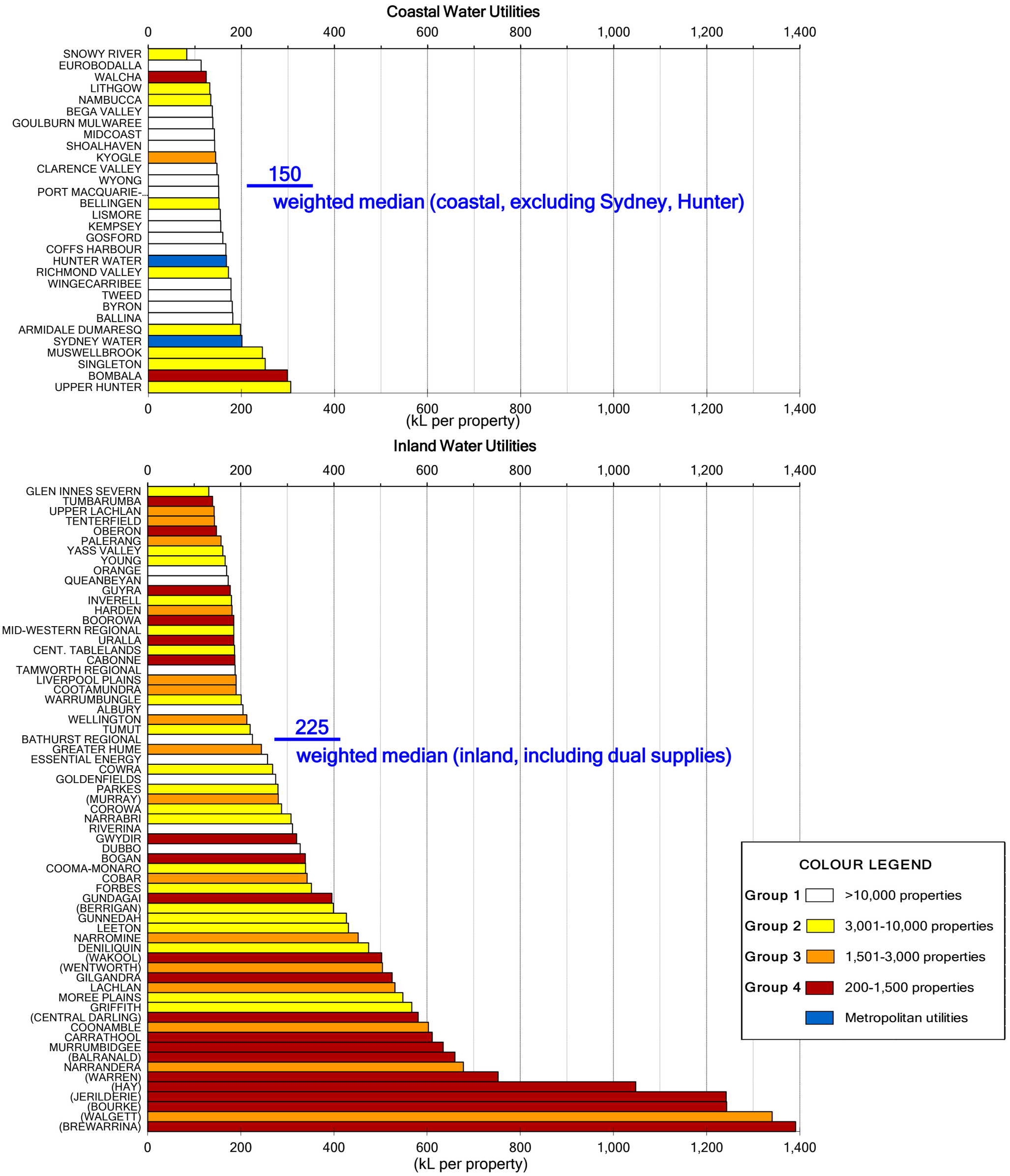
Parameter:

$$\frac{\text{Annual residential water supplied} \times 1{,}000}{\text{No. residential connected properties}}$$

Notes:

1. This figure shows ranked values of the 2014-15 average annual residential water supplied [NWI Indicator W12] per connected property for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. The 12 LWUs with a dual water supply (ie. a potable supply for indoor use and a non-potable supply for outdoor use) are enclosed in brackets. Refer to Note 6 on page 32.
4. Refer also to pages 5, 9, 18, 73, 85 and 89.
5. For general notes see page 30.

Figure 15: Average Annual Residential Water Supplied - Coastal & Inland LWUs 2014-15 - W12



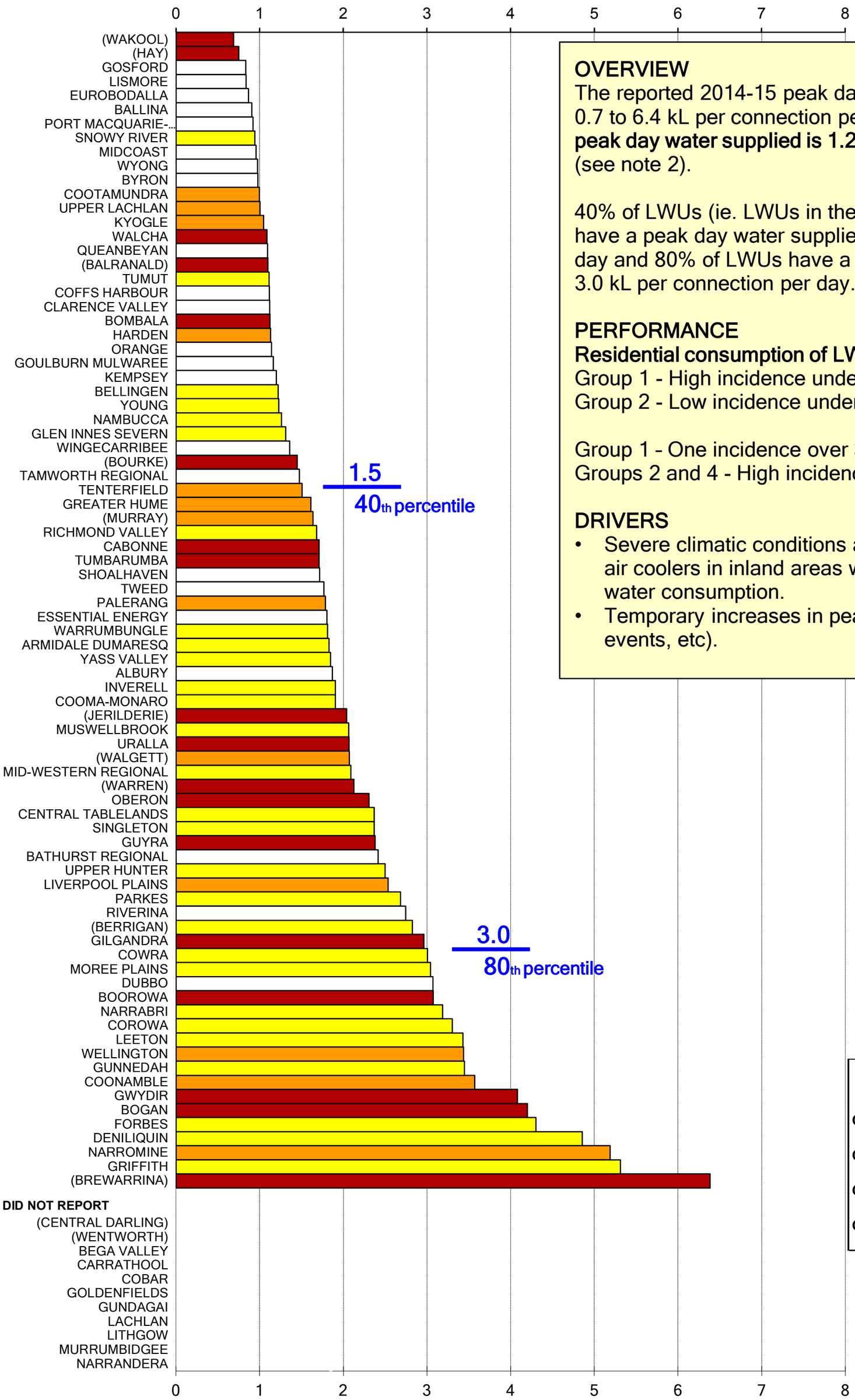
Parameter:

$$\frac{\text{Annual residential water supplied x 1,000}}{\text{No. residential connected properties}}$$

Notes:

1. This figure shows ranked values of the 2014-15 average annual residential water supplied [NWI Indicator W12] per connected property for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The weighted median is calculated on the basis of connected properties.
3. The 12 LWUs with a dual water supply (ie. a potable supply for indoor use and a non-potable supply for outdoor use) are enclosed in brackets. Refer to Note 6 on page 30.
4. For general notes see page 30.

Figure 16: Peak Day Water Supplied 2014-15



OVERVIEW

The reported 2014-15 peak day water supplied ranged from 0.7 to 6.4 kL per connection per day. The Statewide **median peak day water supplied is 1.2 kL per connection per day** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have a peak day water supplied under 1.5 kL per connection per day and 80% of LWUs have a peak day water supplied under 3.0 kL per connection per day.

PERFORMANCE

Residential consumption of LWU Groups 1 to 4

Group 1 - High incidence under 1.5 kL/connection/d
Group 2 - Low incidence under 1.5 kL/connection/d

Group 1 – One incidence over 3.0 kL/connection/d
Groups 2 and 4 - High incidence over 3.0 kL/connection/d

DRIVERS

- Severe climatic conditions and high incidence of evaporative air coolers in inland areas will significantly increase peak day water consumption.
- Temporary increases in peak population (holiday crowds, events, etc).

COLOUR LEGEND

Group 1	>10,000 properties
Group 2	3,001-10,000 properties
Group 3	1,501-3,000 properties
Group 4	200-1,500 properties

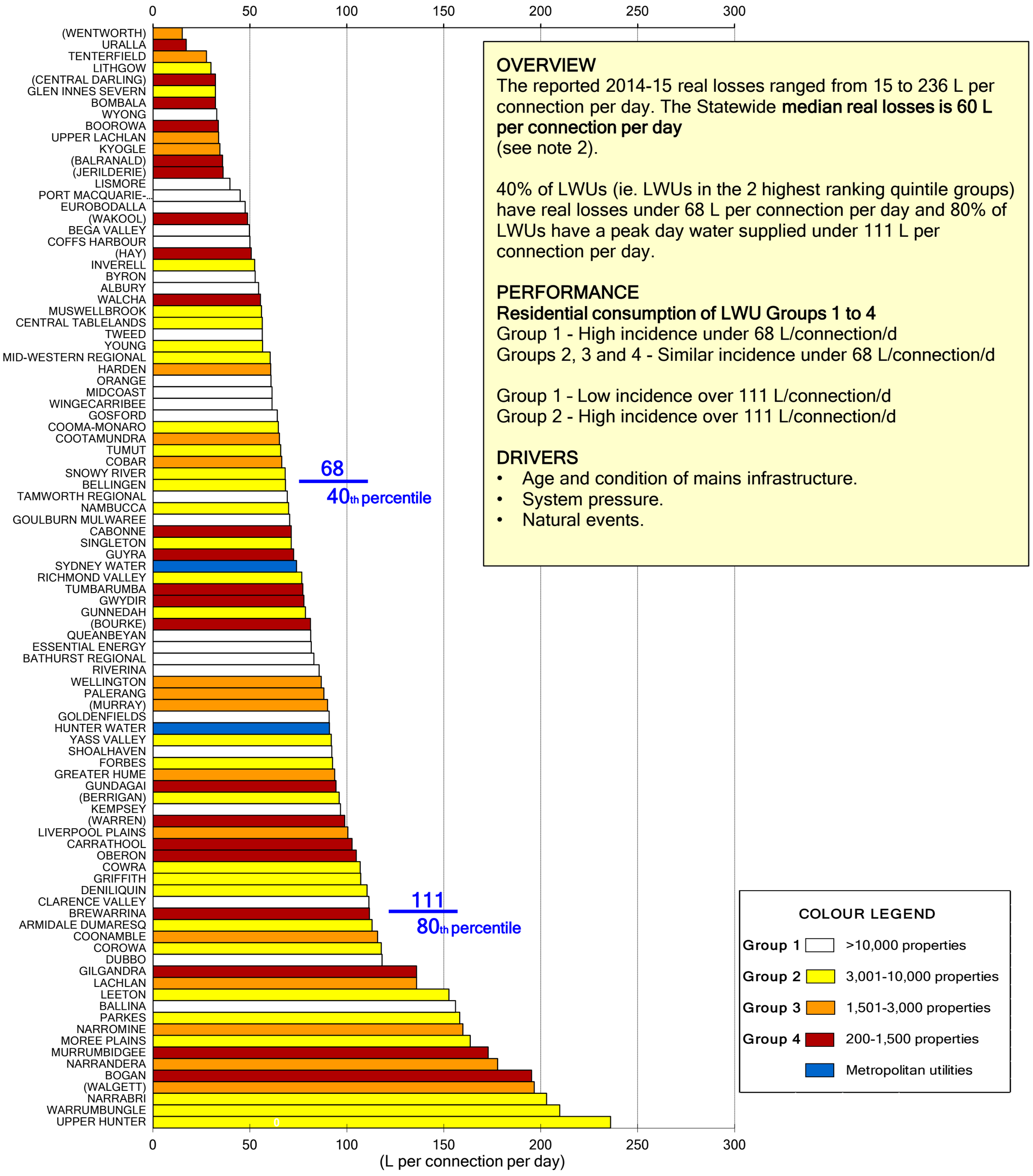
Parameter:

$$\frac{\text{Peak day water supplied (WB82) / 365}}{\text{No. connected properties}}$$

Notes:

1. This figure shows ranked values of the 2014-15 peak day water supplied per connection per day for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 5, 9, 10 and to Figure 8 and Table 4 of the 2014-15 NSW Water Supply and Sewerage Benchmarking Report.
4. For general notes see page 30.

Figure 17: Real Losses - Water Supply 2014-15 - A10



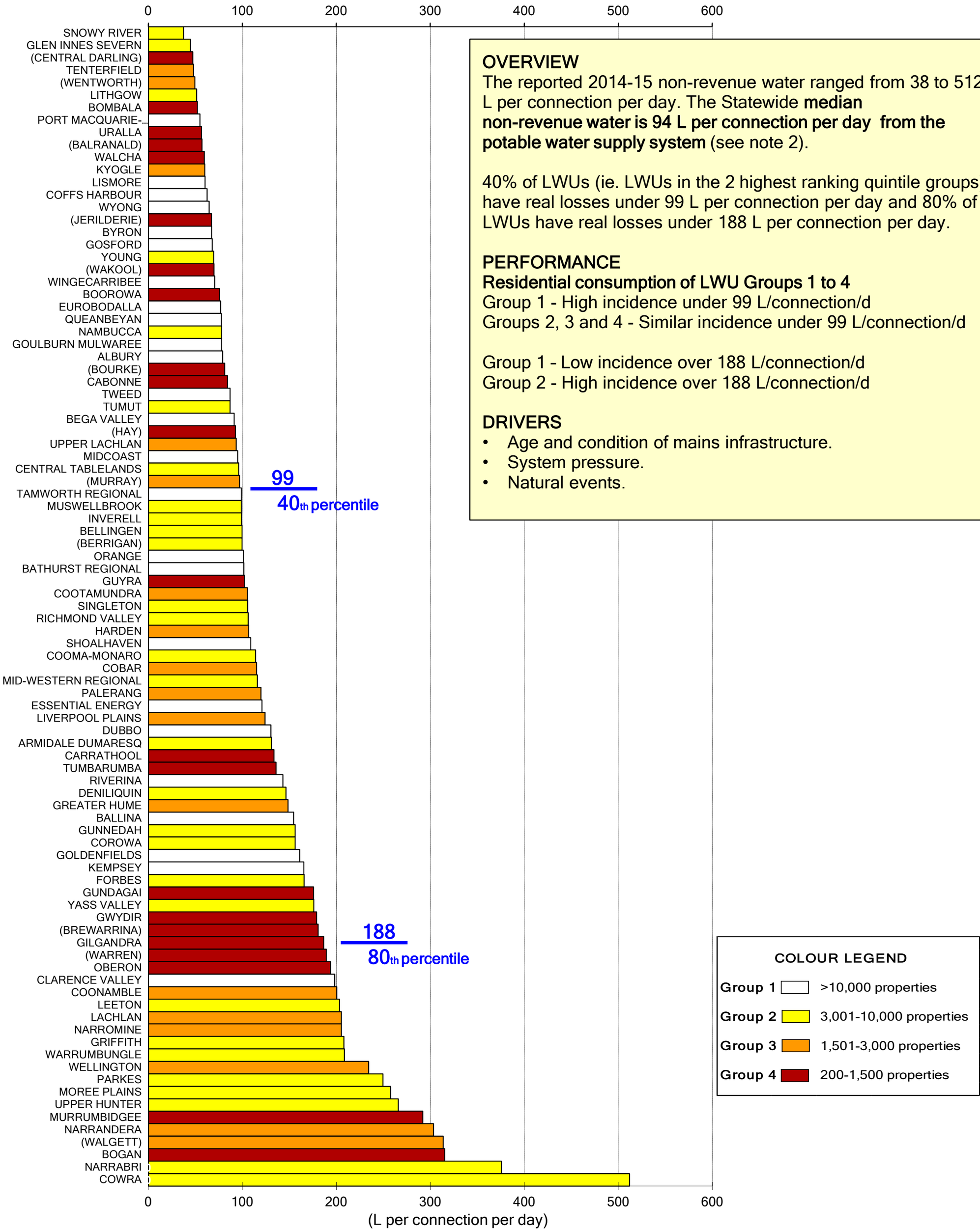
Parameter:

$$\frac{\text{Real losses / 365}}{\text{No. of service connections (WB30)}}$$

Notes:

1. This figure shows ranked values of the 2014-15 real losses from the potable water supply [NWI Indicator A10] per service connection per day for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 10, 19, 73 and 85.
4. For general notes see page 30.

Figure 18: Non-Revenue Water 2014-15 - W10.1 per connection per day



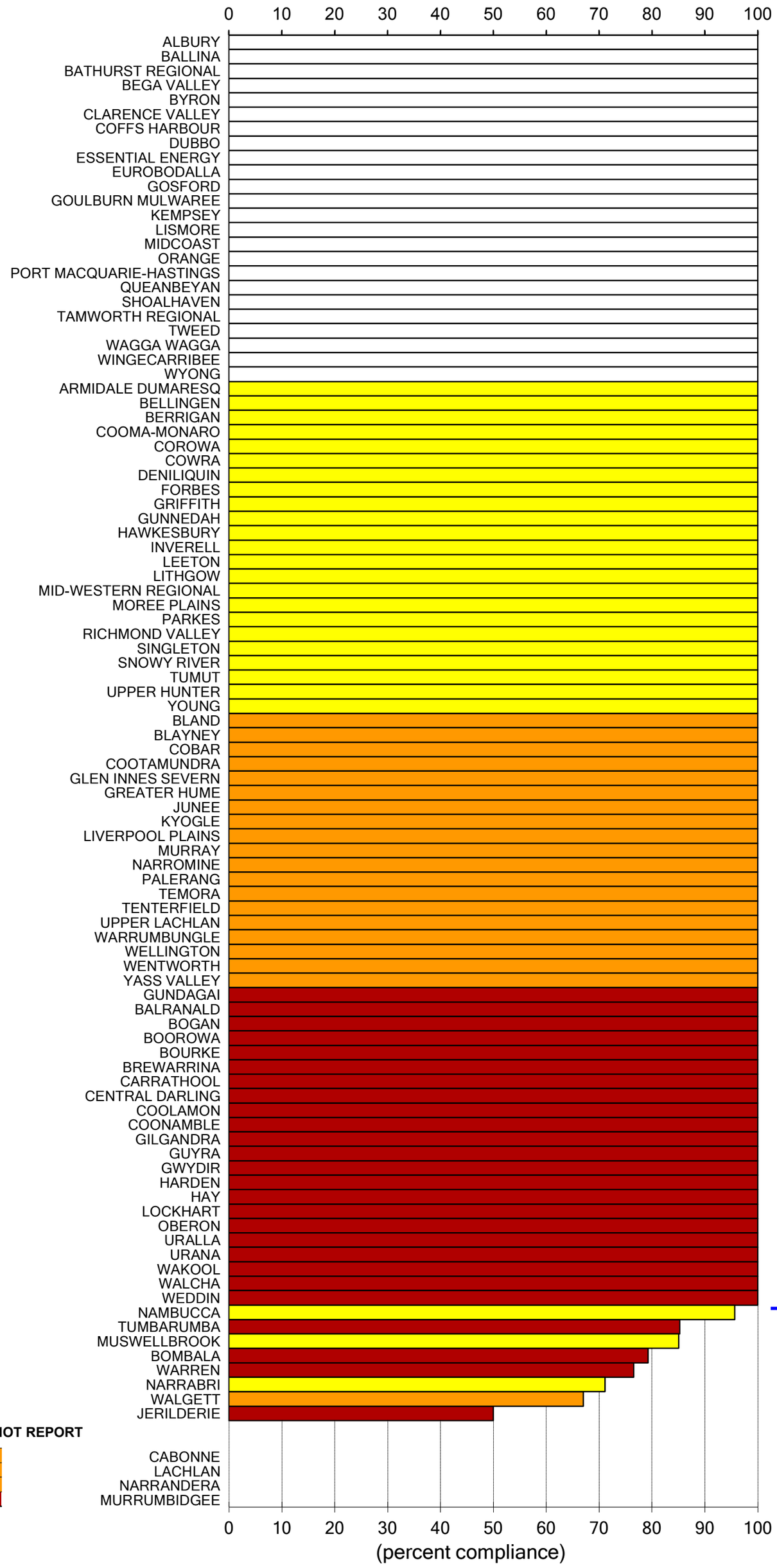
Parameter:

$$\frac{\text{Non-revenue water / 365}}{\text{No. of service connections (WB30)}}$$

Notes:

1. This figure shows ranked values of the 2014-15 non-revenue water [NWI Indicator W10.1 per connection per day] for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to page 10 and Figure 29 of the 2014-15 NSW Water Supply and Sewerage Benchmarking Report.
4. For general notes see page 30.

Figure 19: Compliance with BOD in Licence - Sewerage 2014-15



OVERVIEW
The reported 2014-15 Biochemical Oxygen Demand (BOD) compliance with the 90 percentile limits of the LWU's EPA sewage treatment works licence ranged from 100% to 0%.

89% of the LWUs complied with the 90 percentile limit of their EPA licence.

PERFORMANCE
BOD compliance of LWU Groups 1 to 4
The non-complying utilities were spread across all Groups.

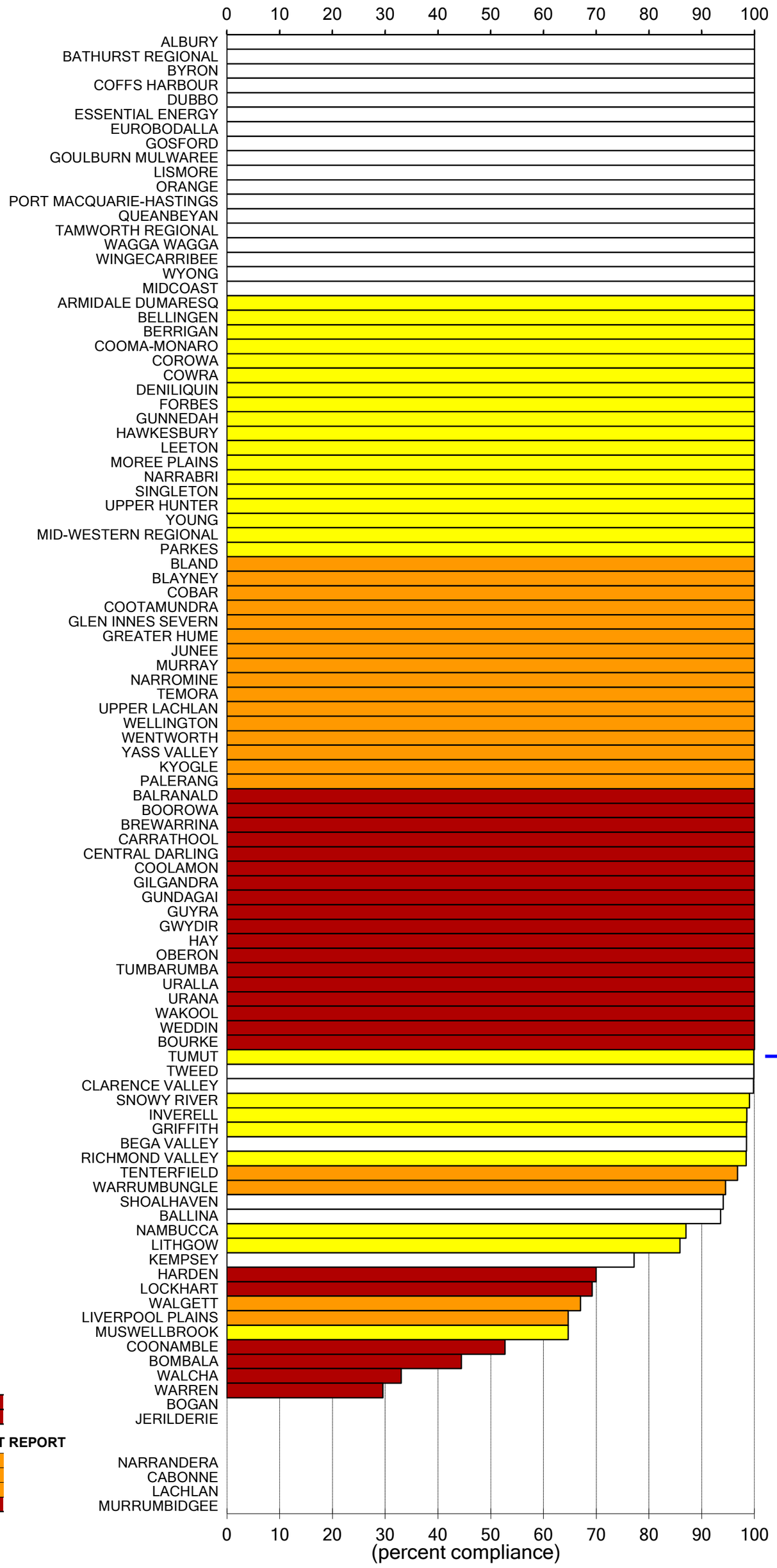
COMMENT
Many of the Groups 3 and 4 LWUs have old trickling filter sewage treatment works which provide a lower level of performance than the newer Intermittent Decanted Extended Aeration (IDEA) treatment works.

Parameter: Percentage of samples complying with 90 percentile Environment Protection Authority (EPA) licence limits for biochemical oxygen demand (BOD) (STT50)

Notes:

1. This figure shows ranked values of the 2014-15 percent compliance with the 90 percentile Environment Protection Authority (EPA) licence limits for biochemical oxygen demand (BOD) for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. Refer also to page 11.
3. For general notes see page 30.

Figure 20: Compliance with SS in Licence - Sewerage 2014-15



OVERVIEW
The reported 2014-15 Suspended Solids (SS) compliance with the 90 percentile limits of the LWU's EPA sewage treatment works licence ranged from 100% to 0%.

82% of the LWUs reported that they complied with the 90 percentile limit of their EPA licence.

PERFORMANCE
SS compliance of LWU Groups 1 to 4
Most of the non-complying utilities were Group 4.

COMMENT
The good performance of Group 1 is assisted by additional facilities provided for solids capture including filtration, dissolved air flotation (DAF) and extended aeration treatment works (EAT).

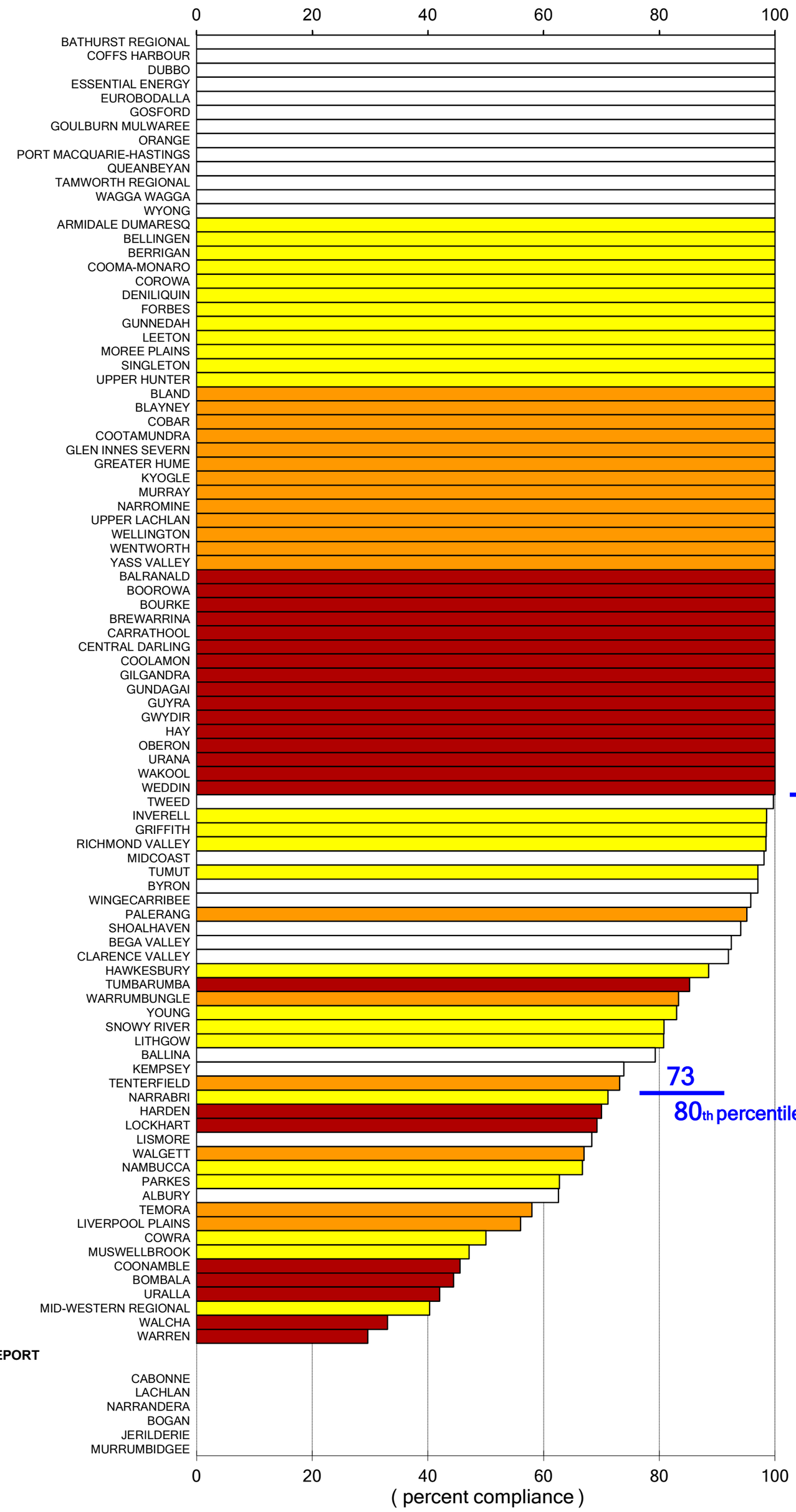
The relatively poor performance of Group 4 LWUs is mostly due to the growth of algae in maturation ponds.

Parameter: Percentage of samples complying with 90 percentile Environment Protection Authority (EPA) licence limits for suspended solids (SS) (STT52)

Notes:

1. This figure shows ranked values of the 2014-15 percent compliance with the 90 percentile Environment Protection Authority (EPA) licence limits for suspended solids (SS) for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. Refer also to page 11.
3. For general notes see page 30.

Figure 21: Percent of Sewage Treated that was Compliant 2014-15 - E4



OVERVIEW

The reported 2014-15 percent of sewage treated that was compliant ranged from 100% to 1%. The Statewide **median percent of sewage treated that was compliant is 100%** (see note 2).

59% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) had 100% of sewage treated that was compliant. 80% of LWUs had at least 73% of sewage treated that was compliant.

Parameter:

$$\frac{\text{Volume of Sewage Treated that was Compliant}}{\text{Total Volume of Sewage Treated}}$$

Notes:

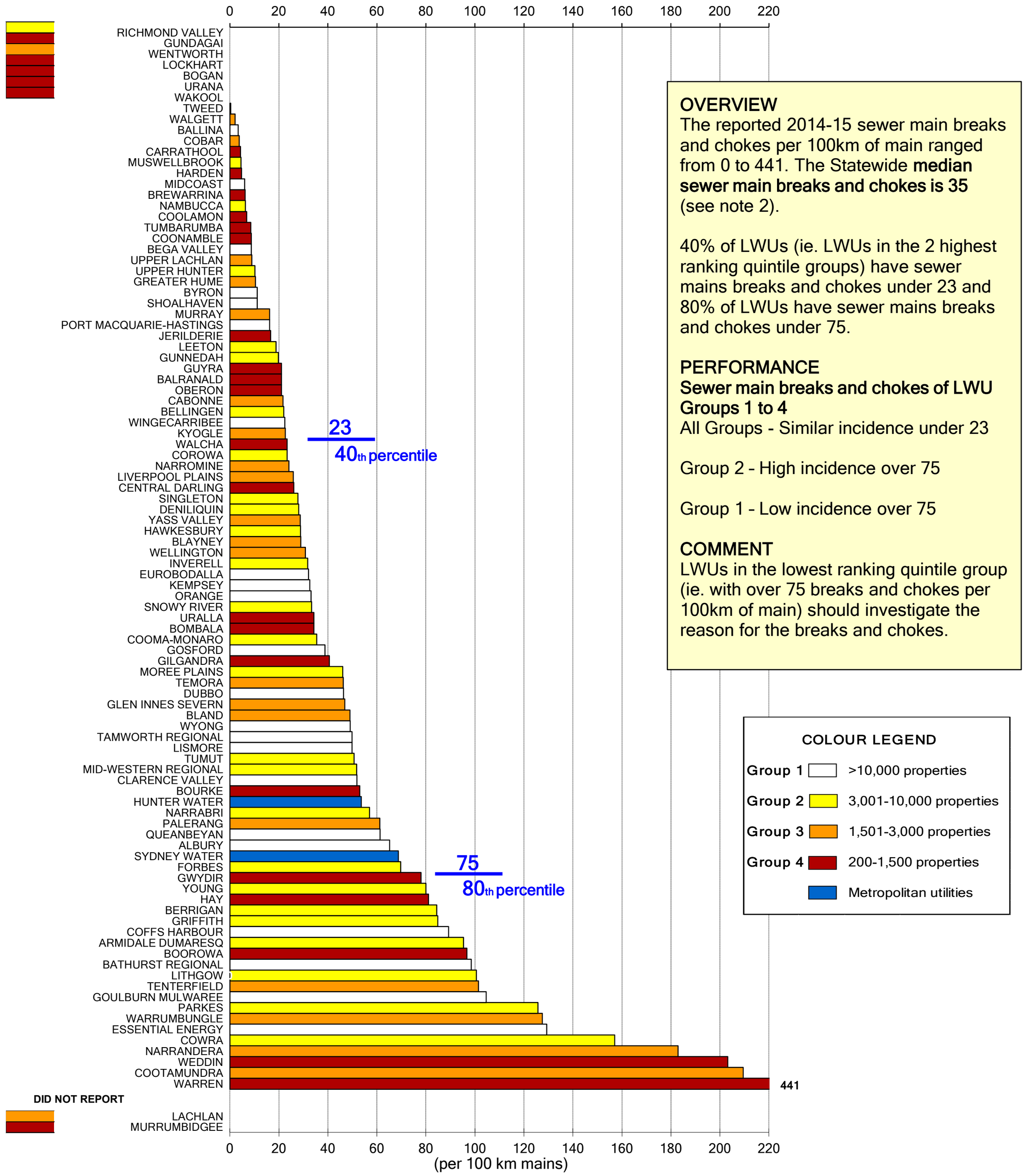
1. This figure shows ranked values of the 2014-15 per cent of sewage treated that was compliant [NWI Indicator E4] for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).

2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.

3. Refer also to pages 11, 75 and 85.

4. For general notes see page 30.

Figure 22: Sewer Main Breaks and Chokes - Sewerage 2014-15 - A14



OVERVIEW
The reported 2014-15 sewer main breaks and chokes per 100km of main ranged from 0 to 441. The Statewide **median sewer main breaks and chokes is 35** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have sewer mains breaks and chokes under 23 and 80% of LWUs have sewer mains breaks and chokes under 75.

PERFORMANCE
Sewer main breaks and chokes of LWU Groups 1 to 4
All Groups - Similar incidence under 23

Group 2 – High incidence over 75

Group 1 – Low incidence over 75

COMMENT
LWUs in the lowest ranking quintile group (ie. with over 75 breaks and chokes per 100km of main) should investigate the reason for the breaks and chokes.

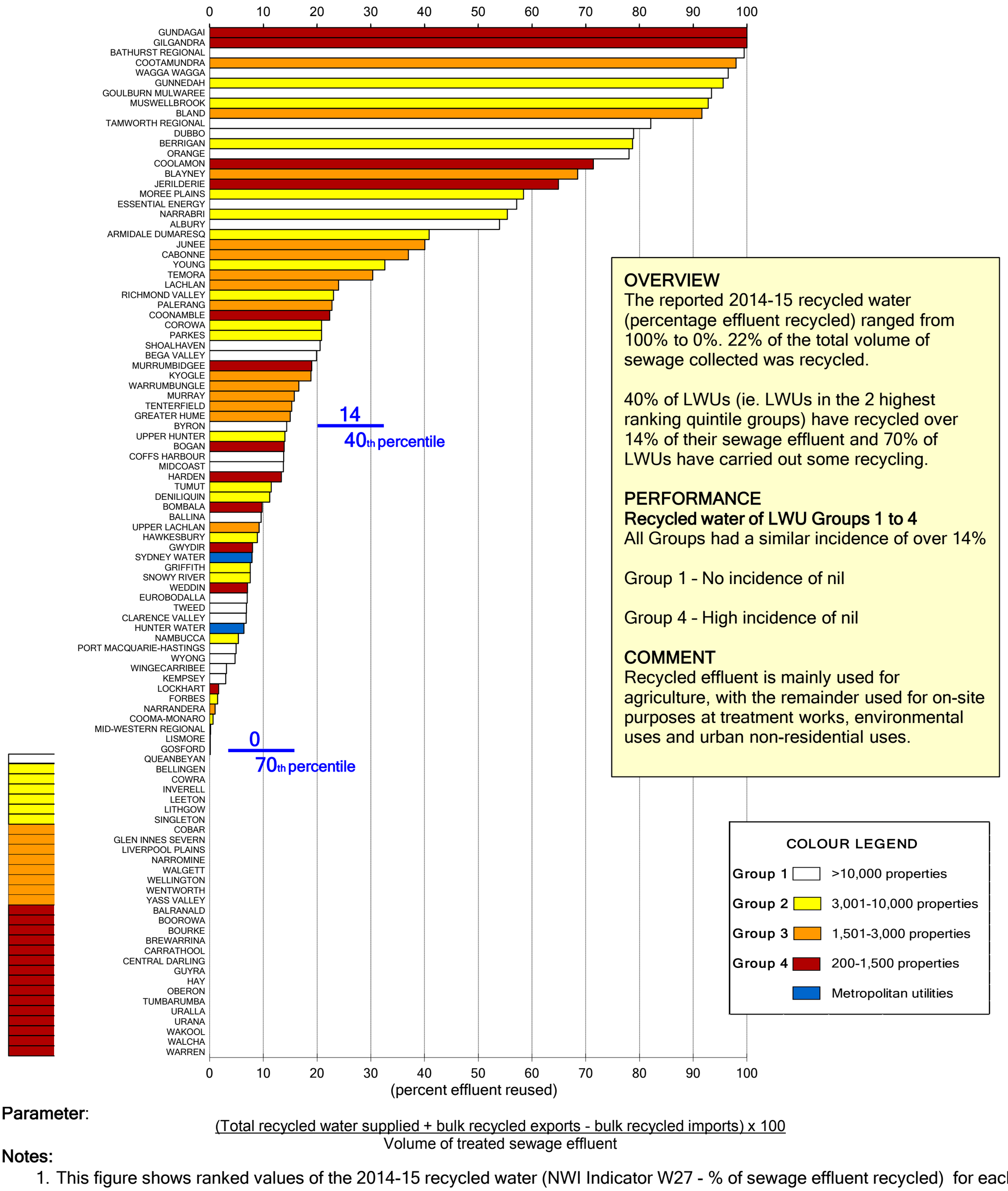
Parameter:

$$\frac{\text{Total number of sewer main breaks and chokes (SB64)} \times 100}{\text{Length of reticulation/gravity mains (SB7)} + \text{Length of rising/pressure mains (SB8)}}$$

Notes:

1. This figure shows ranked values of the 2014-15 sewer main breaks and chokes [NWI Indicator A14] for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 11, 75 and 85.
4. For general notes see page 30.

Figure 23: Recycled Water (percent effluent recycled) - Sewerage 2014-15 - W27



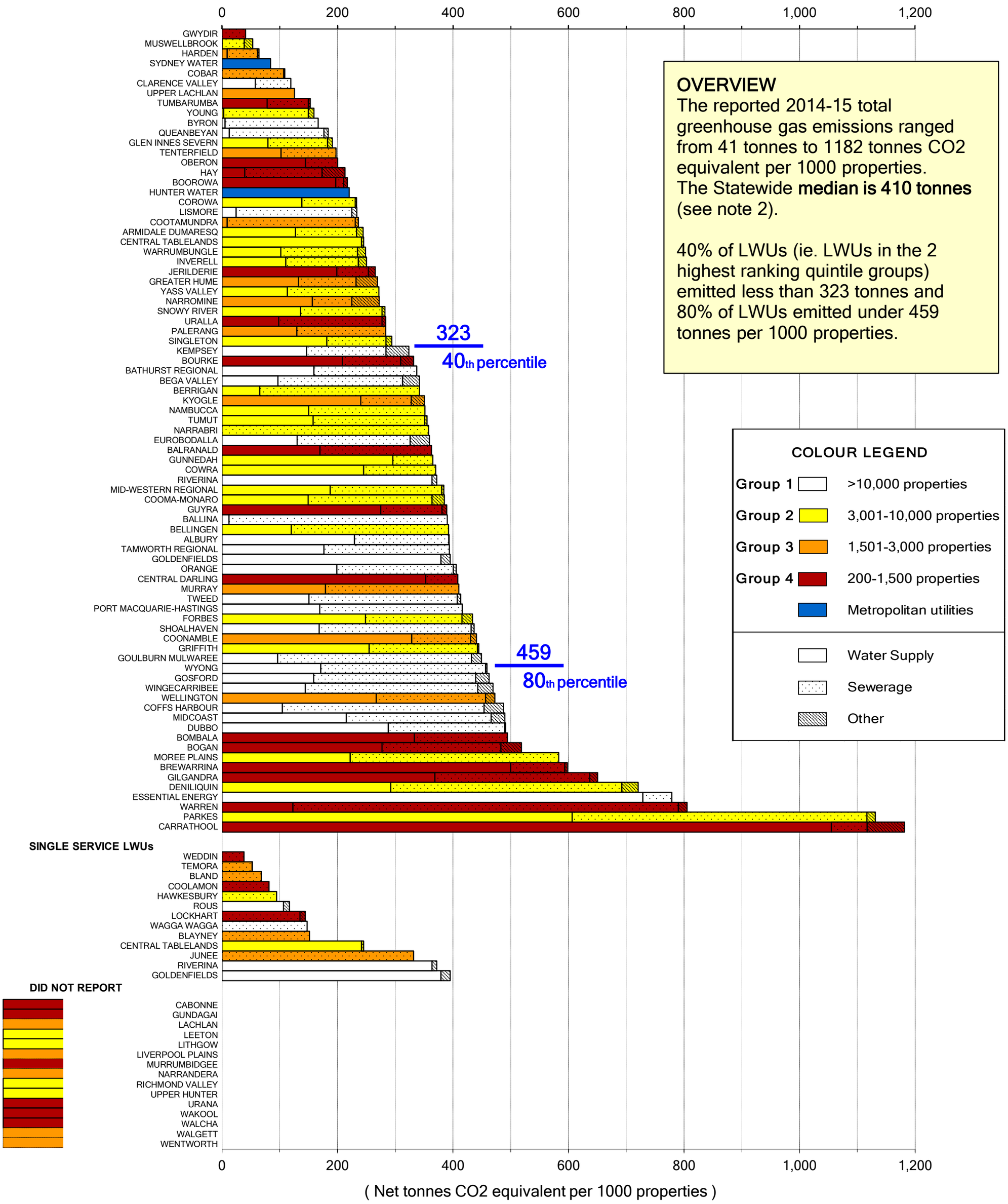
Parameter:

$$\frac{\text{(Total recycled water supplied + bulk recycled exports - bulk recycled imports) x 100}}{\text{Volume of treated sewage effluent}}$$

Notes:

1. This figure shows ranked values of the 2014-15 recycled water (NWI Indicator W27 - % of sewage effluent recycled) for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. For LWUs which did not report their 2014-15 volumes recycled, the 2013-14 percentage has been shown. These utilities are shown in italics bold in Column 21 of Appendix D. The volume of water recycled is shown in column 22 of Appendix D.
3. Reuse of recycled water was carried out by 70% of LWUs. Statewide, 22% of the total volume of sewage collected was recycled. The total volume recycled in regional NSW was 39,000ML. 20% of LWUs recycled over 50% of their effluent. The highest volume recycled by a utility was 5,600ML (Wagga Wagga) and a further 5 utilities (Albury, Bathurst, Dubbo, Orange and Tamworth) each recycled over 2,000ML.
4. Refer also to pages 10, 19, 74 and 85.
5. For general notes see page 30.

Figure 24: Total Greenhouse Gas Emissions 2014-15 - E12

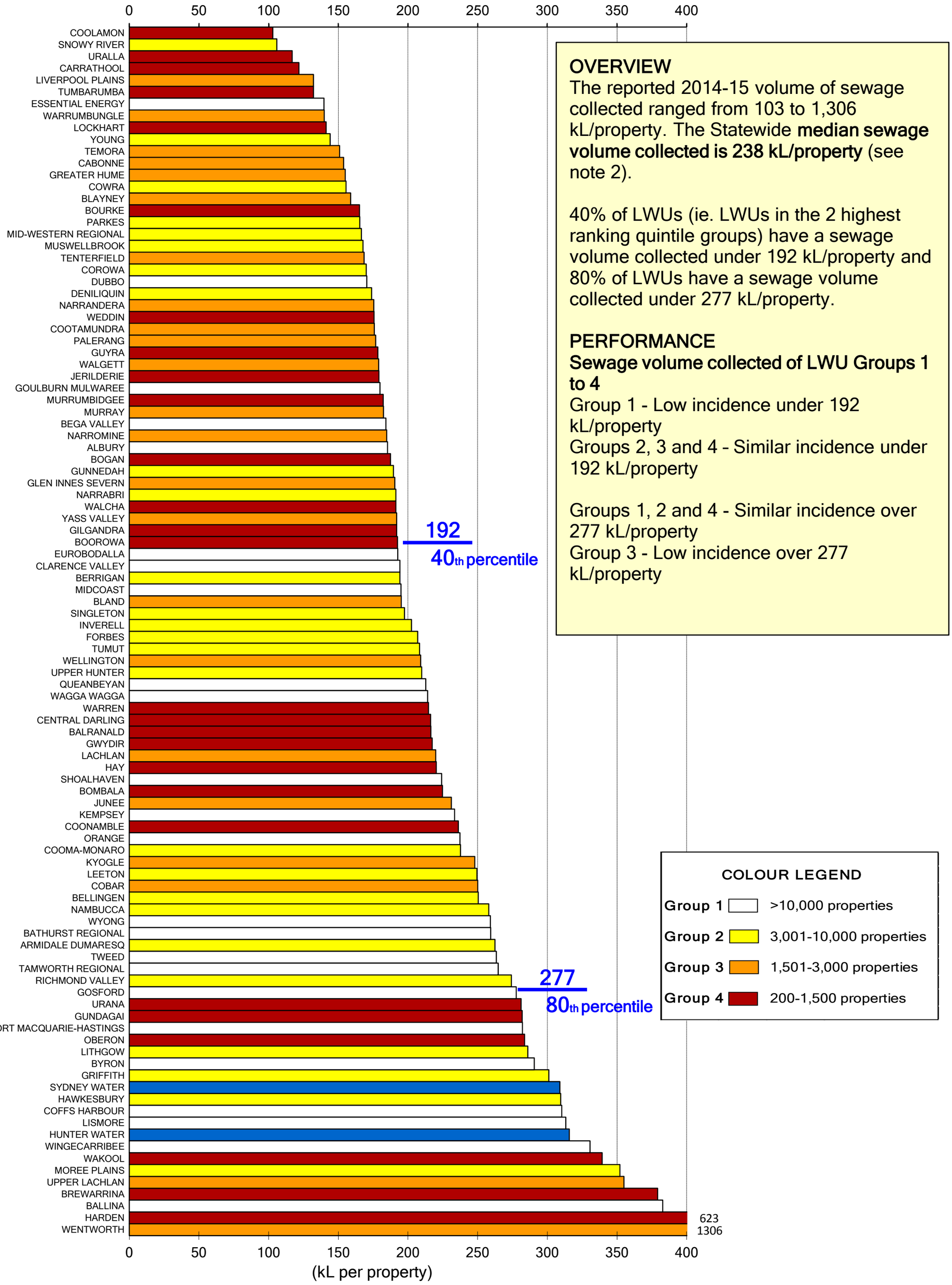


Parameter: $\frac{\text{Total Greenhouse gas emissions (water and sewerage) x 1,000}}{\text{No. connected properties}}$

Notes:

1. This figure shows ranked values of the 2014-15 total greenhouse gas emissions [NWI Indicator E12] per 1,000 connected properties for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. The NSW Greenhouse Gas Calculator is available in Appendix G of the 2014-15 NSW Water Supply and Sewerage Benchmarking Report.
4. Refer also to pages 11, 19 and 75.
5. For general notes see page 30.

Figure 25: Sewage volume collected per property 2014-15 - W19



OVERVIEW

The reported 2014-15 volume of sewage collected ranged from 103 to 1,306 kL/property. The Statewide **median sewage volume collected is 238 kL/property** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have a sewage volume collected under 192 kL/property and 80% of LWUs have a sewage volume collected under 277 kL/property.

PERFORMANCE

Sewage volume collected of LWU Groups 1 to 4

Group 1 - Low incidence under 192 kL/property

Groups 2, 3 and 4 - Similar incidence under 192 kL/property

Groups 1, 2 and 4 - Similar incidence over 277 kL/property

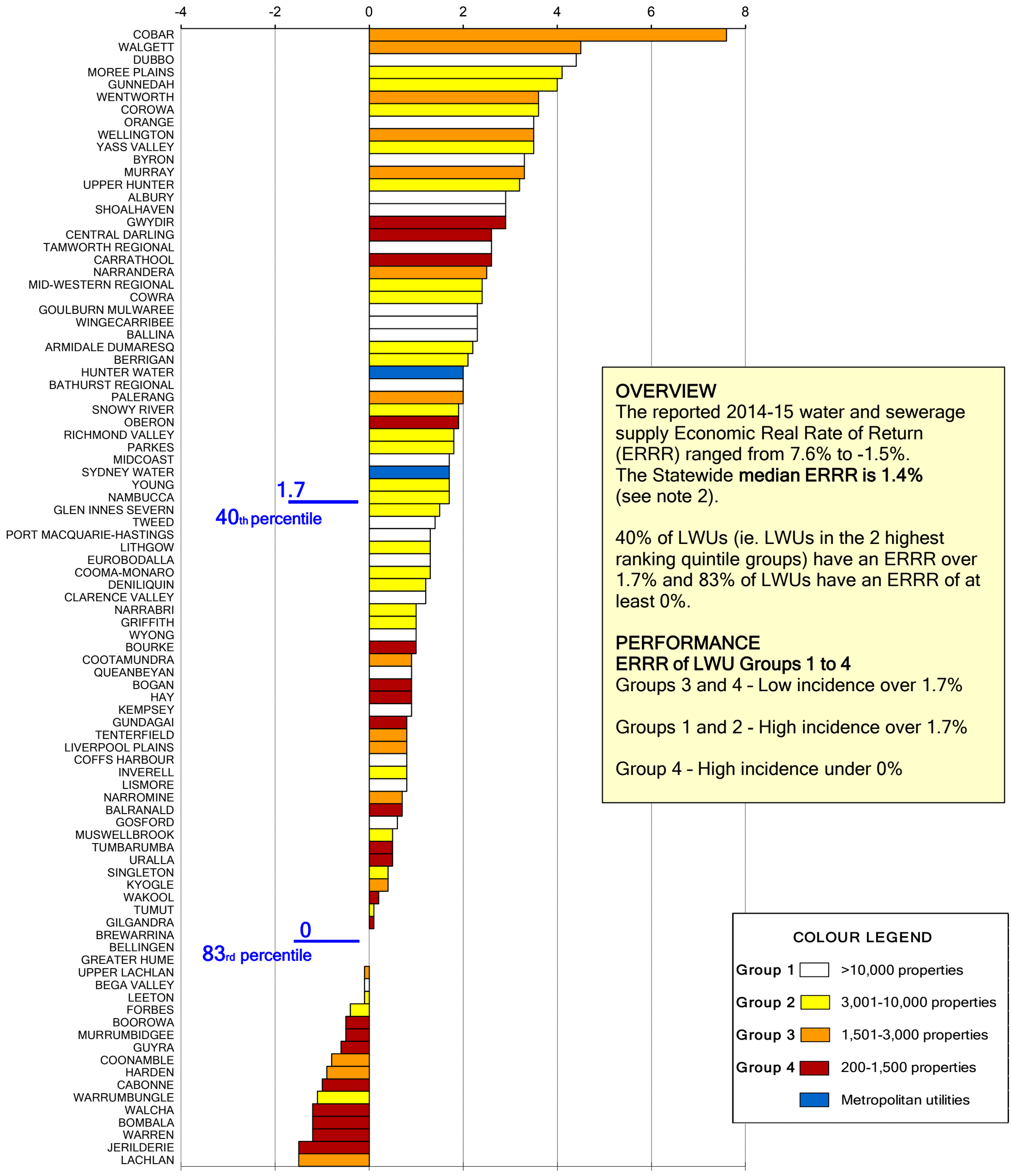
Group 3 - Low incidence over 277 kL/property

Parameter: $\frac{\text{Volume of sewage collected (STT15)}}{\text{No. connected properties}}$

Notes:

1. This figure shows ranked values of the 2014-15 volume of sewage collected [NWI Indicator W19] per connected property for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 9 and 72.
4. For general notes see page 30.

Figure 26: Economic Real Rate of Return - Water and Sewerage 2014-15 - F19



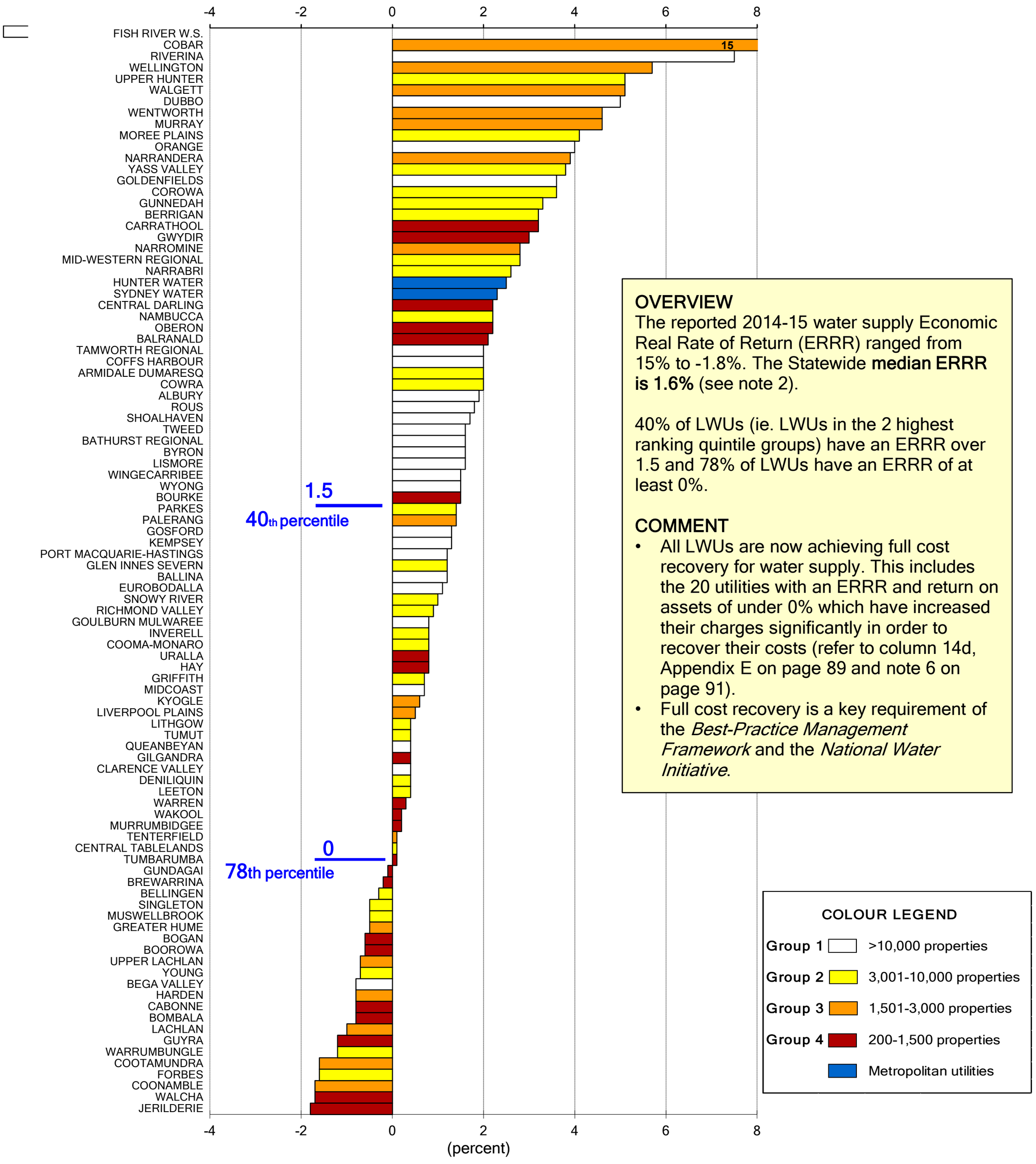
Parameter:

$$\frac{\text{(Operating Result (W\_15 + S\_16) + Interest Expense (W\_4a + S\_4a)- Interest Income (W\_9 + S\_10) - Grants for acquisition of assets (W\_11a + S\_12a))} \times 100}{\text{Written down replacement cost of system assets, plant and equipment (W\_33 + S\_34)}}$$

Notes:

1. This figure shows ranked values of the 2014-15 water and sewerage economic real rate of return (ERRR - NWI Indicator F19) for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue. Single service utilities are excluded.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 12, 20, 76 and 85.
4. For general notes see page 30.

Figure 27: Economic Real Rate of Return - Water Supply 2014-15 - F17

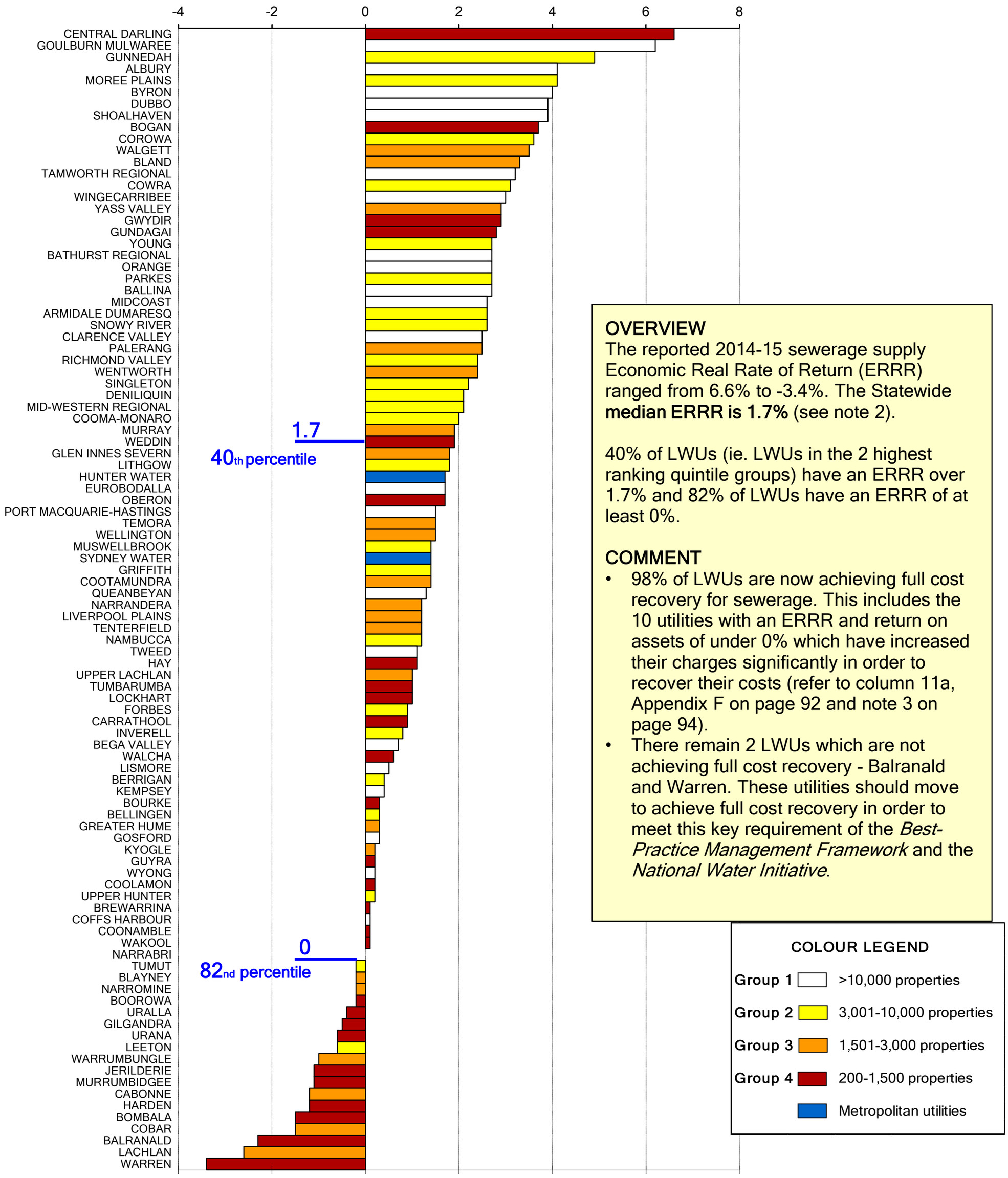


Parameter: $\frac{\text{(Total Income (W_13) - Interest Income (W_9) - Grants for acquisition of assets (W_11a) - Total Expenses (W_5) + Interest Expenses (W_4a) + Revaluation Decrements (W_4b) + Other Expenses (W_4c))} \times 100}{\text{Written down replacement cost of system assets, plant and equipment (W_33)}}$

Notes:

1. This figure shows ranked values of the 2014-15 water supply economic real rate of return (ERRR - NWI Indicator F17) for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 12, 13, 85 and 89.
4. For general notes see page 30.

Figure 28: Economic Real Rate of Return - Sewerage 2014-15 - F18

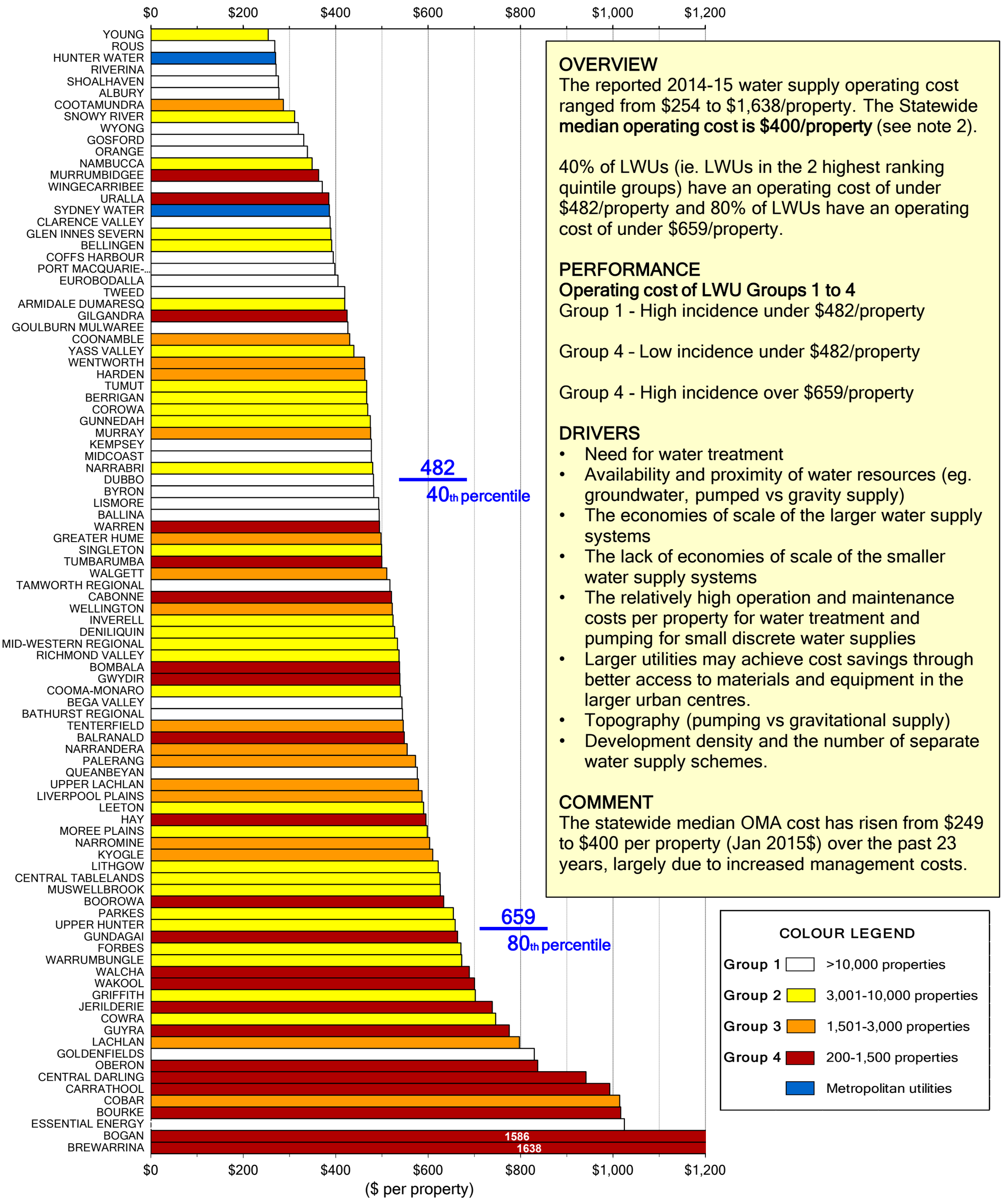


Parameter: $\frac{\text{(Total Income (S_14) - Interest Income (S_10) - Grants for acquisition of assets (S_12a) - Total Expenses (S_5) + Interest Expenses (S_4a) + Revaluation Decrements (S_4b) + Other Expenses (S_4c))} \times 100}{\text{Written down replacement cost of system assets, plant and equipment (S_34)}}$

Notes:

1. This figure shows ranked values of the 2014-15 sewerage economic real rate of return (ERRR - NWI Indicator F18) for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 12, 13, 85 and 92.
4. For general notes see page 30.

Figure 29: Operating Cost (OMA) per property - Water Supply 2014-15 - F11



OVERVIEW

The reported 2014-15 water supply operating cost ranged from $254 to $1,638/property. The Statewide **median operating cost is $400/property** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have an operating cost of under $482/property and 80% of LWUs have an operating cost of under $659/property.

PERFORMANCE

Operating cost of LWU Groups 1 to 4

Group 1 - High incidence under $482/property

Group 4 – Low incidence under $482/property

Group 4 - High incidence over $659/property

DRIVERS

- Need for water treatment
- Availability and proximity of water resources (eg. groundwater, pumped vs gravity supply)
- The economies of scale of the larger water supply systems
- The lack of economies of scale of the smaller water supply systems
- The relatively high operation and maintenance costs per property for water treatment and pumping for small discrete water supplies
- Larger utilities may achieve cost savings through better access to materials and equipment in the larger urban centres.
- Topography (pumping vs gravitational supply)
- Development density and the number of separate water supply schemes.

COMMENT

The statewide median OMA cost has risen from $249 to $400 per property (Jan 2015$) over the past 23 years, largely due to increased management costs.

COLOUR LEGEND

Group 1	>10,000 properties
Group 2	3,001-10,000 properties
Group 3	1,501-3,000 properties
Group 4	200-1,500 properties
	Metropolitan utilities

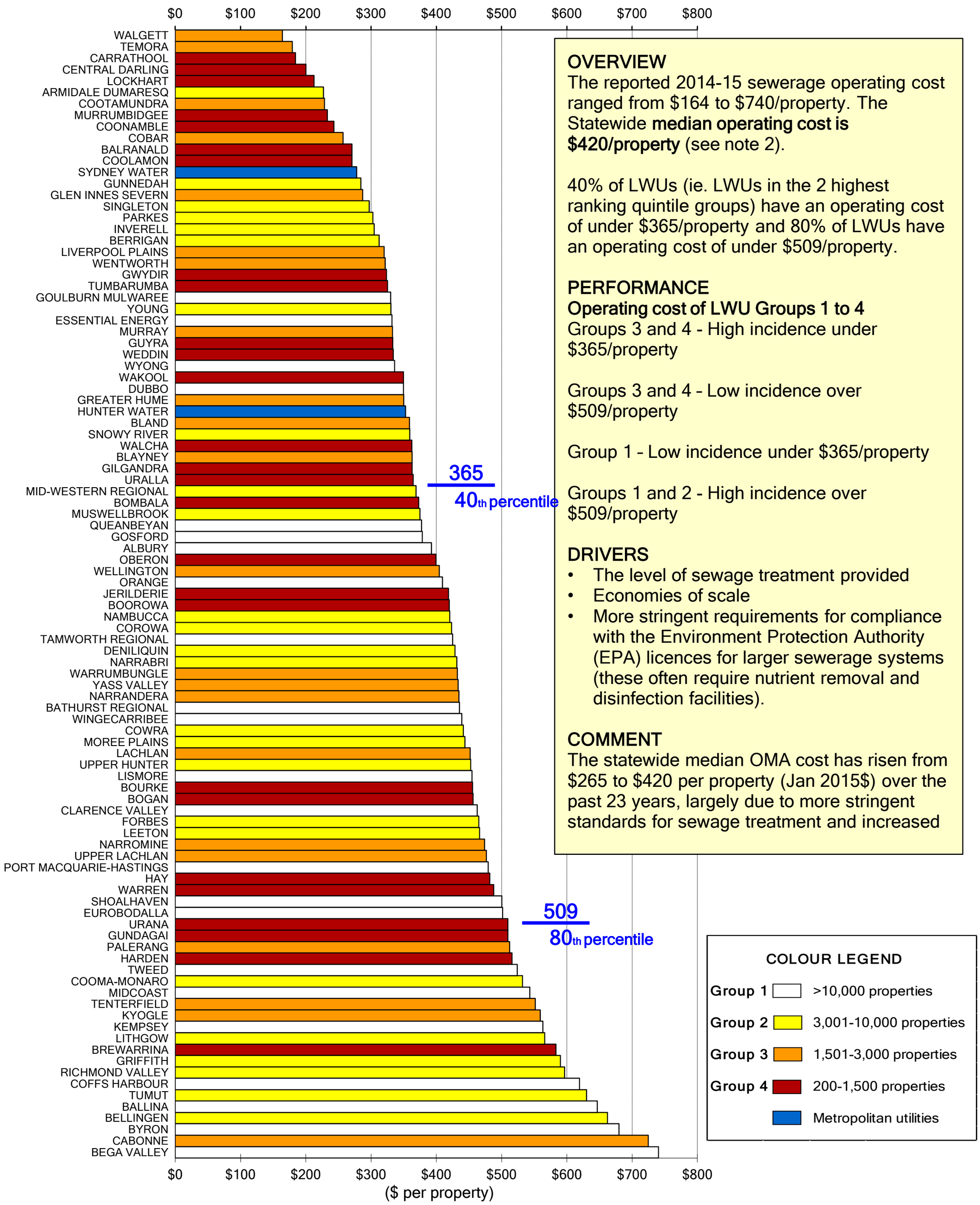
Parameter:

$$\frac{\text{Management expenses (W\_1) + Total operation expenses (W\_2) - Purchase of water + Bulk supplier's OMA}}{\text{No. connected properties}}$$

Notes:

1. This figure shows ranked values of the 2014-15 water supply operating cost (OMA - operation, maintenance and administration - NWI Indicator F11) per property for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 15, 20, 76 and 85.
4. For general notes see page 30.

Figure 30: Operating Cost (OMA) per property - Sewerage 2014-15 - F12



OVERVIEW

The reported 2014-15 sewerage operating cost ranged from $164 to $740/property. The Statewide **median operating cost is $420/property** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have an operating cost of under $365/property and 80% of LWUs have an operating cost of under $509/property.

PERFORMANCE

Operating cost of LWU Groups 1 to 4

Groups 3 and 4 - High incidence under $365/property

Groups 3 and 4 – Low incidence over $509/property

Group 1 – Low incidence under $365/property

Groups 1 and 2 - High incidence over $509/property

DRIVERS

- The level of sewage treatment provided
- Economies of scale
- More stringent requirements for compliance with the Environment Protection Authority (EPA) licences for larger sewerage systems (these often require nutrient removal and disinfection facilities).

COMMENT

The statewide median OMA cost has risen from $265 to $420 per property (Jan 2015$) over the past 23 years, largely due to more stringent standards for sewage treatment and increased

COLOUR LEGEND

Group 1	>10,000 properties
Group 2	3,001-10,000 properties
Group 3	1,501-3,000 properties
Group 4	200-1,500 properties
	Metropolitan utilities

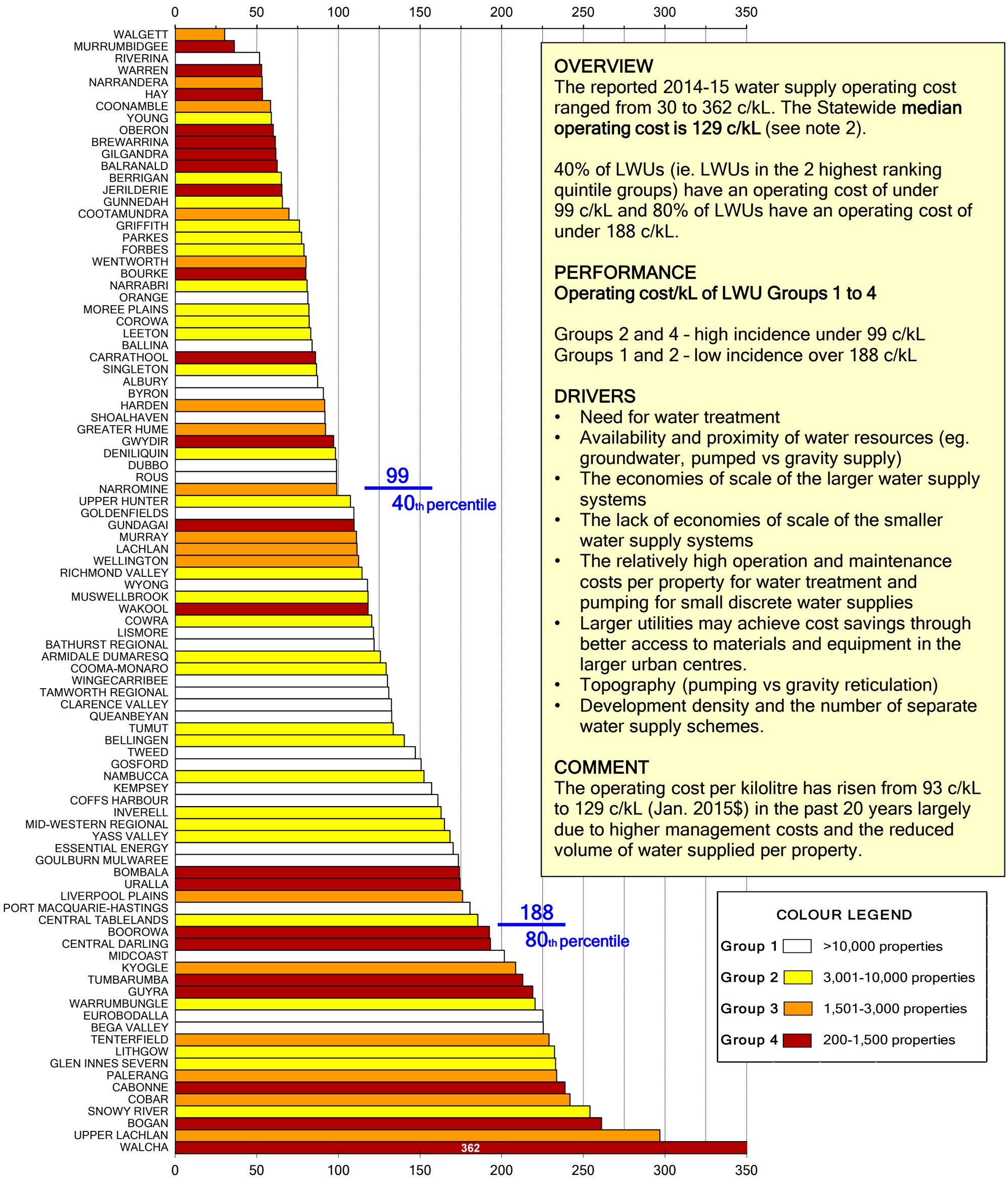
Parameter:

$$\frac{\text{Management expenses (S\_1) + Total operation expenses (S\_2)}}{\text{No. connected properties}}$$

Notes:

1. This figure shows ranked values of the 2014-15 sewerage operating cost (OMA - operation, maintenance and administration - NWI Indicator F12) per property for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4). The metropolitan water utilities (Sydney Water Corporation and Hunter Water Corporation) are shown in blue.
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 15, 20, 76 and 85.
4. For general notes see page 30.

Figure 31: Operating Cost (OMA) per kilolitre - Water Supply 2014-15



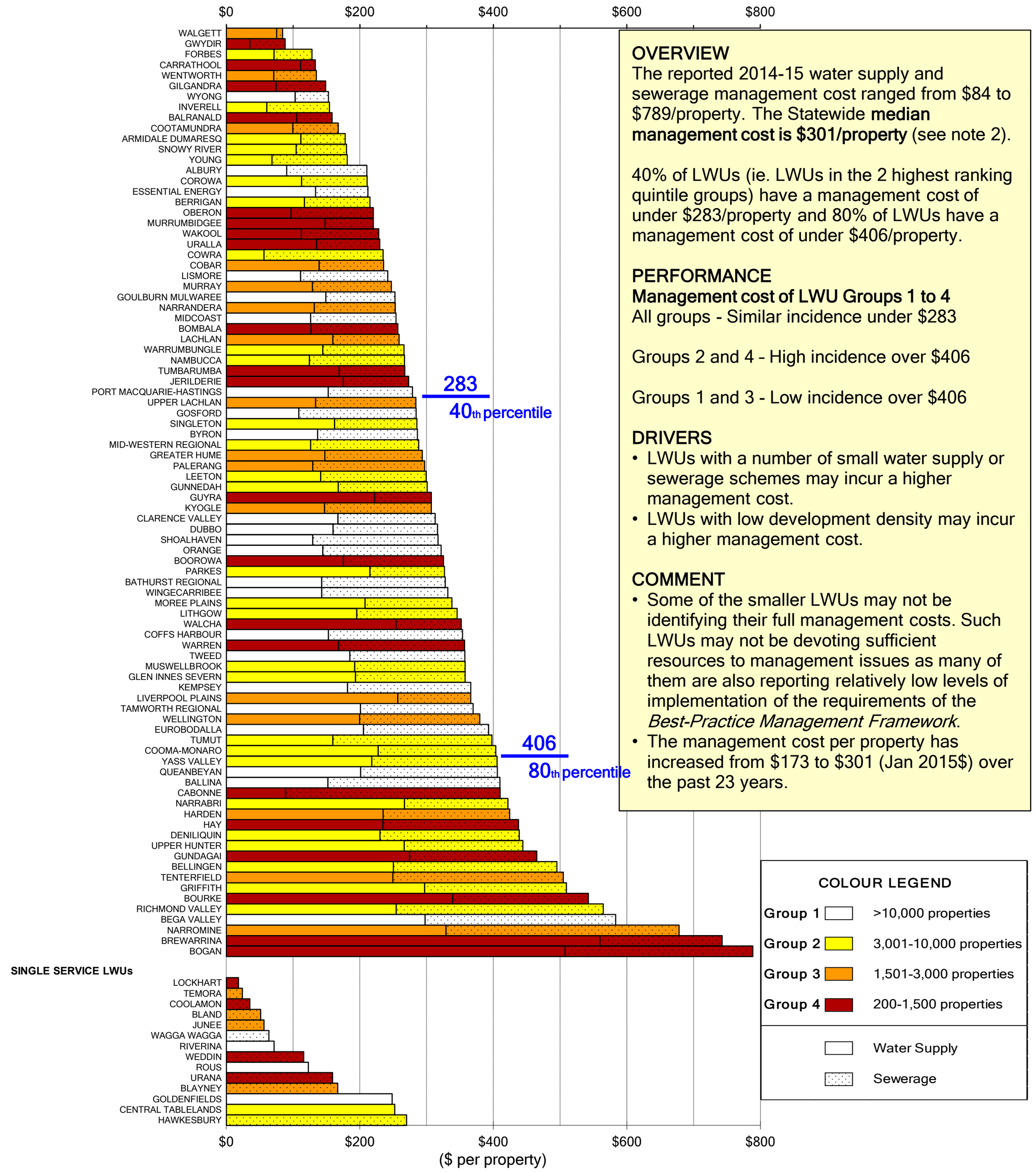
Parameter:

$$\frac{\text{Management expenses (W\_1) + Total operation expenses (W\_2) - Purchase of water (W\_2o) + Bulk Supplier's OMA}}{\text{Total Potable Water Supplied (WB62)}}$$

Notes:

1. This figure shows ranked values of the 2014-15 water supply operating cost (OMA - operation, maintenance and administration) per kL for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to pages 15 and 89.
4. For general notes see page 30.

Figure 32: Management Cost per property - Water and Sewerage 2014-15



OVERVIEW

The reported 2014-15 water supply and sewerage management cost ranged from $84 to $789/property. The Statewide **median management cost is $301/property** (see note 2).

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have a management cost of under $283/property and 80% of LWUs have a management cost of under $406/property.

PERFORMANCE

Management cost of LWU Groups 1 to 4

All groups - Similar incidence under $283

Groups 2 and 4 – High incidence over $406

Groups 1 and 3 - Low incidence over $406

DRIVERS

- LWUs with a number of small water supply or sewerage schemes may incur a higher management cost.
- LWUs with low development density may incur a higher management cost.

COMMENT

- Some of the smaller LWUs may not be identifying their full management costs. Such LWUs may not be devoting sufficient resources to management issues as many of them are also reporting relatively low levels of implementation of the requirements of the *Best-Practice Management Framework*.
- The management cost per property has increased from $173 to $301 (Jan 2015$) over the past 23 years.

($ per property)

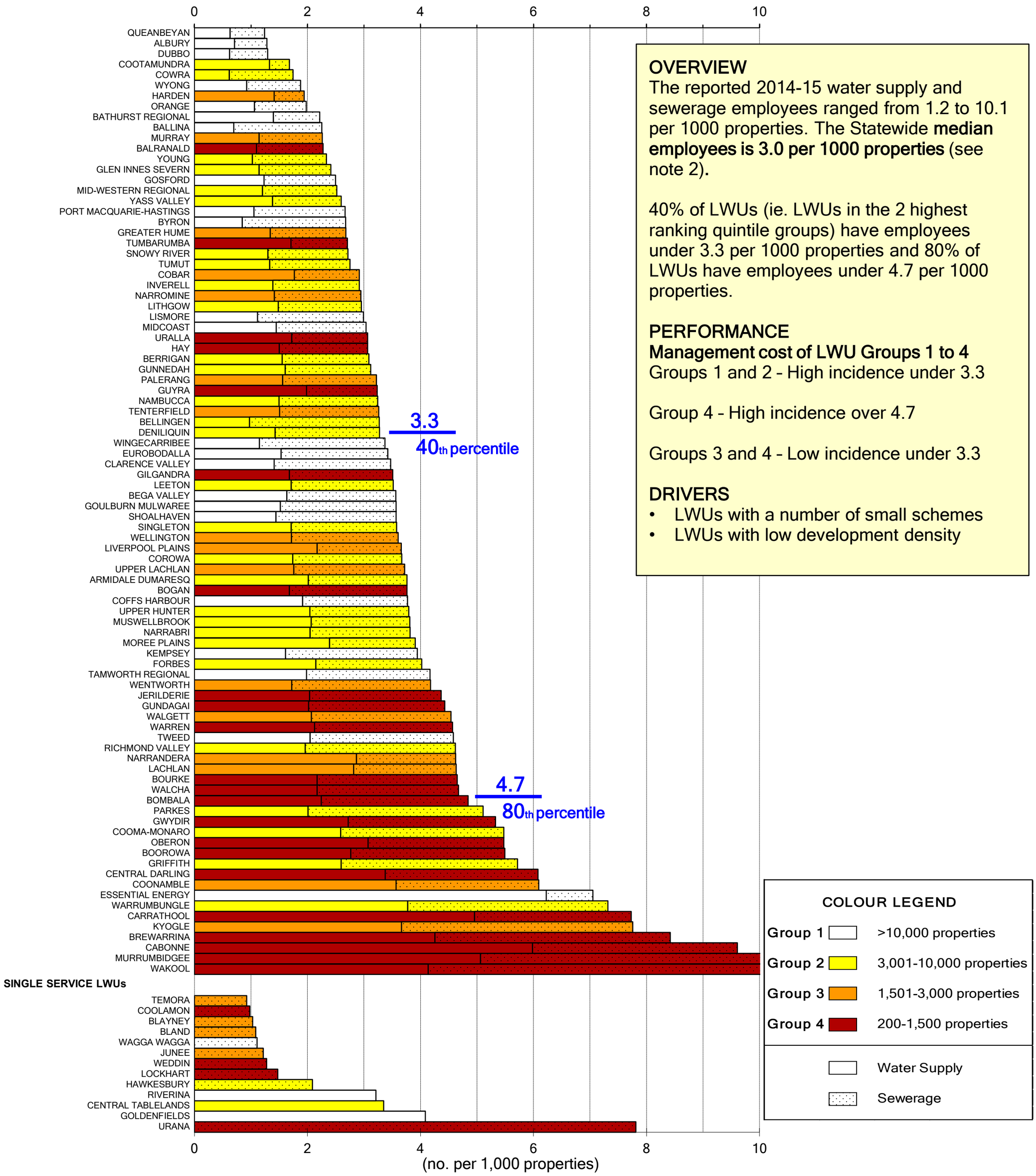
Parameter:

$$\frac{\text{Administration Cost (W\_1a + S\_1a) + Engineering Cost (W\_1b + S\_1b)}}{\text{No. of connected properties}}$$

Notes:

1. This figure shows ranked values of the 2014-15 water supply and sewerage management cost per property for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to page 15.
4. For general notes see page 30.

Figure 33: Employees - Water and Sewerage 2014-15



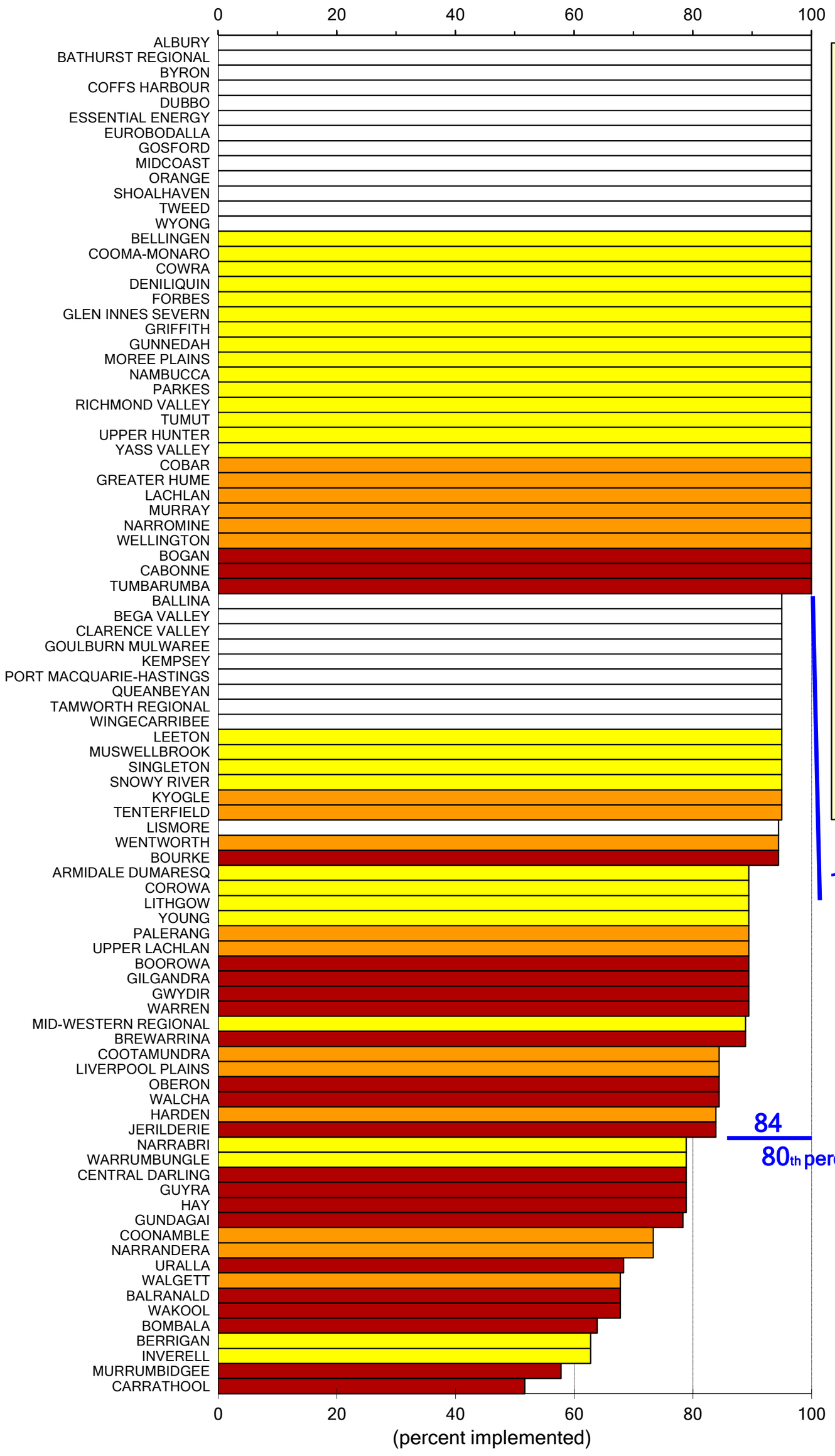
Parameter:

$$\frac{\text{Water Supply Employees (WB120) + Sewerage Employees (SB49)}}{\text{No. of connected properties}}$$

Notes:

1. This figure shows ranked values of the 2014-15 water supply and sewerage employees per 1,000 properties for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The Statewide median is a weighted median calculated on the basis of connected properties. It best reveals statewide performance of the regional NSW utilities by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
3. Refer also to page 15.
4. For general notes see page 30.

Figure 34: Best-Practice Management Implementation (%) - Water Supply & Sewerage 2014-15



OVERVIEW
The reported 2014-15 implementation by LWUs of the outcomes required by the *Best-Practice Management Framework* (BPMF) for water supply and sewerage ranged from 52% to 100%. The **overall level of implementation for all 10 water supply and 9 sewerage outcomes is 90%**.

40% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have BPMF implementation of 100% and 80% of LWUs have BPMF implementation of over 84%.

PERFORMANCE
BPMF implementation of LWU Groups 1 to 4
Groups 1 and 2 – High incidence of 100%
Groups 1 and 2 – Low incidence under 84%

Group 4 - Low incidence of 100%
Group 4 - High incidence under 84%

COMMENT
Most of the Group 1 LWUs have a high level of implementation of the outcomes required by the BPMF, whereas many Group 3 and 4 LWUs have a low level of implementation of the outcomes.

COLOUR LEGEND

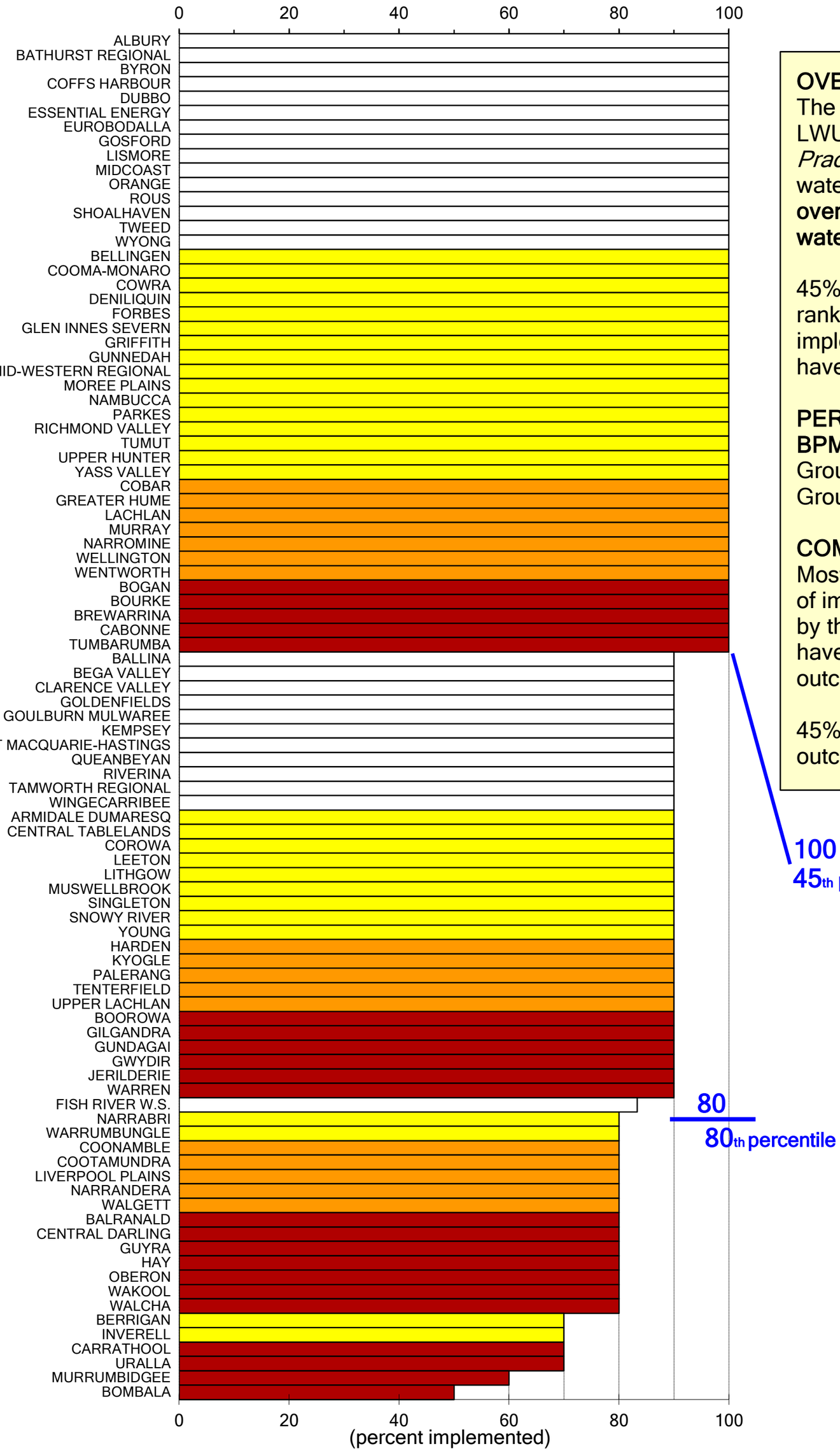
Group 1	>10,000 properties
Group 2	3,001-10,000 properties
Group 3	1,501-3,000 properties
Group 4	200-1,500 properties

Parameter: Implementation of the 19 water supply and sewerage Best-Practice Management Required Outcomes (%)

Notes:

1. This figure shows ranked values of the 2014-15 level of implementation of the 19 planning, pricing and management outcomes required by the *NSW Best-Practice Management of Water Supply and Sewerage Framework* for water supply and sewerage for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. Refer also to pages viii and 23 and Appendix C on page 82.
3. For general notes see page 30.

Figure 35: Best-Practice Management Implementation (%) - Water Supply 2014-15



OVERVIEW
The reported 2014-15 implementation by LWUs of the outcomes required by the *Best-Practice Management Framework* (BPMF) for water supply ranged from 50% to 100%. The **overall level of implementation for the 10 water supply outcomes is 91%**.

45% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have BPMF implementation of 100% and 80% of LWUs have BPMF implementation of over 80%.

PERFORMANCE
BPMF implementation of LWU Groups 1 to 4
Groups 1 and 2 – High incidence of 100%
Groups 1 and 3 – No incidence under 80%

COMMENT
Most of the Group 1 LWUs have a high level of implementation of the outcomes required by the BPMF, whereas many Group 4 LWUs have a low level of implementation of the outcomes.

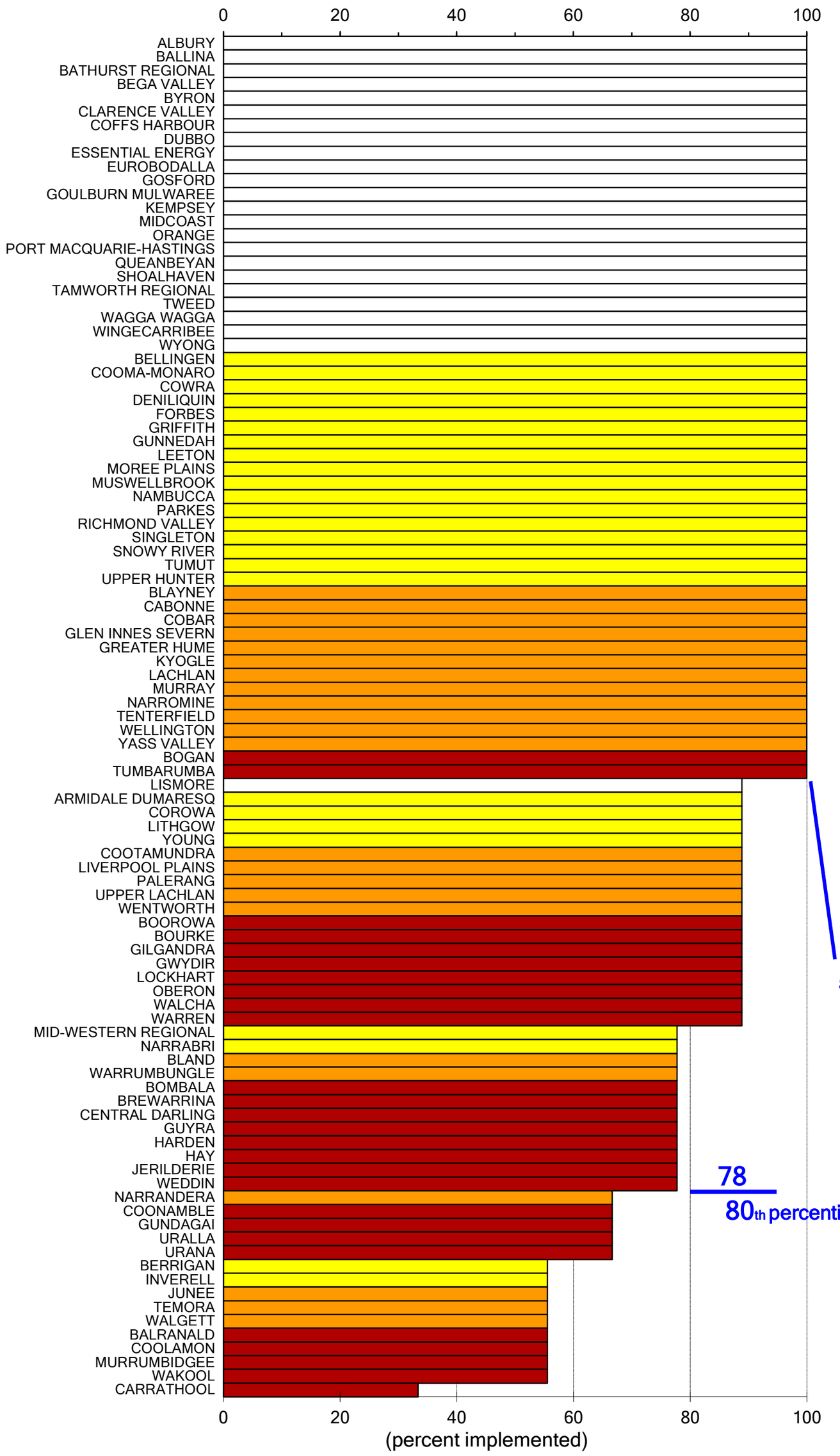
45% of the LWUs have met all the BPMF outcomes.

Parameter: Implementation of the 10 water supply Best-Practice Management Required Outcomes (%)

Notes:

1. This figure shows ranked values of the 2014-15 level of implementation of the outcomes required by the *NSW Best-Practice Management of Water Supply and Sewerage Framework* for water supply for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The 10 outcomes for implementing best-practice for water supply are: complete sound Strategic Business Plan & Financial Plan; Pricing with full cost-recovery, without significant cross subsidies; appropriate residential charges; required residential revenue from water usage charges; appropriate non-residential charges; sound Water Conservation implemented; sound Drought Management implemented; Development Servicing Plan with commercial developer charges; complete Performance Reporting by 15 September; and Integrated Water Cycle Management strategy commenced (page viii).
3. Refer also to page 23 and Appendix C on page 82.
4. For general notes see page 30.

Figure 36: Best-Practice Management Implementation (%) - Sewerage 2014-15



OVERVIEW

The reported 2014-15 implementation by LWUs of the outcomes required by the *Best-Practice Management Framework* (BPMF) for sewerage ranged from 33% to 100%. The **overall level of implementation for the 9 sewerage outcomes is 89%**.

55% of LWUs (ie. LWUs in the 2 highest ranking quintile groups) have BPMF implementation of 100% and 80% of LWUs have BPMF implementation of over 78%.

PERFORMANCE

BPMF implementation of LWU Groups 1 to 4

Groups 1 and 2 – High incidence of 100%

Group 1 – Nil incidence under 78%

Group 4 – Low incidence of 100%

Group 4 – High incidence under 78%

COMMENT

Most of the Group 1 LWUs have a high level of implementation of the outcomes required by the BPMF, whereas many Group 4 LWUs have a low level of implementation of the outcomes.

55% of LWUs have met all the BPMF outcomes.

COLOUR LEGEND

Group 1	>10,000 properties
Group 2	3,001-10,000 properties
Group 3	1,501-3,000 properties
Group 4	200-1,500 properties

Parameter: Implementation of the 9 sewerage Best-Practice Management Required Outcomes (%)

Notes:

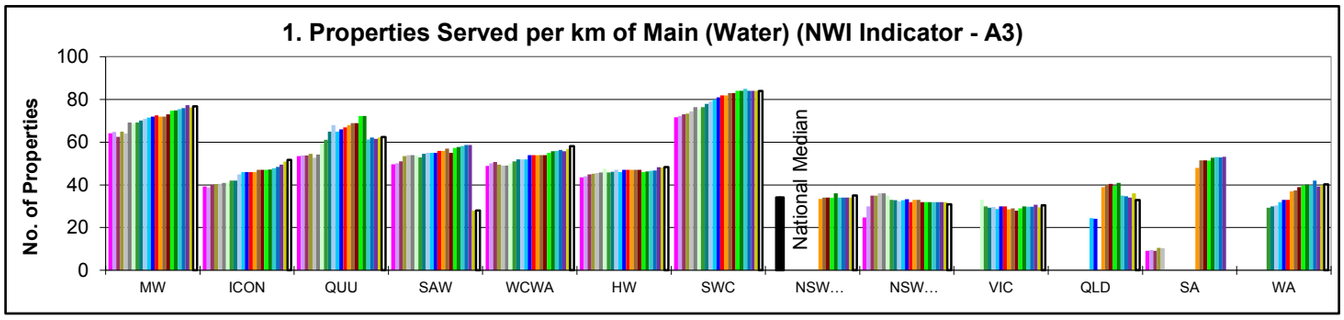
1. This figure shows ranked values of the 2014-15 level of implementation of the outcomes required by the *NSW Best-Practice Management of Water Supply and Sewerage Framework* for sewerage for each Local Water Utility (LWU) in 4 groups, based on the number of connected properties served – over 10,000 (Group 1), 3,001 to 10,000 (Group 2), 1,501 to 3,000 (Group 3) and 200 to 1,500 (Group 4).
2. The 9 outcomes for implementing best-practice for sewerage are: complete sound Strategic Business Plan & Financial Plan; Pricing with full cost-recovery, without significant cross subsidies; appropriate residential charges; appropriate non-residential charges; appropriate trade waste fees & charges; Development Servicing Plan with commercial developer charges; liquid trade waste approvals & current Trade Waste Policy; complete Performance Reporting by 15 September; and Integrated Water Cycle Management strategy commenced (page viii).
3. Refer also to page 23 and Appendix C on page 82.
4. For general notes see page 30.

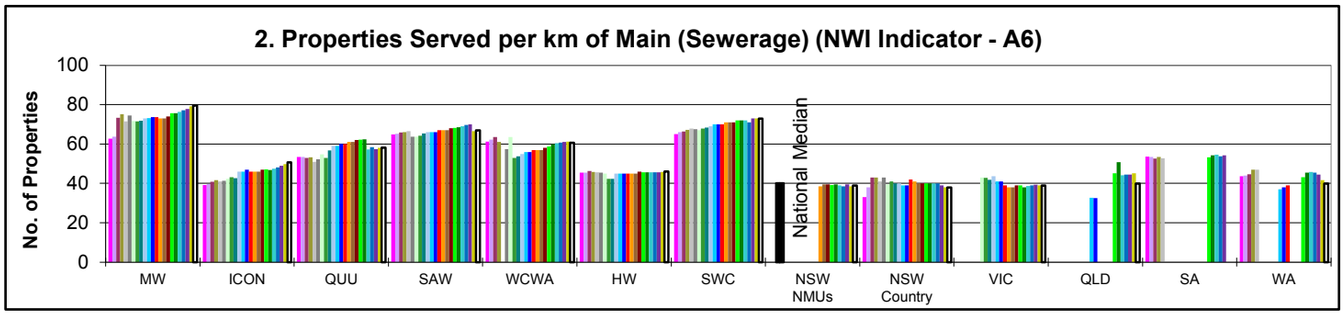
APPENDIX A
NATIONAL PERFORMANCE COMPARISONS 1992-93 TO 2014-15

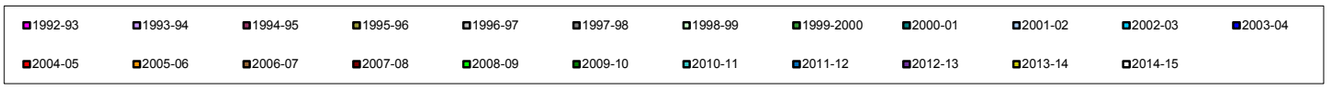
CONTENTS

Refer also to Appendix I on page 114.

PERFORMANCE COMPARISONS - Utility Characteristics





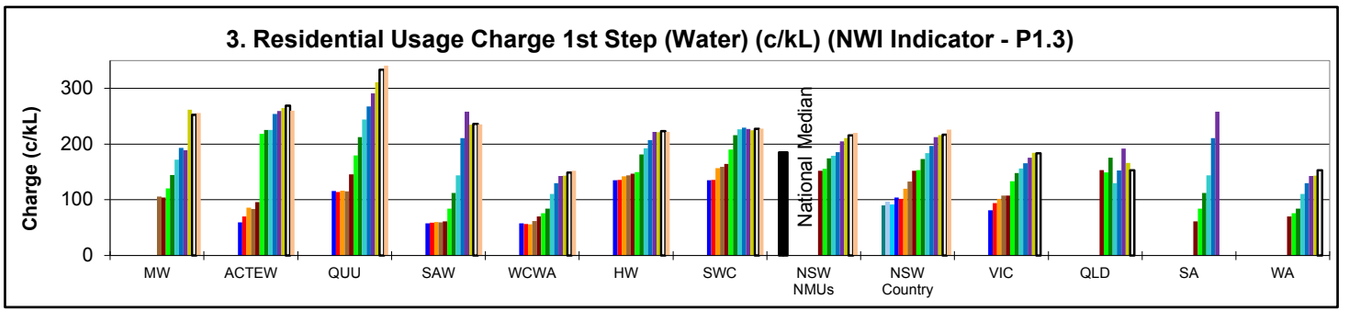


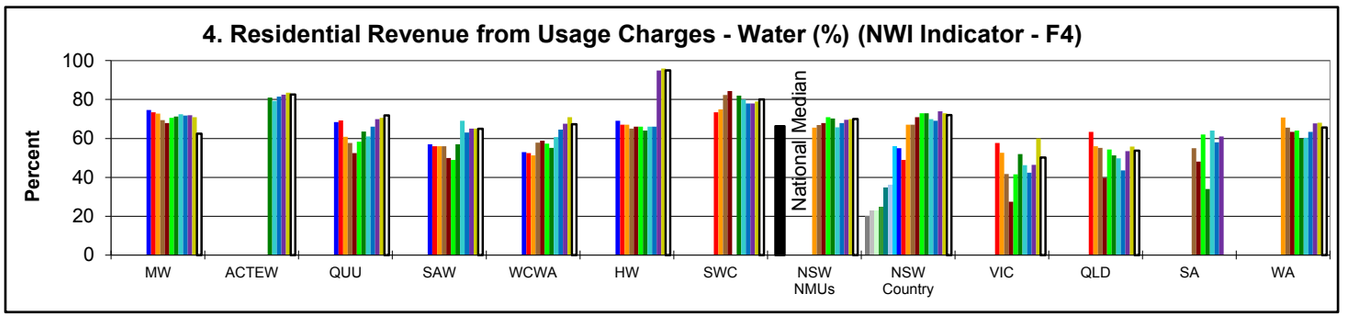
Metropolitan Water Utilities		Country Water Utilities	
MW	Melbourne Water Consolidated (see note 1)	NSW NMUs	Median of NSW regional LWUs with > 10,000 connected properties
ICON	Icon Water (Canberra)		
QUU	Queensland Urban Utilities (Brisbane) (see note 3)	NSW Country	Statewide median for all NSW regional LWUs
SAW	SA Water Corporation (Adelaide)	VIC	VIC Country (see note 4)
WCWA	WA Water Corporation (Perth)	QLD	QLD Country (see note 6)
HW	Hunter Water Corporation	SA	SA Country (see note 5)
SWC	Sydney Water Corporation	WA	WA Country (see note 7)

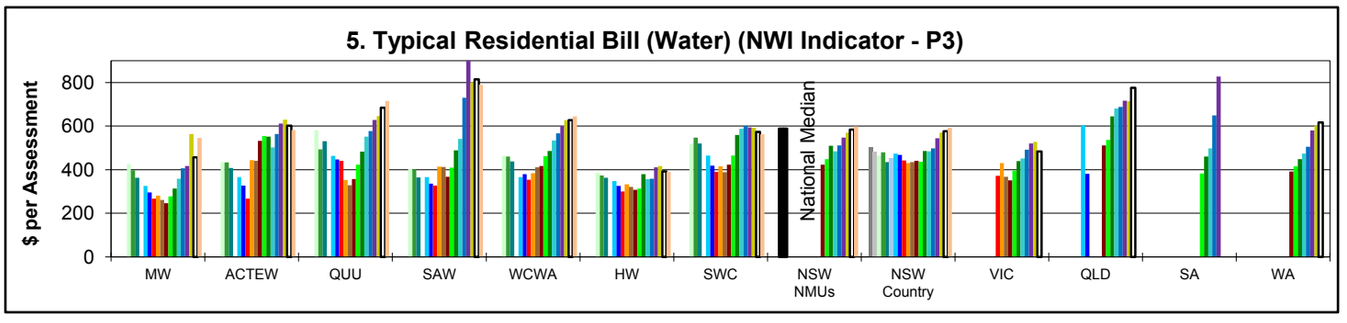
NOTES:

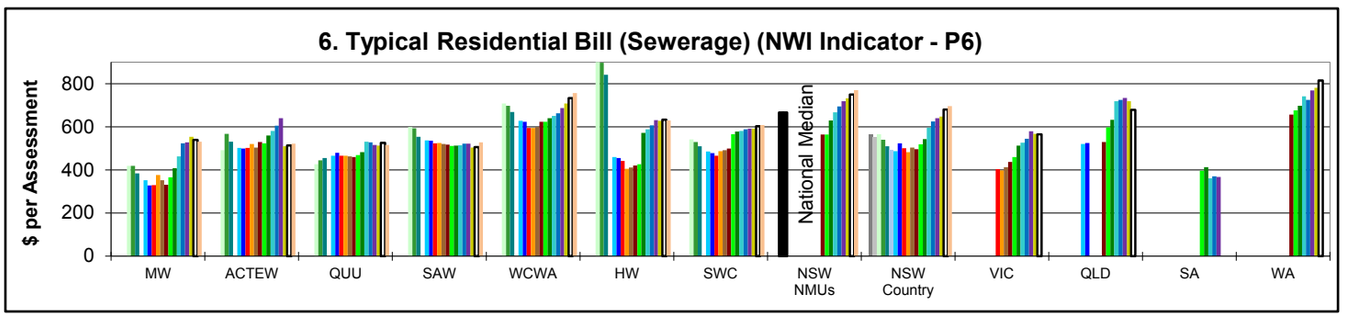
1. Melbourne Water was disaggregated into 4 constituent utilities in 1994. Melbourne Water Consolidated results for 1994-95 to 2014-15 are either aggregated results of the constituent utilities or consolidated results reported in the *National Performance Report 2014-15, WSAA Facts* (note 2) or reported in *Urban Water Review* (note 4).
2. Metropolitan Utilities - *National Performance Report 2014-15* used to obtain results from 2001-02 to 2014-15 (www.bom.gov.au). *WSAA Facts 2005* and *WSAA Facts 1999* (published by the Water Services Association of Australia) used to obtain results from 1994-95 to 1999-00.
3. Queensland Urban Utilities (QUU) was formed by aggregating Brisbane Water, Ipswich City Council, Scenic Rim Regional Council, Lockyer Valley Regional Council and Somerset Regional Council. QUU commenced operations on 1 July 2010. The results shown for QUU prior to 2010-11 are those reported in the NPR and WSAA Facts for Brisbane Water.
4. Victorian Country - *Urban Water Review 1998* and *2004-2005*, (published by the Victorian Water Industry Association) used to obtain results for Victoria Country from 1996-97 to 2004-05. Results from 2005-06 to 2014-15 obtained from median of Victorian utilities (excluding Melbourne Water and its constituents) published in the *2014-15 National Performance Report*.
5. SA Country - *Government Trading Enterprises Performance Indicators 1992-93 to 1996-97 and 1990-91 to 1994-95,* (published by Steering Committee on National Performance Monitoring of Government Trading Enterprises), used to obtain results for 1990-91 to 1996-97. Results from 2005-06 to 2012-13 obtained from median of SA NMUs (Whyalla and Mt Gambier) published in the *National Performance Report 2012-13*. T**he results shown from 2005-06 do not report the overall performance of SA country utilities**. The 2012-13 results are for 2 utilities. Country SA was not reported separately in 2013-14 and 2014-15 and the 2013-14 and 2014-15 results for SAW (Adelaide) include SA Country.
6. QLD Country - *Urban Water Service Providers Queensland Report 2003-2004,* (published by Queensland Department of Natural Resources and Mines), used to obtain results from 2002-03 and 2003-04. These results are for 18 large and medium utilities and exclude Brisbane City Council. Results from 2005-06 to 2013-14 obtained from median of 10 QLD NMUs (Cairns, Mackay, Gold Coast, Gympie, Logan, Rockhampton, Toowoomba, Townsville, Unity Water, Wide Bay Water) published in the *National Performance Report 2013-14.* There is a total of approximately 70 Queensland country utilities. The 2014-15 results are the median for the 19 QLD country utilities reporting in the 2014-15 NPR. These results are referred to as 'country Queensland' on pages 17 to 21.
7. WA Country - *Government Trading Enterprises Performance Indicators 1992-93 to 1996-97 and 1990-91 to 1994-95,* (published by Steering Committee on National Performance Monitoring of Government Trading Enterprises), used to obtain results for 1990-91 to 1996-97. Results from 1999-2005 obtained from *Water Performance Information* on 32 Major WA Towns 1999-2003 and 2001-2005 prepared by the Western Australia Economic Regulation Authority. The results are for regional towns and do not include Perth. Results from 2005-06 to 2014-15 obtained from median of WA NMUs (Albany, Australind/Eaton, Bunbury, Busselton, Geraldton, Kalgoorlie-Boulder, Mandurah) published in the *National Performance Report 2014-15*. **The results shown from 1999 do not report the overall performance of WA country utilities.** The 2014-15 results are for water supply and sewerage utilities for the above 7 regions.
8. Except for Graphs 3 and 5 to 7, which are in 2015-16 dollars, financial data is presented in 2014-15 dollars.
9. The National Median is the median value of the 2014-15 results published in the *National Performance Report 2014-15*.
10. Hobart and Darwin results have not been included in the graphs due to space limitations and the limited data coverage by these utilities. For Darwin, 2014-15 results for NWI indicators W12, P8, A8, C9 and H3 are 409, 1871, 21, 2 and 100% respectively. For the Tasmanian Water and Sewerage Corporation, which includes Hobart, results are available for only 3 of these indicators - W12 (172), F13 (888) and H3 (99%).

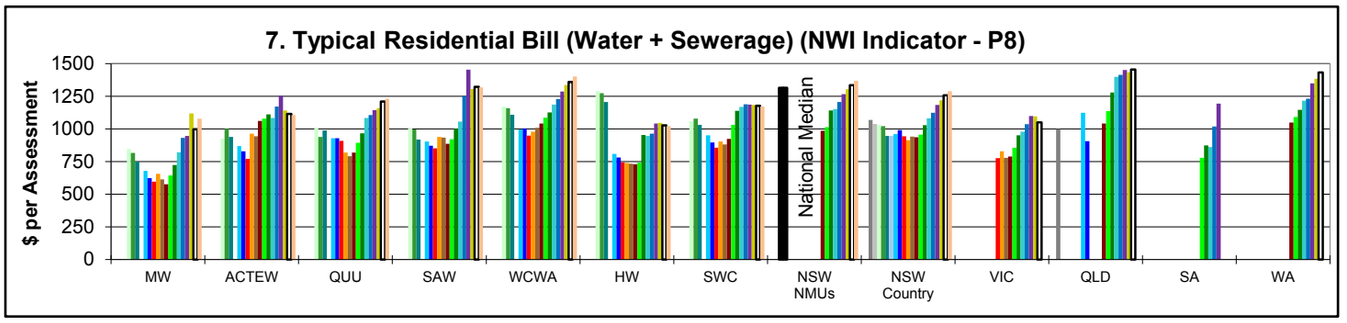
PERFORMANCE COMPARISONS - Social

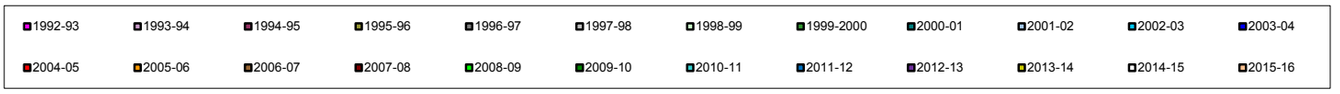








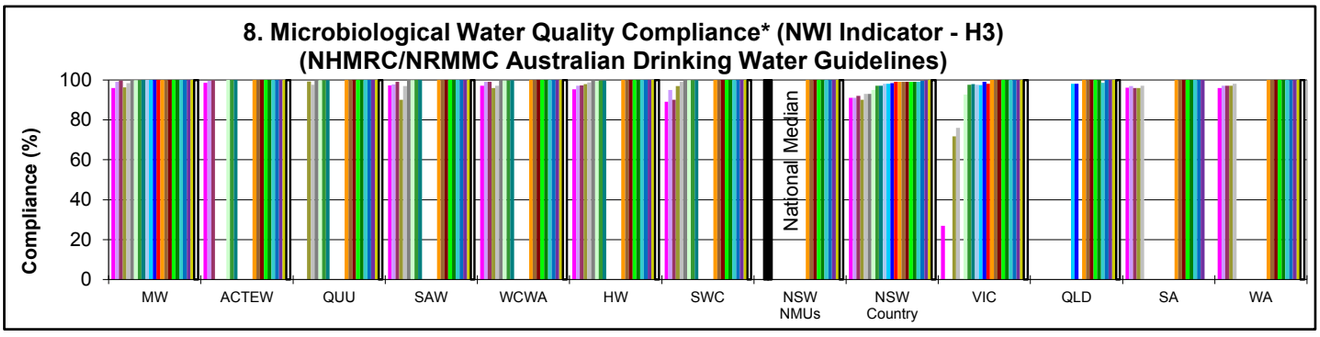


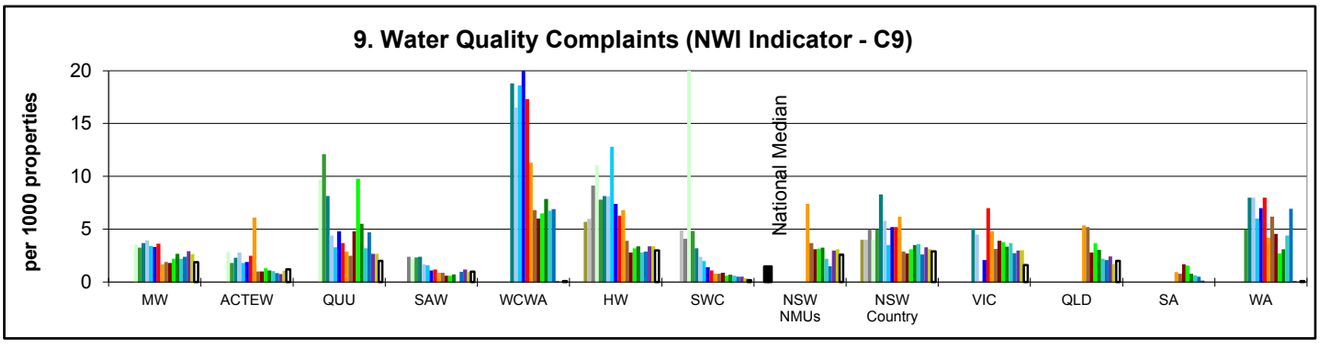


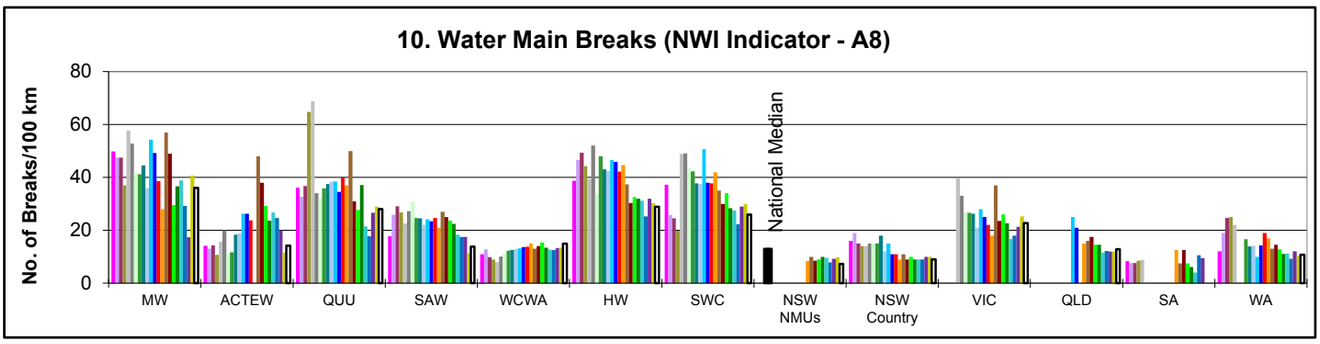
NOTES

1. The Typical Residential Bill (TRB) is the annual bill paid by a residential customer using the utility's average annual residential water supplied.
2. The TRB is the principal indicator of the overall cost of a water supply or sewerage system.
3. The 2015-16 Usage Charge and TRB (graphs 3 and 5 to 7) for the metropolitan water utilities have been determined from data published on each utility's website.
4. As the 2009-10 to 2014-15 values for Indicator F4 were not reported by ICON Water, they have been conservatively estimated in graph 4 from the utility's reported TRB and fixed charge for these years: (TRB - Fixed Charge)/TRB x 100.

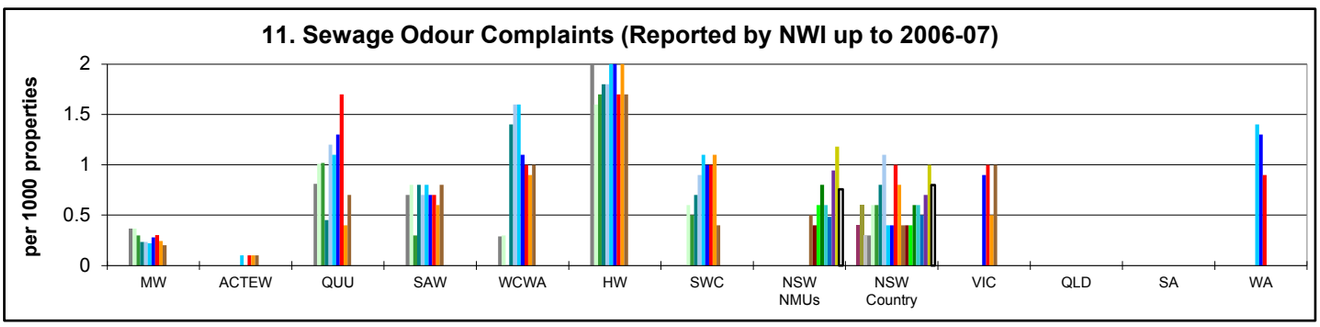
PERFORMANCE COMPARISONS - Social (Water)

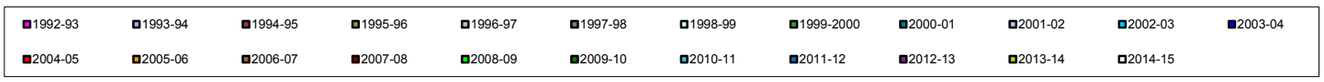






PERFORMANCE COMPARISONS - Social (Sewerage)

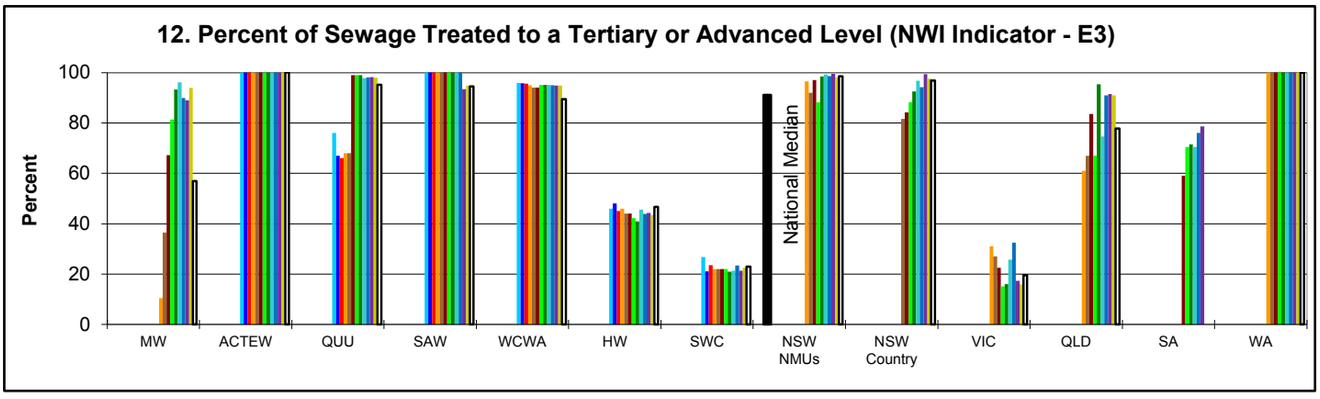




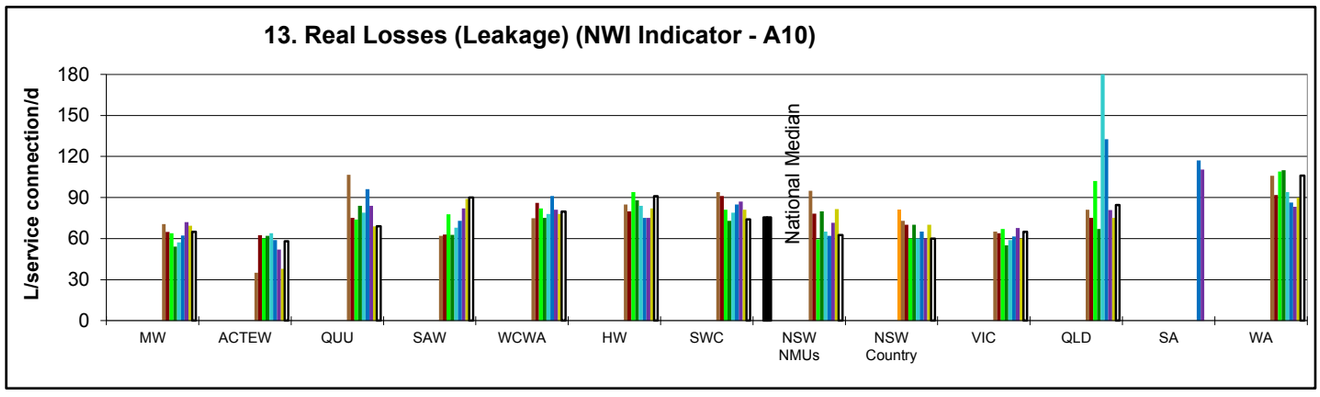
*** Microbiological Water Quality Compliance**

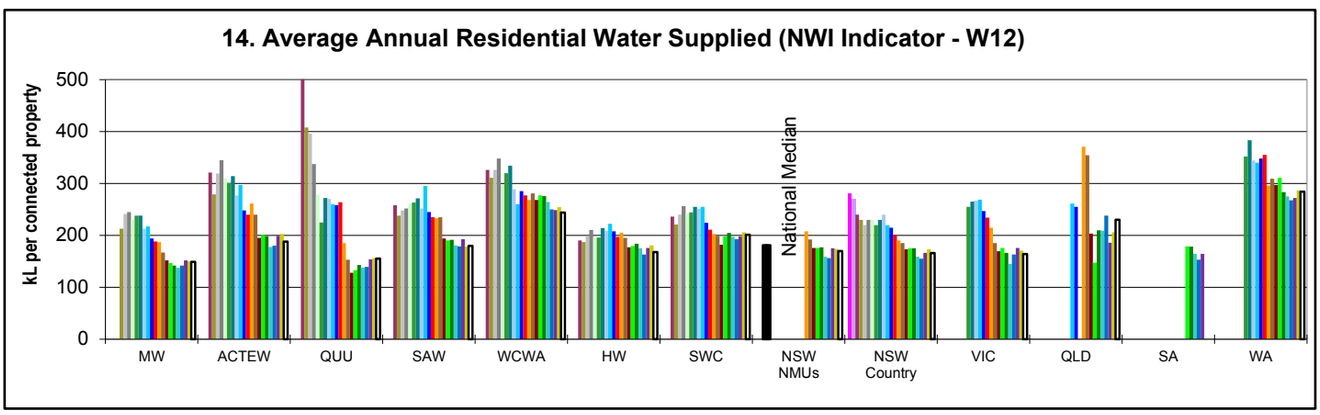
1991 to 1998 results are generally on the basis of the *1987 NHMRC/AWRC Drinking Water Quality Guidelines*.
1998-99 and subsequent results are generally on the basis of E. coli in the more stringent 1996 NHMRC/ARMCANZ and *2004 NHMRC/NRMMC Australian Drinking Water Guidelines (ADWG) [refer also to page 8]*.
The exceptions are Victorian country utilities where results up to 2003-04 are on the basis of the less stringent *1984 World Health Organisation Guidelines* and which are now on the basis of the *Victorian Safe Drinking Water Regulations 2005*, and also Melbourne Water where prior to 2004-05 the results are on the basis of the above 1987 Guidelines and which were subsequently on the basis of the 2004 ADWG.
For 2005-06 to 2014-15, the results shown are for "% of population where microbiological compliance was achieved", in accordance with NWI Indicator H3.
As noted on page 7 of the 2014-15 NSW Water Supply and Sewerage Performance Monitoring Report (www.water.nsw.gov.au), from 2012 to 2015, the public drinking water supply for 99.9% of the urban population in regional NSW complied with 2011 ADWG for both microbiological and chemical water quality. In 2014-15 99.9% of the 19,400 samples tested complied for microbiological water quality (health related) and 99.9% of the 4,800 samples tested complied for chemical water quality (health related).

PERFORMANCE COMPARISONS - Social (Sewerage)

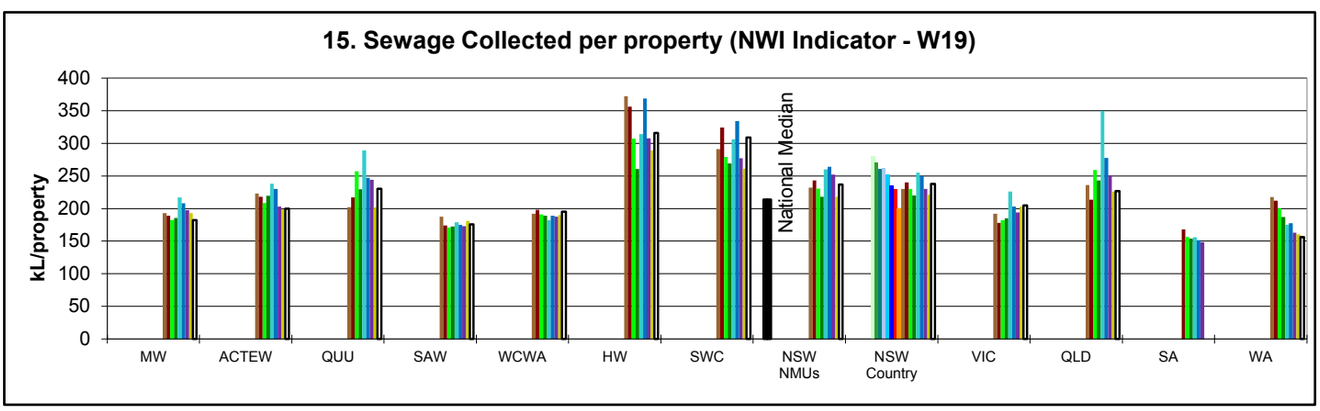


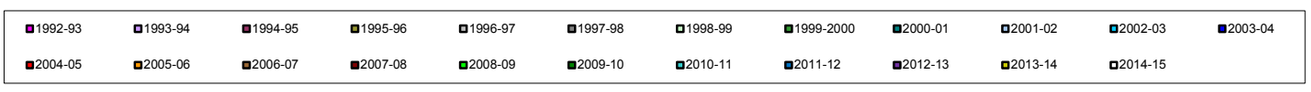
PERFORMANCE COMPARISONS - Environmental (Water)



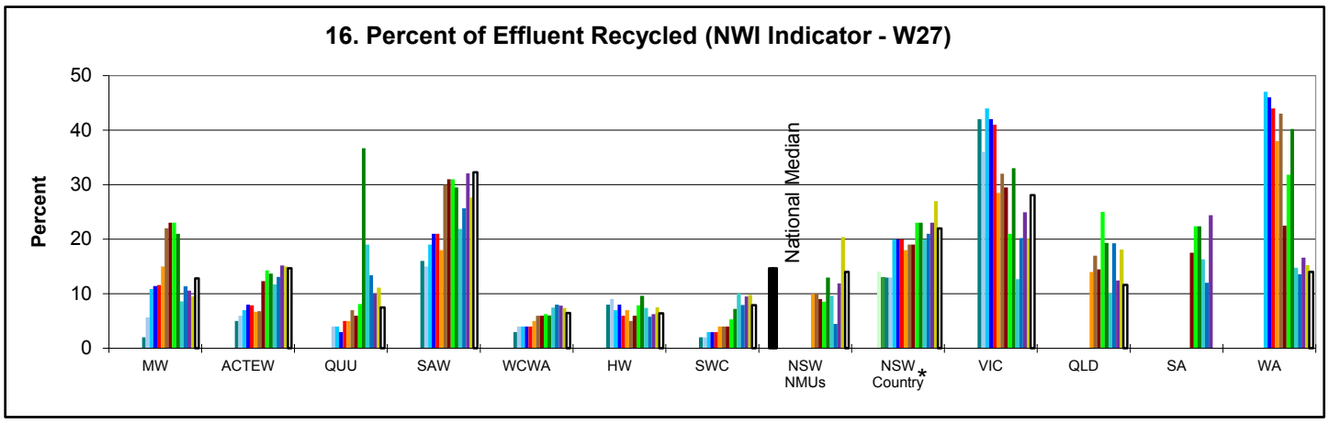


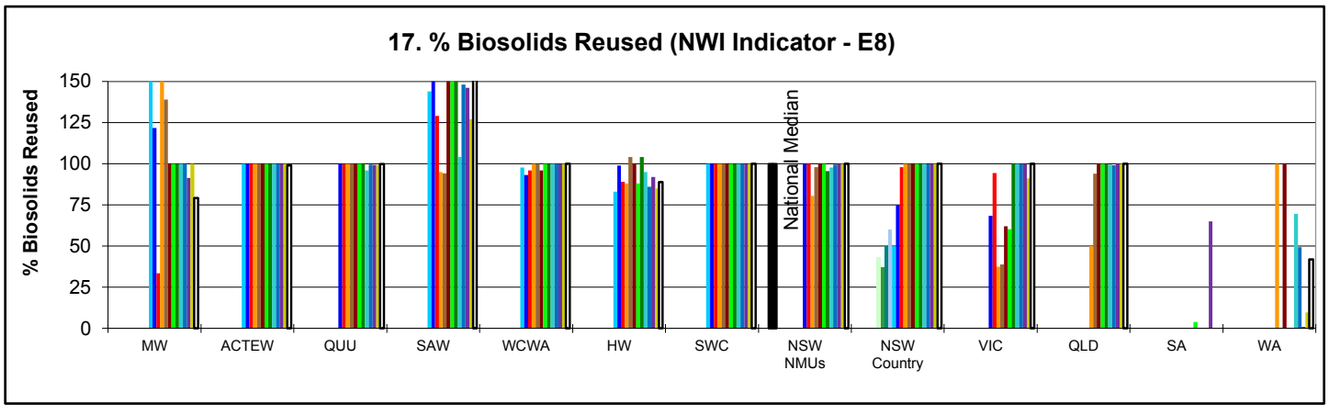
PERFORMANCE COMPARISONS - Environmental (Sewerage)

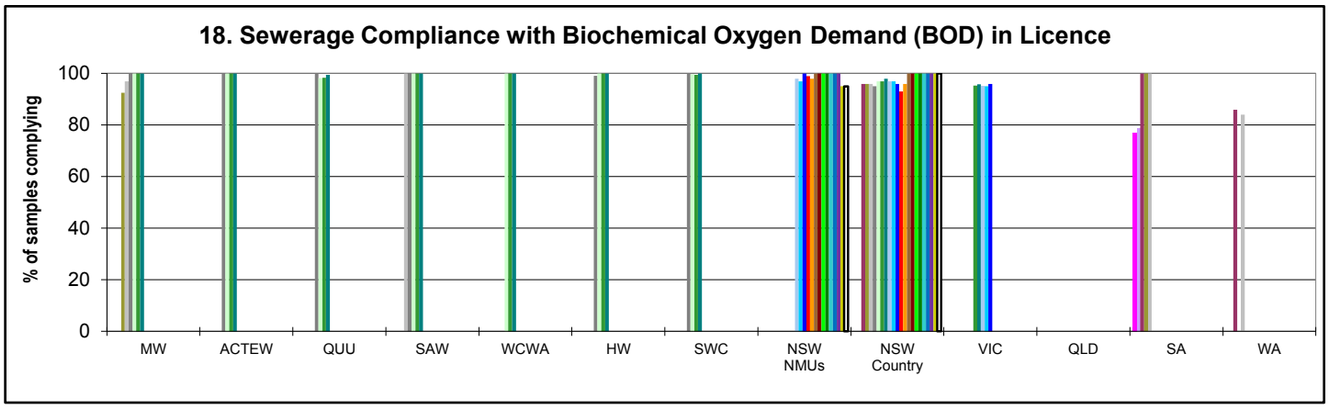


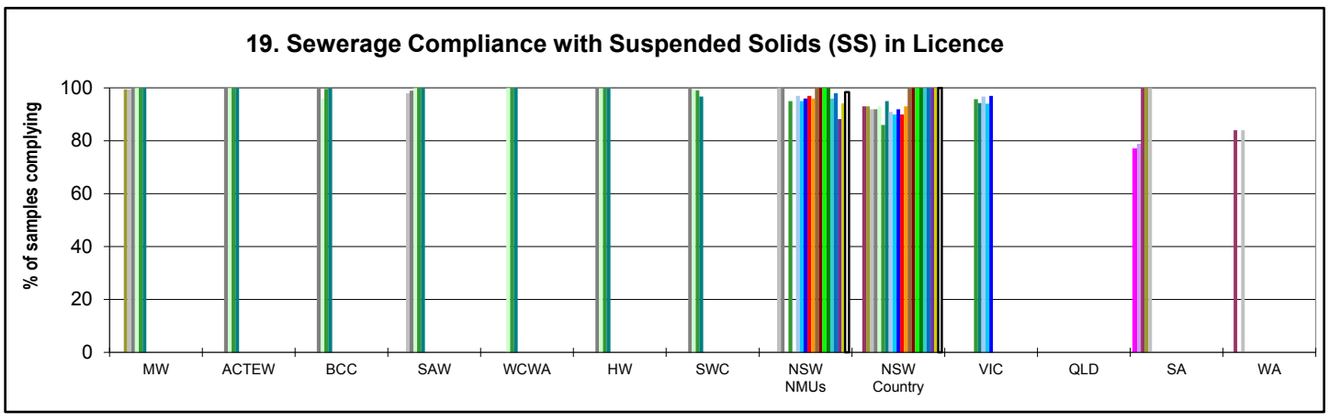


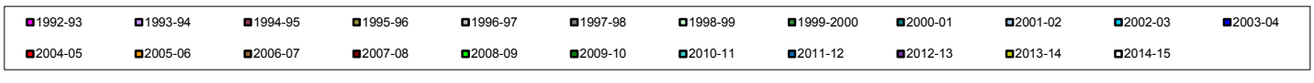
PERFORMANCE COMPARISONS - Environmental (Sewerage)









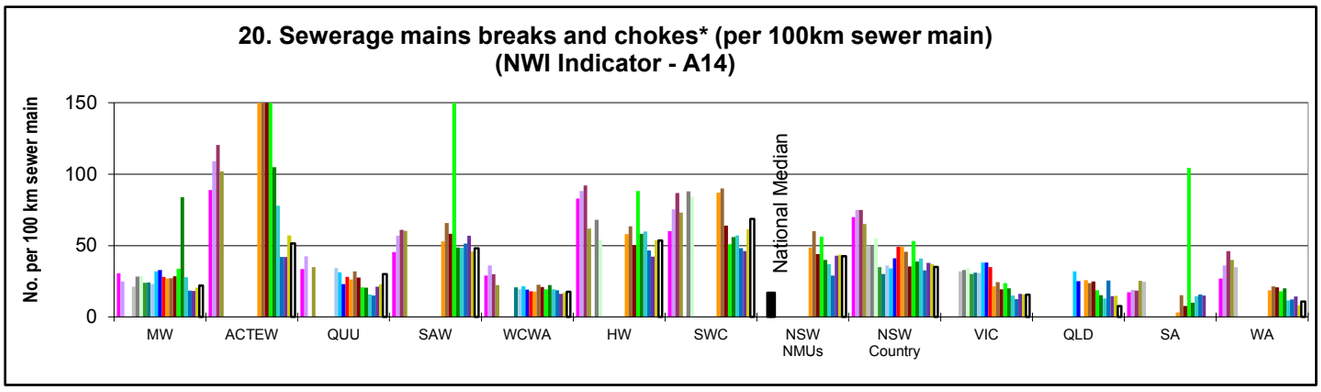


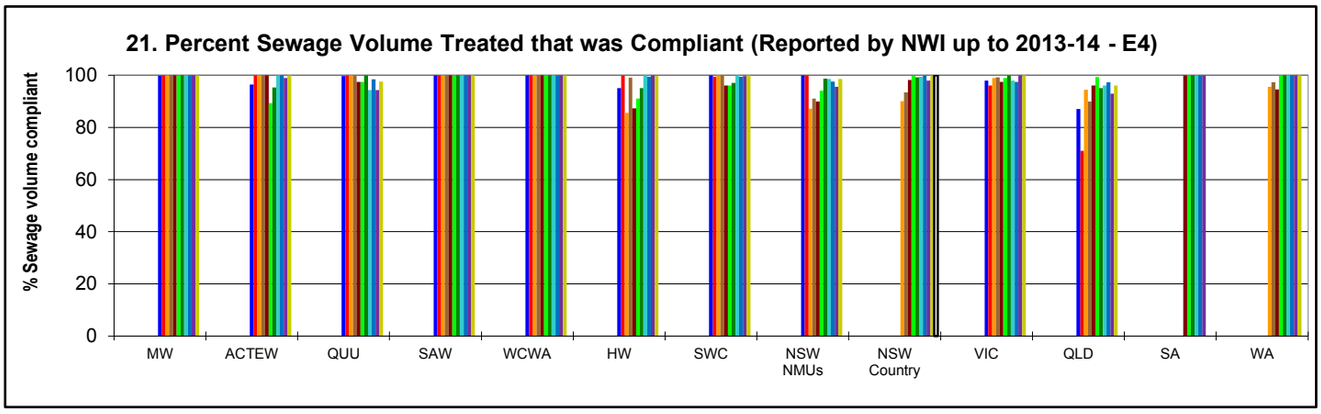
*** NSW Effluent Result**

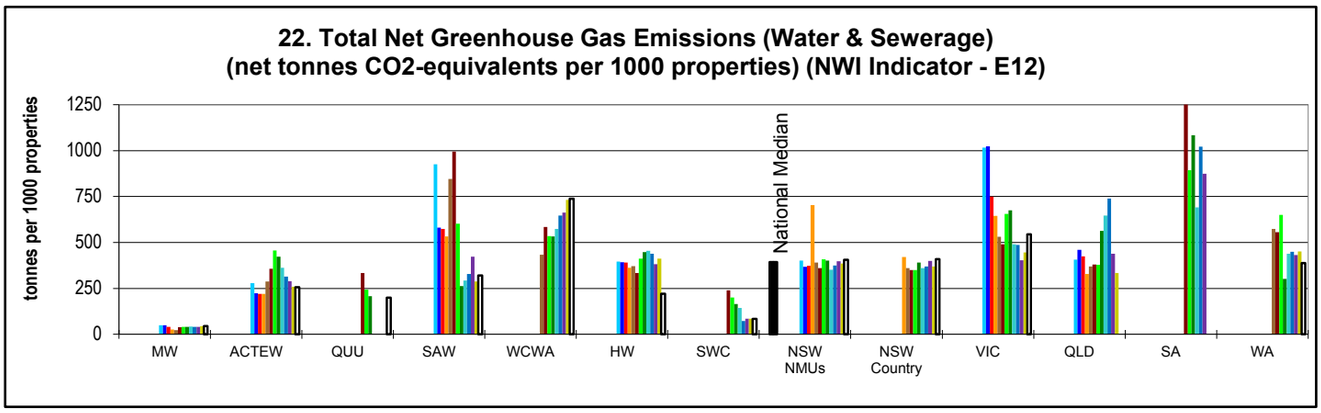
The values shown for country NSW are the percentages of total volume of sewage collected in regional NSW that was recycled.

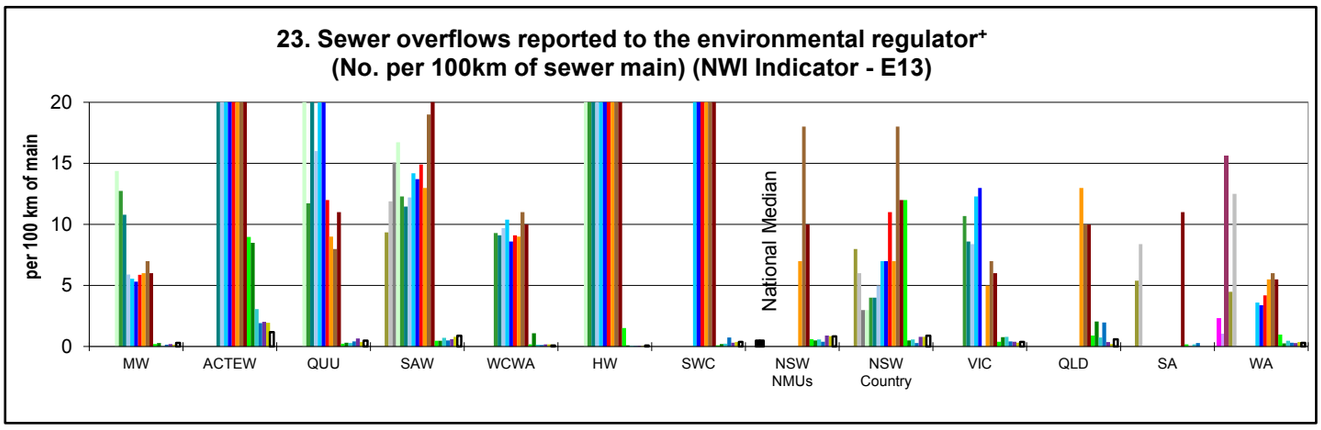
For country NSW, 39,000 ML of wastewater was recycled in 2014-15, which is 22 per cent of the total volume of sewage collected and was carried out by 70 per cent of the utilities, mostly for agriculture.

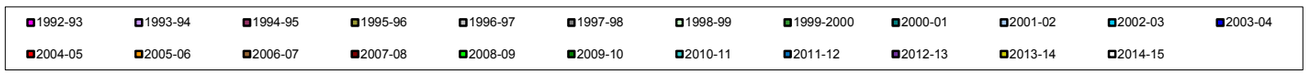
PERFORMANCE COMPARISONS - Environmental (Sewerage)







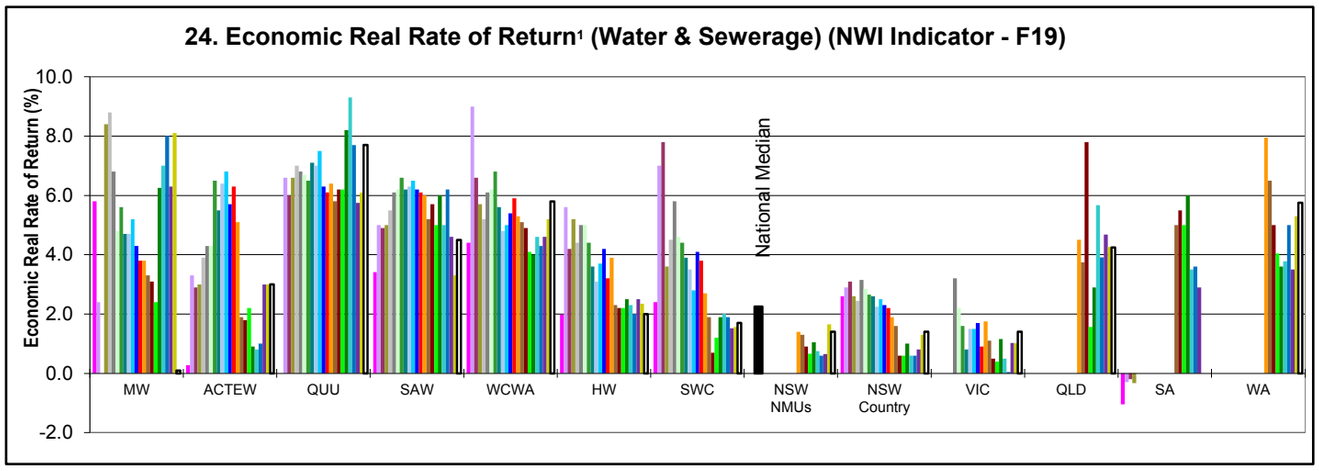


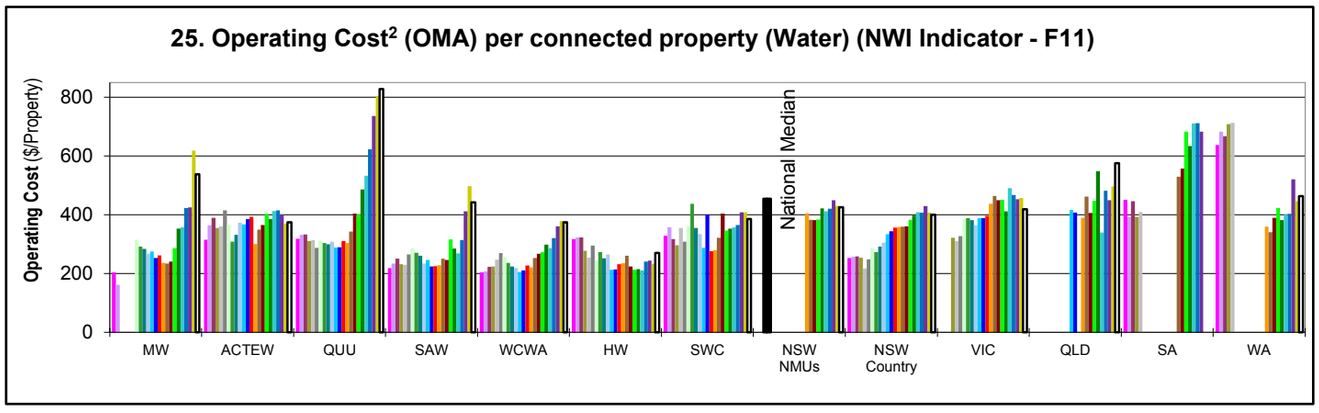


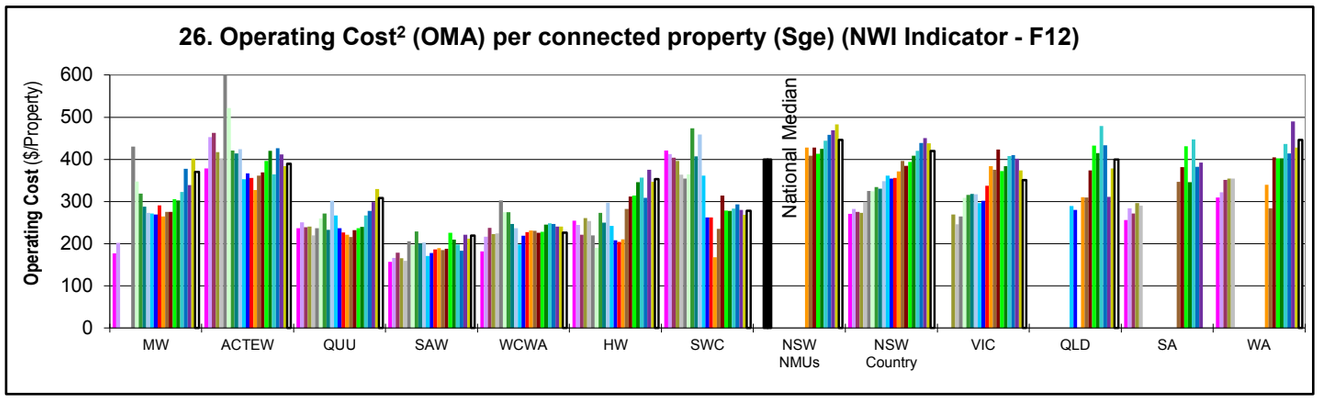
* The values shown prior to 2010-11 are the reported values for sewerage breaks and chokes for indicator A12 in the National Performance Framework 2008-09 Urban Water Performance Indicators and Definitions Handbook.

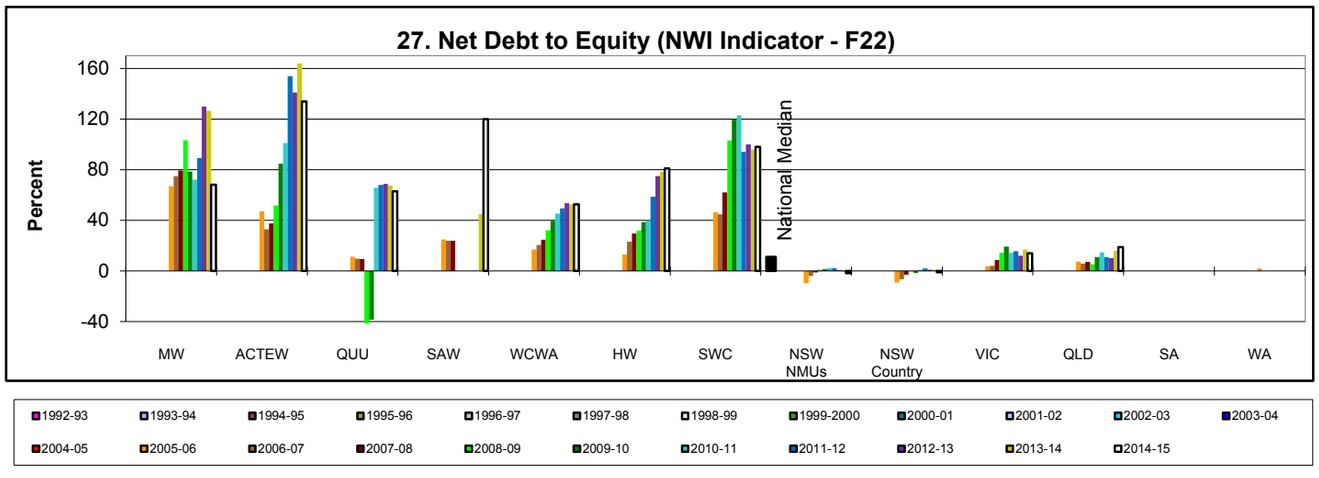
\+ The values shown prior to 2008-09 are all reported sewer overflows in accordance with definition for indicator E13 in the National Performance Framework 2007-08 Urban Water Performance Indicators and Definitions Handbook.

PERFORMANCE COMPARISONS - Economic



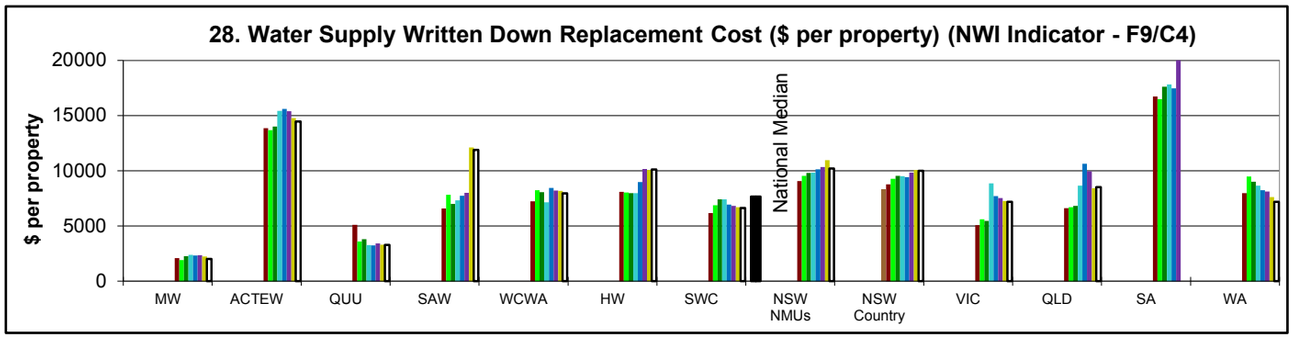


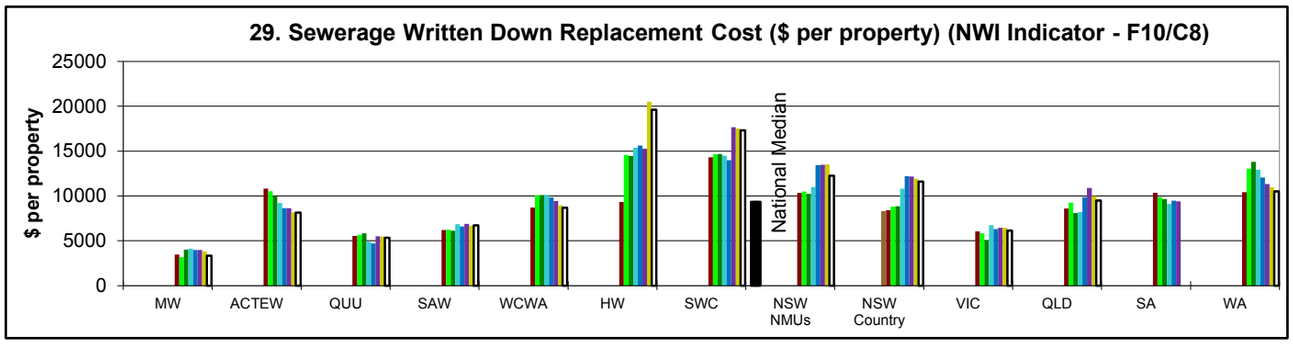


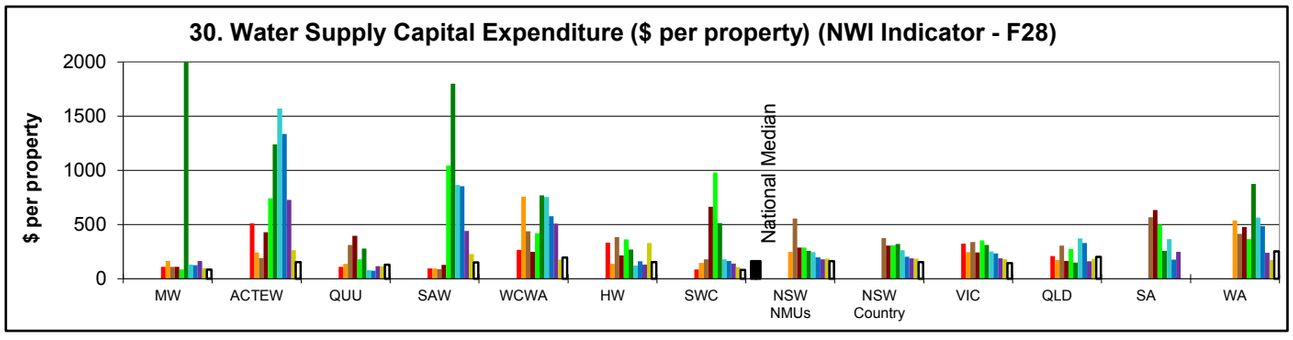


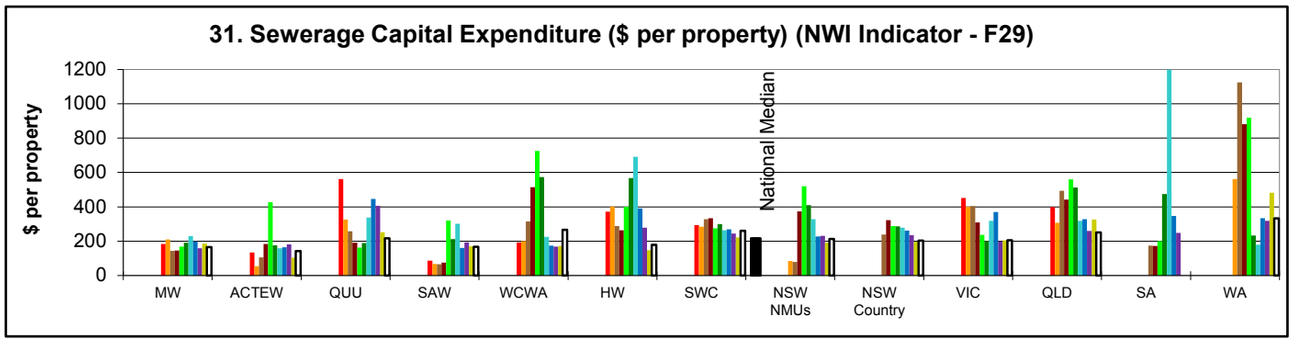
NOTES:
1. As the economic real rate of return (ERRR) was not reported by utilities other than NSW NMUs and Country NSW in 2001/02 to 2004/05, the reported values for "return on assets" has been shown in graph 24 for all the other utilities for these years.
2. Operating Cost (OMA) is the Operation, Maintenance and Administration Cost in 2014-15$.

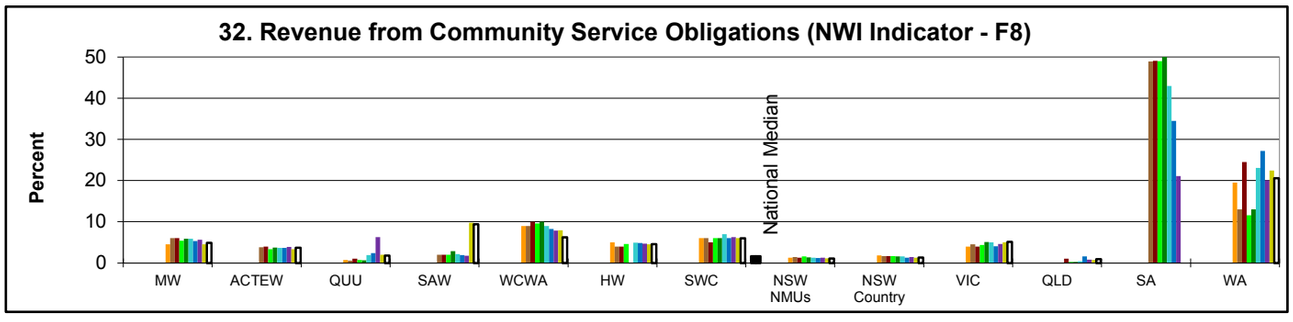
PERFORMANCE COMPARISONS - Economic

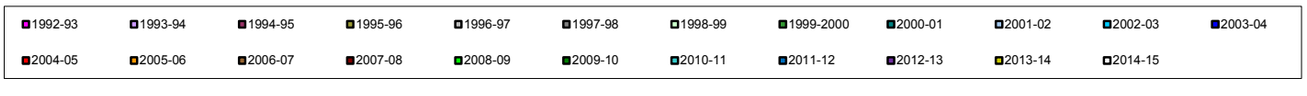












NOTES:

1. The Water Supply Capital Expenditure per property shown for Melbourne Water for 2009-10 includes the full $3.5B capital expenditure by a private consortium for the Victorian Desalination Plant project.
2. The Water Supply Capital Expenditure per property shown for Queensland Urban Utilities (QUU) for 2009-10 includes the $230M capital expenditure by SEQ Water and LinkWater.

APPENDIX B
Example TBL Water Supply Performance Report and Action Plan

Coffs Harbour City Council Water Supply – Action Plan Page 1

Summary
In 2014-15, Coffs Harbour City Council has implemented all 19 planning, pricing and management outcomes (10 water, 9 sewerage) required by the *NSW Best-Practice Management (BPM) Framework* and its performance has continued to be very good.
The key actions required are shown below for Indicators 20 and 32. Note also Indicators 12 and 14 and that a new IWCM Strategy and financial plan are required in 2016.

Key action from Council's Strategic Business Plan:
- *Strategic business plan and financial plan completed in May 2012 (http://www.coffsharbour.nsw.gov.au/places-for-living/Documents/Strategic-Business-Plans-Water-Supply-Sewerage.pdf).*

	INDICATOR	RESULT[2]		COMMENT/DRIVERS	ACTION
	Best-Practice Management (BPM) Framework	*Implemented all the Best-Practice Outcomes[1]*	*Very good*	*Implementation of the required BPM outcomes demonstrates effectiveness and sustainability of water supply business. 100% implementation is required for eligibility to pay an 'efficiency dividend'.*	*Prepare a new 30-year IWCM Strategy, Financial Plan and Report in accordance with the July 2014 IWCM Check List (www.water.nsw.gov.au) as the existing IWCM Strategy is over 6 years old.*
CHARACTERISTICS					
5	*Connected property density*	*40 per km of main* *High ranking (2, 1)*		*A connected property density below 30 can significantly increase the cost per property of providing services, as will also a high number of small discrete water supply schemes.*	
9	*Renewals expenditure*	*0%* *Lowest ranking (5, 5)*	*May require review*	*Adequate funds must be programmed for works outlined in the Asset Management Plan – page 3 of the 2014-15 NSW Performance Monitoring Report.*	*Satisfactory. Appropriate renewals included in capital works program reported in Council's Strategic Business Plan 2012.*
10	*Employees*	*1.9 per 1,000 props* *Low ranking (4, 3)*	*May require review*		*Satisfactory in view of Council's storage dams and water treatment works.*
SOCIAL - CHARGES					
12	*Residential water usage charge*	*267 c/kL* *High ranking (2, 1)*	*Good*	*Benefits of strong pricing signals are shown on page 5 of the 2014-15 NSW Performance Monitoring Report.*	*Good. Consider replacing the existing inclining block tariff with a two-part tariff [refer to Circular LWU11] with a uniform usage charge for all water use, as recommended by the NSW Government and the Productivity Commission.*
13	*Residential access charges*	*$143 per assessment* *Highest ranking (1, 1)*	*Good*		*See 12.*
14	*Typical residential bill[3] (TRB)*	*$588 per assessment* *Median ranking (3, 2)*	*Good*	*TRB should be consistent with projection in the financial plan. Drivers – OMA Management Cost and Capital Expenditure.*	*The TRB of $588 is satisfactory as it is greater than the projected TRB of $585 (2015/16$) in Council's SBP.* *The 2016-17 tariff will be determined in accordance with Circular LWU11 of March 2011.*
15	*Typical developer charges*	*$10100 per ET* *Highest ranking (1, 1)*	*Good*		
16	*Residential revenue from usage charges*	*76% of residential* *Highest ranking (1, 1)*	*Very good*	*≥ 75% of residential revenue should be generated through usage charges.*	*See 12.*
SOCIAL – HEALTH					
19	*Physical quality compliance*	*Yes* *Highest ranking (1, 1)*	*Very good*		
19a	*Chemical quality compliance*	*Yes* *Highest ranking (1, 1)*	*Very good*		
20	*Microbiological compliance[4]*	*Yes* *Highest ranking (1, 1)*	*Very good*	*Critical indicator. LWUs should annually review their risk based Drinking Water Management System (DWMS)* in accordance with *NSW Guidelines for drinking water management systems*, NSW Health and NSW Office of Water, 2013.	Also address the requirements of Circular LWU 18 of June 2014 and any Section 61 Reports from DPI Water. Include the corrective actions identified in your Action Plan.

*1. Council needs to annually 'roll forward', review and update its 30-year total asset management plan (TAMP) and 30-year financial plan, review Council's TBL Performance Report and prepare an **Action Plan** to Council. The Action Plan is to include any actions identified in Council's annual review of its DWMS (Indicator 20) and any Section 61 Reports from DPI Water. Refer to pages 25, 26, 103 and 108 of the 2014-15 NSW Water Supply and Sewerage Performance Monitoring Report.*

2. The ranking relative to similar size LWUs is shown first (Col. 2 of TBL Report) followed by the ranking relative to all LWUs (Col. 3 of TBL Report).

Coffs Harbour City Council Water Supply – Action Plan Page 2

INDICATOR		RESULT		COMMENT/DRIVERS	ACTION
SOCIAL – LEVELS OF SERVICE					
25	Water quality complaints	0 per 1,000 props Highest ranking (1, 1)	Very good	Critical indicator of customer service. Can be influenced by the type of business - e.g. unfiltered supply.	
26	Service complaints	0.1 per 1,000 props Highest ranking (1, 1)	Very good	Key indicator of customer service.	Council's reporting system has been revised to record complaints only, [ie. expressions of dissatisfaction], in accordance with the definition of this indicator.
27	Incidence of unplanned interruptions	11 per 1,000 props High ranking (2, 2)	Good	Key indicator of customer service, condition of network and effectiveness of operation.	
30	Number of main breaks	3 per 100km of main Highest ranking (1, 1)	Very good	Drivers – condition and age of water mains, ground conditions.	Good, as result is well below the Statewide Median of 9 breaks per 100 km of main.
32	Total Days Lost	3.2% Median ranking (3, 4)	Satisfactory		Will be reviewed.
ENVIRONMENTAL					
33	Average annual residential water supplied	167 kL per prop Median ranking (3, 2)		Drivers – available water supply, climate, location (Inland or coastal), pricing signals (Indicator 12), restrictions.	
34	Real losses (leakage)	50 L/c/d High ranking (2, 2)	Good	Loss reduction is important where an LWU is facing drought water restrictions or the need to augment its water supply system.	
ECONOMIC					
43	Economic Real Rate of Return (ERRR)	2% Highest ranking (1, 2)	Good	Reflects the rate of return generated from operating activities (excluding interest income and grants). An ERRR or ROA of ≥ 0% is required for full cost recovery.	Satisfactory. See 14.
44	Return on assets (ROA)	0.6% Low ranking (4, 4)		See 43.	
45	Net debt to equity – water and sewerage	13% Highest ranking (1, 1)	Very good	LWUs facing significant capital investment are encouraged to make greater use of borrowings – page 13 of the 2014-15 NSW Performance Monitoring Report.	
46	Interest cover	1 Median ranking (3, 3)	Satisfactory	Drivers – in general, an interest cover > 2 is satisfactory.	
47	Loan payment	$454 per prop Highest ranking (1, 1)	Very good	The component of TRB required to meet debt payments. Drivers – expenditure on capital works, short term loans.	
49	Operating cost (OMA)	$395 per prop High ranking (2, 1)	Good	Prime indicator of the financial performance of an LWU. Drivers – development density, level of treatment, management cost, topography, number of discrete schemes and economies of scale.	The components below have been carefully reviewed as part of developing Council's strategic business plan.
51	Management cost	$153 per prop Low ranking (4, 3)	May require review	Typically about 40% of the OMA. Drivers – No. of employees. No. of small discrete water schemes.	
52	Treatment cost	$76 per prop Low ranking (4, 2)	May require review	Drivers – type and quality of water source. Size of treatment works	Satisfactory, as Council has a dissolved air flotation water treatment works.
53	Pumping cost	$13 per prop High ranking (2, 1)	Good	Drivers – topography, development density and location of water source.	
55	Water main cost	$93 per prop Low ranking (4, 4)	May require review	Drivers – age and condition of mains. Ground conditions. Development density.	
56	Capital expenditure	$53 per prop Lowest ranking (5, 5)		An indicator of the level of investment in the business. Drivers – age and condition of assets, asset life cycle and water source.	

3. Review and comparison of the 2015-16 ***Typical Residential Bill (Indicator 14)*** with the projection in the later of your IWCM Strategy and financial plan and your Strategic Business Plan is ***mandatory***. Refer to page 104 of the NSW Performance Monitoring Report.
   In addition, if both indicators 43 and 44 are negative, you must report your proposed 2016-17 typical residential bill to achieve full cost recovery.
4. ***Microbiological compliance (Indicator 20)*** is a ***high priority*** for each NSW LWU. Corrective action for non-compliance (≤97%), or any 'boil water alerts' must be reported in your Action Plan. Refer to pages 7, 8 and 26 of the 2014-15 NSW Water Supply and Sewerage Performance Monitoring Report (www.water.nsw.gov.au).

Coffs Harbour City Council Water Supply TBL Report (Page 1)

Coffs Harbour City Council | **TBL Water Supply Performance** | **2014-15**

WATER SUPPLY SYSTEM - Coffs Harbour City Council serves a population of 71,300 (25,060 connected properties). Water is sourced from the Nymboida River (part of the Regional Water Supply which includes Shannon Creek Dam) and also from the Orara River. Water is transferred to Karangi Dam where it is treated and supplied to the Coffs Harbour area which stretches from Sawtell to Corindi. Council has 2 storage dams at Karangi and Woolgoolga (total storage capacity 5,870ML), not including the 30,000ML Shannon Creek Dam. Council has 2 smaller systems providing treated water to Coramba and Nana Glen villages.The water supply network comprises a dissolved air flotation treatment works, a conventional water treatment works and a chlorinator, 18 service reservoirs (88 ML), 7 pumping stations, 43 ML/d delivery capacity into the distribution system, 157 km of transfer and trunk mains and 478 km of reticulation. 95% of water supplied is potable and 5% nonpotable (recycled).

PERFORMANCE - Coffs Harbour City Council achieved 100% implementation of the outcomes required by the NSW BPM Framework. The 2015-16 typical residential bill was $588 which was close to the statewide median of $593 (Indicator 14). The economic real rate of return was similar to the statewide median (indicator 43). The operating cost (OMA) per property was $395 which was close to the statewide median of $400 (Indicator 49). Water quality complaints were negligible compared to the statewide median of 3 (Indicator 25). Compliance was achieved for microbiological water quality (100% of the population, 3 of 3 zones compliant), chemical water quality and physical water quality. There were no failures of the chlorination system or the treatment system. Coffs Harbour City Council reported no water supply public health incidents. Current replacement cost of system assets was $423M ($15,900 per assessment). Cash and investments were $29.4M, debt was $77M and revenue was $22M (excluding capital works grants).

IMPLEMENTATION OF OUTCOMES REQUIRED BY THE NSW BEST-PRACTICE MANAGEMENT (BPM) FRAMEWORK

(1) Complete Current Strategic Business Plan & Financial Plan	**YES** [12]	**(3) Sound water conservation implemented**	**YES**
(2) (2a) Pricing - Full Cost Recovery, without significant cross subsidies	Yes	**(4) Sound drought management implemented**	**YES**
(2b,2c) Pricing - Appropriate Residential Charges	Yes	**(5) Complete performance reporting (by 15 September)**	**YES**
(2d) Pricing - Appropriate Non-residential Charges	Yes	**(6) Integrated water cycle management strategy**	**YESC**
(2e) Pricing - DSP with Commercial Developer Charges	Yes	**IMPLEMENTATION OF ALL OUTCOMES**	**100%**

TRIPLE BOTTOM LINE (TBL) PERFORMANCE INDICATORS

		NWI	No.				LWU RESULT	RANKING >10,000 properties Note 1	RANKING All LWUs Note 2	MEDIANS Statewide Note 3	MEDIANS National Note 4
							Col 1	Col 2	Col 3	Col 4	Col 5
UTILITY	CHARACTERISTICS	C1	1	**Population served:**	**71300**						
		C4	2	**Number of connected properties:**	**25060**	Number of assessments: 26660					
			3	**Residential connected properties** (% of total)		*%*	94			92	
			4	**New residences connected to water supply** (%)		*%*	1.6	2	1	1.1	
		A3	5	**Properties served per kilometre of water main**		*Prop/km*	40			31	**34**
			6	**Rainfall** (% of median annual rainfall)		*%*	145	1	1	116	
		W11	7	**Total urban water supplied at master meters** (ML)		*ML*	6,100			7,000	**9,060**
			8	**Peak week to average consumption** (%)		*%*	120	1	1	141	
			9	**Renewals expenditure** (% of current replacement cost of system assets)		*%*	0.0	**5**	**5**	0.4	
			10	**Employees per 1000 properties**		*per 1,000 prop*	1.9	4	3	1.4	
SOCIAL	CHARGES & BILLS	P1		**Residential tariff structure for 2015-16:**	inclining block; independent of land value; access charge $143						
		P1.3	12a	**Residential water usage charge for 2014-15 for usage <365 kL (c/kL)**		*c/kL (2014-15)*	263	2	1	213	**185**
			12	**Residential water usage charge for 2015-16 for usage <365 kL (c/kL)**		*c/kL (2015-16)*	267	2	1	226	
		P3	14a	**Typical residential bill for 2014-15** ($/assessment)		*$ (2014-15)*	582	4	2	566	**589**
			14	**Typical residential bill for 2015-16** ($/assessment)		*$ (2015-16)*	588	3	2	593	
			15	**Typical developer charge for 2015-16** ($/equivalent tenement)		*$ (2015-16)*	10,100	1	1	5,900	
		F4	16	**Residential revenue from usage charges** (% of residential bills)		*%*	76	1	1	72	**66**
		F5	17	**Revenue per property** - water ($/property)		*$/prop*	880	3	3	827	**881**
	HEALTH		18	**Water Supply Coverage** (% of Urban Population with reticulated WS)		*% of population*	99.5	3	2	99.5	
			18a	**Risk based Drinking Water Management System (DWMS)?**		*Yes/No*	Yes				
			19	**Physical compliance achieved? Note 10**		*Yes/No*	Yes	1	1		
			19a	**Chemical compliance achieved? Note10**		*Yes/No*	Yes	1	1		
		H4	19b	**% population with chemical compliance**		*% of population*	100	1	1	100	
			20	**Microbiological (E. coli) compliance achieved? Note 10**		*Yes/No*	Yes	1	1		
		H3	20a	**% population with microbiological compliance**		*% of population*	100	1	1	100	**100**
	SERVICE LEVELS	C9	25	**Water quality complaints per 1000 properties**		*per 1,000 prop*	0	1	1	3	**2**
		C10	26	**Water service complaints per 1000 properties**		*per 1,000 prop*	0.1	1	1	6	**0**
		C17	27	**Incidence of unplanned interruptions per 1000 properties**		*per 1,000 prop*	11	2	2	24	**91**
		C15	28	**Average duration of interruption** (min)		*min*	120	1	2	133	**117**
		A8	30	**Number of water main breaks per 100 km of water main**		*per 100km*	3	1	1	9	**13**
			31	**Drought water restrictions** (% of time)		*% of time*	0	1	1	0	
			32	**Total days lost** (%)		*%*	3.2	3	4	2.9	
ENVIRONMENTAL	NATURAL RESOURCE MANAGEMENT	W12	33	**Average annual residential water supplied - STATEWIDE (**kL/property)		*kL/prop*	167	3	2	166	**181**
			33a	**Average annual residential water supplied - COASTAL LWUs** (kL/property)		*kL/prop*	167	4	4	150	
			33b	**Average annual residential water supplied - INLAND LWUs** (kL/property)		*kL/prop*				225	
		A10	34	**Real losses** (leakage) (L/service connection/day)		*L/connection/day*	50	2	2	60	**76**
			35	**Energy consumption per Megalitre** (kiloWatt hours)		*kWh/ML*	489	2	3	700	
			36	**Renewable energy consumption** (% of total energy consumption)		*%*				0	
		E12	36a	**Net greenhouse gas emissions - WS & Sge** (net tonnes CO2 equivalents per 1000 properties)		*t CO2*	490	**5**	**5**	410	**393**
ECONOMIC	FINANCE		42	**Current replacement cost per assessment** ($)		*$/assessment*	15,900	3	3	16,400	
		F17	43	**Economic real rate of return** - Water (%)		*%*	2.0	1	2	1.6	**1.9**
			44	**Return on assets** - Water (%)		*%*	0.6	4	4	1.0	
		F22	45	**Net Debt to equity** - WS & Sge (%)		*%*	13	1	1	-1	**11**
		F23	46	**Interest cover** - WS & Sge			1	3	3	4	**2**
			47	**Loan payment per property** - Water ($)		*$/prop*	454	1	1	69	
		F24	47b	**Net profit after tax** - WS & Sge ($'000)		*$'000*	-3,270	**5**	**5**	2340	**7120**
	EFFICIENCY		48	**Operating cost (OMA) per 100km of main** ($'000)		*$'000*	1,580	4	4	1,320	
		F11	49	**Operating cost (OMA) per property ($/prop) Note 8**		*$/prop*	395	2	1	400	**455**
			50	**Operating cost (OMA) per kilolitre** (cents)		*c/kL*	161	4	4	129	
			51	**Management cost** ($/prop)		*$/prop*	153	4	3	141	
			52	**Treatment cost (**$/prop)		*$/prop*	76	4	2	58	
			53	**Pumping cost** ($/prop)		*$/prop*	13	2	1	31	
			54	**Energy cost** ($/prop)		*$/prop*	9	2	1	18	
			55	**Water main cost** ($/prop)		*$/prop*	93	4	4	74	
		F28	56	**Capital Expenditure** ($/prop)		*$/prop*	53	**5**	4	155	**163**

NOTES :

1 Col 2 rankings are on a % of LWUs basis - best reveals performance compared to similar sized LWUs (ie. Col 1 is compared with LWUs with >10,000 properties).

2 Col 3 rankings are on a % of LWUs basis - best reveals performance compared to all LWUs (ie. Col 1 is compared with all LWUs).

3 Col 4 (Statewide Median) is on a % of connected properties basis- best reveals statewide performance (gives due weight to larger LWUs & reduces effect of smaller LWUs).

4 Col 5 (National Median) is the median value for the 76 utilities reporting water supply performance in the National Performance Report 2014-15 (www.bom.gov.au).

5 LWUs are required to annually review key projections & actions in the later of their IWCM Strategy and financial plan and their Strategic Business Plan and to annually 'roll forward', review and update their 30-year total asset management plan (TAMP) and 30-year financial plan.

6 2015-16 Non-residential Tariff: Access Charge based on Meter Size: 40mm $572, Two Part Tariff; Usage Charge 267c/kL.

7 Non-residential water supplied was 25% of potable water supplied excluding non-revenue water.
Non-residential revenue was 24% of annual rates and charges, indicating fair pricing of services between the residential and non-residential sectors.

8 The operating cost (OMA) per property was $395. Components were: management ($153), operation ($108), maintenance ($104), energy ($9) & chemical ($17).

9 Rehabilitations included 0.3% of water mains, 0.14% of service connections and 5.8% of water meters. Renewals expenditure was $12,000/100km of main.

10 Compliance with ADWG 2011 for drinking water quality is shown as "Yes" if compliance has been achieved (indicators 19, 19a & 20).

11 Coffs Harbour City Council has 3 fully qualified water treatment operators who meet the requirements of the National Certification Framework.

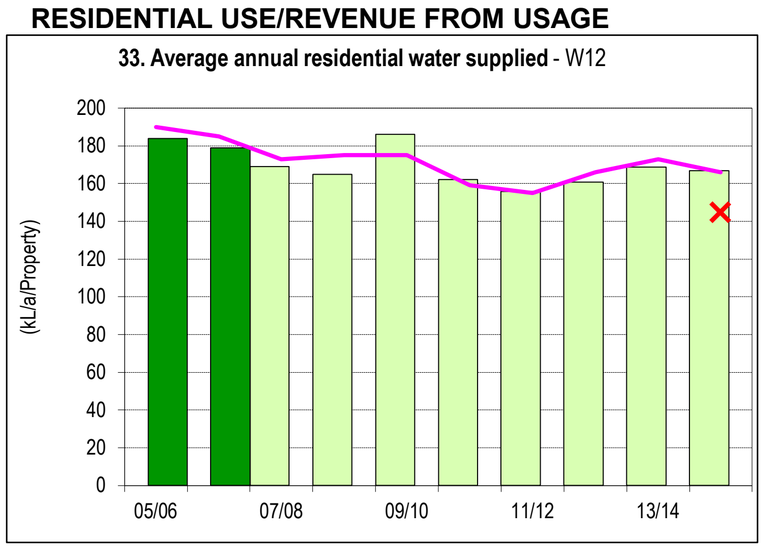
12 As Council's IWCM Strategy is over 6 years old, it will need to prepare a new 30-year IWCM Strategy, financial plan and report in accordance with the July 2014 IWCM Check List (www.water.nsw.gov.au).

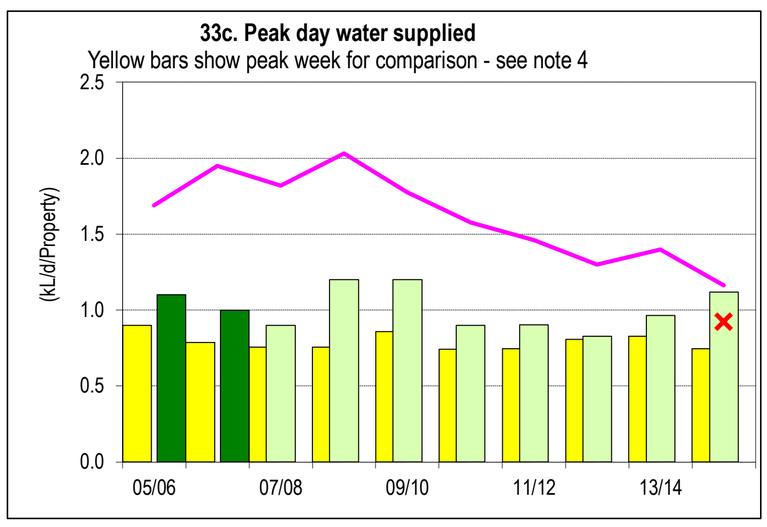
Coffs Harbour City Council Water Supply TBL Report (Page 2)

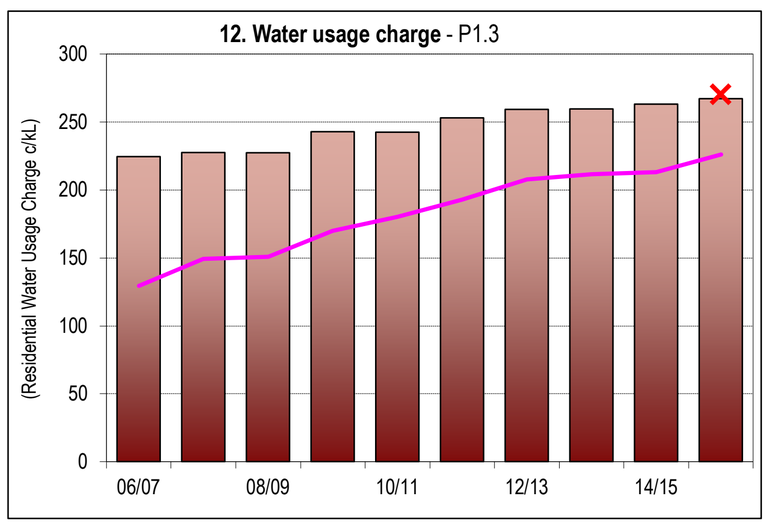
Coffs Harbour City Council | **TBL Water Supply Performance (page 2)** | **2014-15**

(Results shown for 10 years together with Statewide Median and 2014-15 Top 20%)

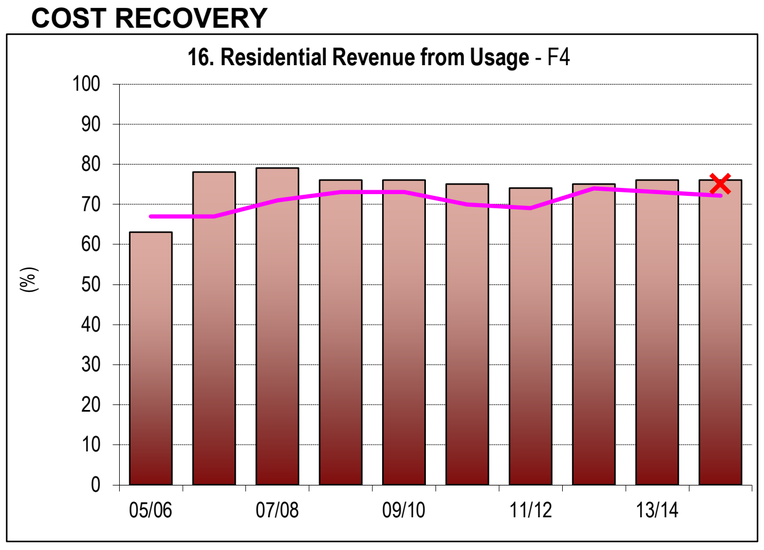
RESIDENTIAL USE/REVENUE FROM USAGE

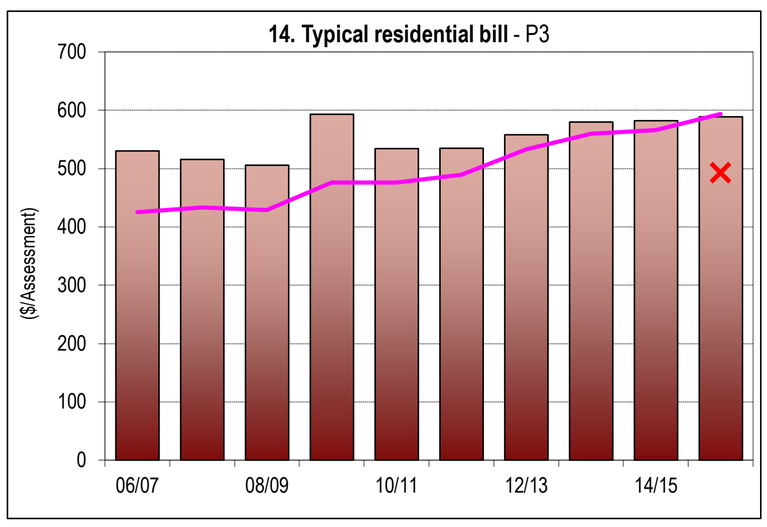


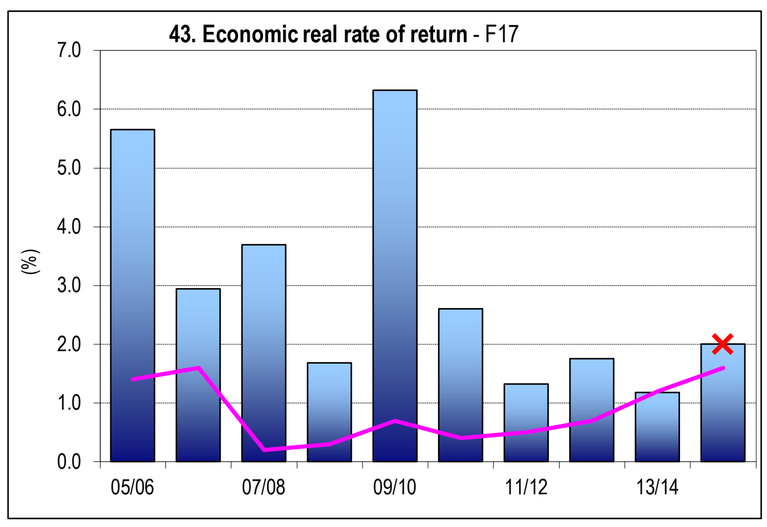




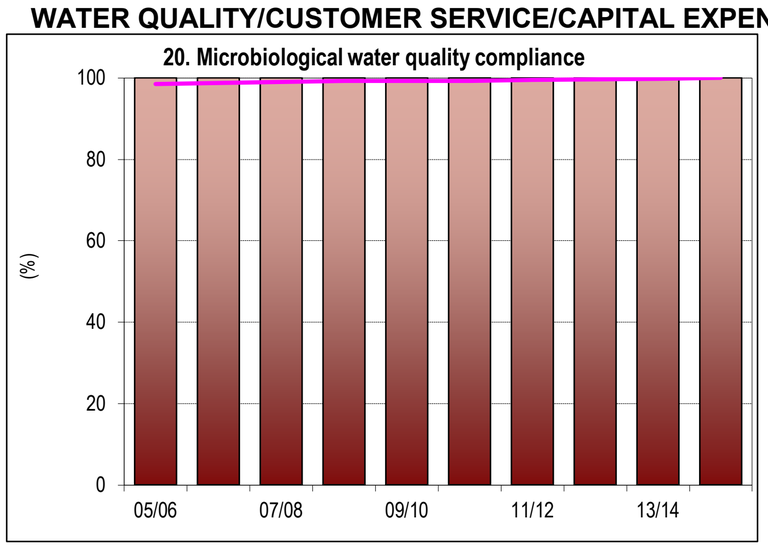
COST RECOVERY

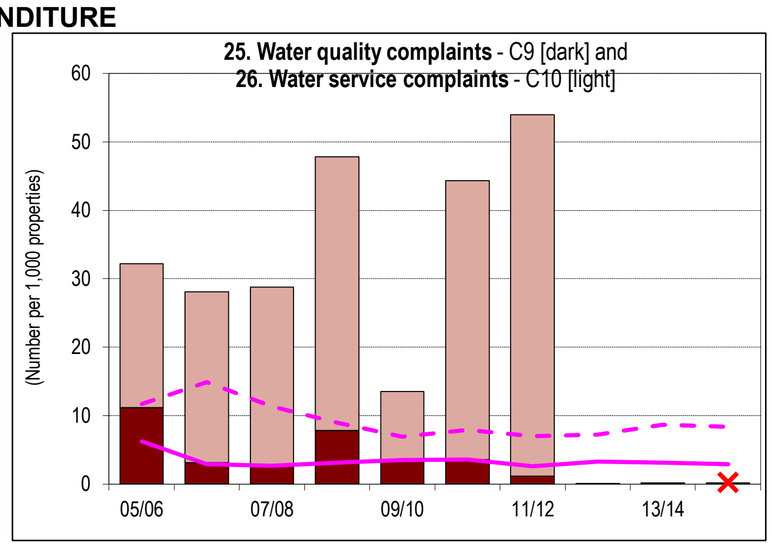


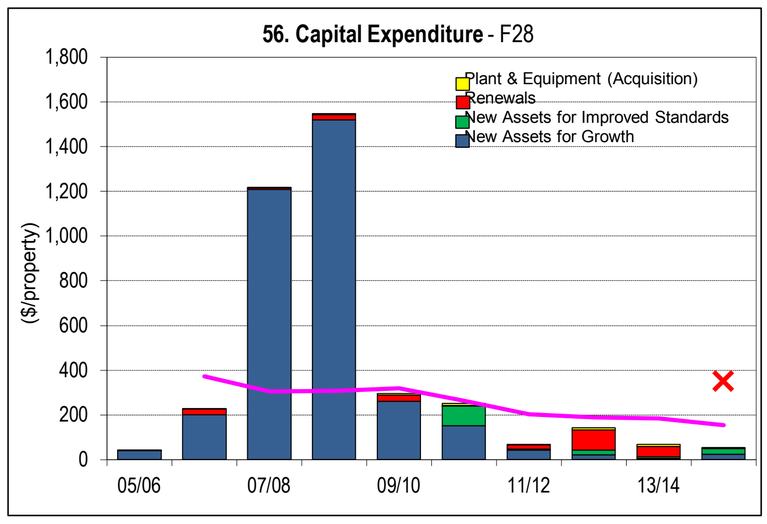




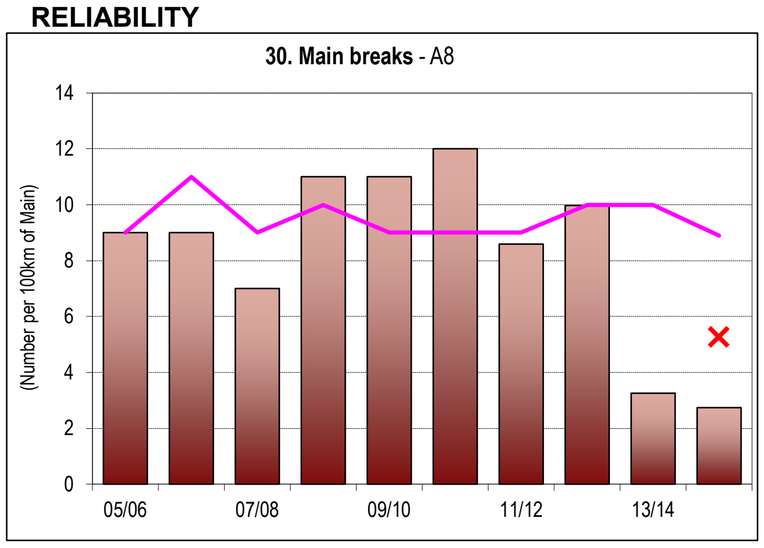
WATER QUALITY/CUSTOMER SERVICE/CAPITAL EXPENDITURE

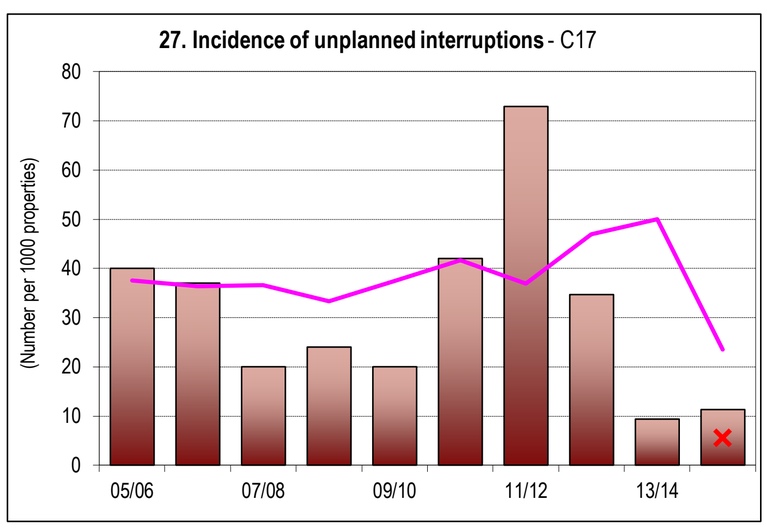


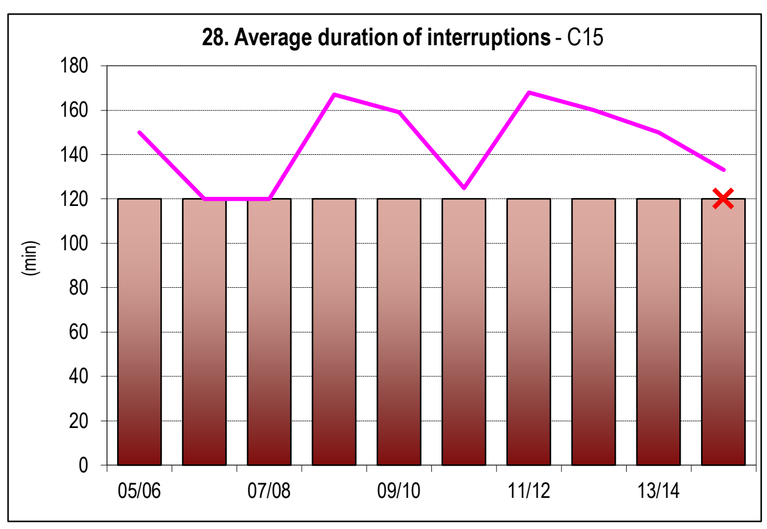




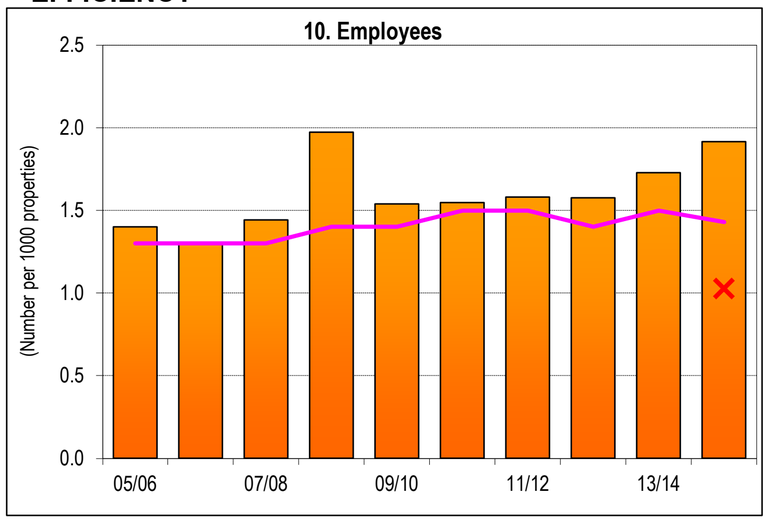
RELIABILITY

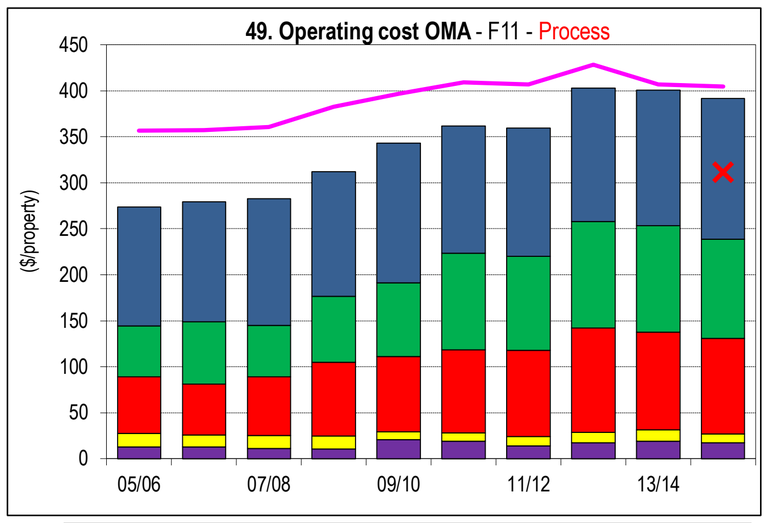


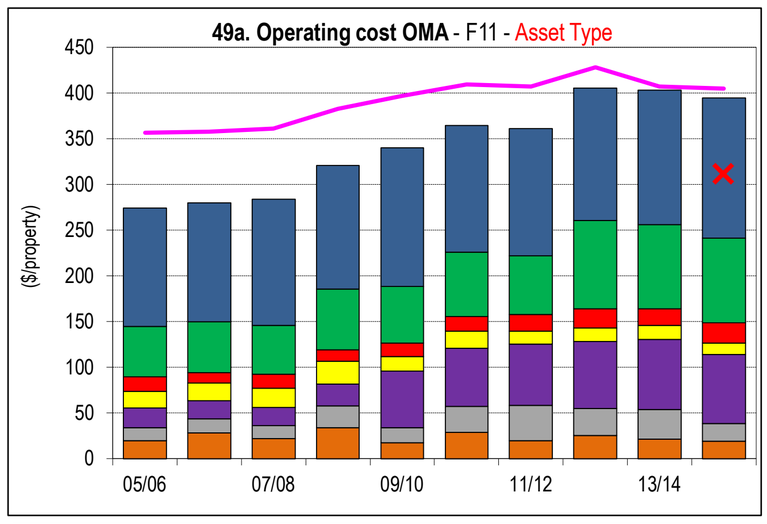




EFFICIENCY







NOTES:

1. Costs are in Jan 2015$ except for graphs 12 and 14, which are in Jan 2016$.
2. Microbiological water quality compliance 1999-00 to 2003-04 was on the basis of 1996 NHMRC/ARMCANZ Australian Drinking Water Guidelines for E. coli; from 2004-05 to 2010-11 compliance was on the basis of the 2004 NHMRC/NRMMC Australian Drinking Water Guidelines (ADWG) and for 2011-12 to 2014-15 compliance was on the basis of the 2011 ADWG.
3. Indicators 33 and 33c - Green shading of bars shows % of time Drought Water Restrictions applied in each year: 0 - 30% | 30-50% | >50% of time
4. Indicator 33c - Yellow bars show Peak Week Water Supplied for comparison with Peak Day Water Supplied shown in green.

LEGEND

State Median for all years

Top 20% for 2014-15

APPENDIX C - 2014-15 Best-practice management implementation

	WATER UTILITY (sorted on connected properties)	WATER SUPPLY & SEWERAGE REVENUE ($M)	WATER SUPPLY — IMPLEMENTATION OF BPM OUTCOMES (see Note 1)												SEWERAGE — IMPLEMENTATION OF BPM OUTCOMES (see Note 1)										
			(1) Strategic Business Plan	(2) Pricing and Developer Charges (Yes/No)					(3) Sound Water Conservation Plan implemented (Yes/No)	(4) Sound Drought Management Plan implemented (Yes/No)	(5) Complete performance Reporting by 15 September each year (Yes/No)	(6) Integrated Water Cycle Management Strategy Commenced (Yes/No)	(7) Overall implementation of all 10 requirements (Note 2) (%)	(8) Proposed Dividend from Surplus $'000	(1) Strategic Business Plan	(2) Pricing and Developer Charges (Yes/No)					(3) Complete performance Reporting by 15 September each year (Yes/No)	(4) Integrated Water Cycle Management Strategy Commenced (Yes/No)	(7) Overall implementation of all 9 requirements (Note 3) (%)	(8) Proposed Dividend from Surplus $'000
			Complete Current 20 to 30-year SBP & FP (Yes/No)	(2a) Full cost-recovery, minimal cross subsidies	(2b) Appropriate Residential Charges	(2c) Revenue from Residential Usage Charges >=75% (Note 8)	(2d) Appropriate Non-Residential Charges	(2e) DSP with Commercial Developer Charges							Complete Current 20 to 30-year SBP & FP (Yes/No)	(2a) Full cost-recovery, minimal cross subsidies	(2b) Appropriate Residential Charges	(2c) Appropriate Non-Residential Charges	(2d) Appropriate Trade Waste Fees & Charges	(2e) DSP with commercial developer charges	(2f) Liquid trade waste regulation policy and approvals implemented				
	LWUs with >10,000 Properties																							
1	Gosford	95.3	Yes+	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
2	Wyong	87.8	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
3	Shoalhaven	73.5	Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	1,433	Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	1,276
4	Rous (Bulk Supplier) (NO SGE)	23.0	Yes*	Yes				Yes	Yes	Yes	Yes	YesC	100												
5	MidCoast	71.0	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
6	Tweed	62.3	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
7	Port Macquarie-Hastings (Unfiltered)	51.3	Yes*	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesE	90	860	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	
8	Riverina (Groundwater) (NO SGE)	30.5	Yes	Yes	Yes	Yes*		Yes	Yes	Yes	Yes	YesC	90												
9	Wagga Wagga (NO WS)	19.6													Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	
10	Coffs Harbour	50.7	Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes+	Yes	Yes	Yes	Yes	Yes	Yes*	Yes	YesC	100	
11	Albury City	37.7	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
12	Fish River WS (Bulk Supplier, No Sge)	10.0	Yes*	Yes*					Yes	Yes	Yes		83												
13	Tamworth Regional	41.6	Yes*	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
14	Clarence Valley	32.9	Yes+	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
15	Eurobodalla	36.3	Yes+	Yes	Yes	Yes**	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	530
16	Wingecarribee	30.0	Yes*	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
17	Queanbeyan (Reticulator)	30.8	Yes*	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesE	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	
18	Dubbo	37.8	Yes+	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
19	Orange	31.6	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
20	Goulburn Mulwaree	21.1	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
21	Bathurst Regional	27.5	Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
22	Lismore (Reticulator)	23.1	Yes+	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes+	Yes	Yes		Yes	Yes	Yes*	Yes	YesC	89	
23	Bega Valley (Unfiltered)	26.6	Yes*	Yes*	Yes		Yes	Yes	Yes	Yes	Yes	Yes	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100	
24	Ballina (Reticulator)	28.4	Yes+	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
25	Kempsey (Groundwater)	21.8	Yes+	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
26	Essential Energy	21.0	Yes+	Yes*	Yes	Yes*	Yes	Yese	Yes	Yes	Yes	YesC	100		Yes+	Yes*	Yes	Yes	Yes	Yese	Yes*	Yes	YesC	100	
27	Byron (Reticulator)	25.2	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
28A	Goldenfields (Reticulator) (NO SGE)	14.7	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		90												
28B	Goldenfields (Bulk) (NO SGE)	5.5	Yes*	Yes				Yes	Yes	Yes	Yes		86												
	% of LWUs 'Yes' (>10,000 connected properties)		100%	100%	100%	64%	96%	96%	100%	100%	100%	89%	**95%**	**Overall**	100%	100%	100%	96%	100%	100%	100%	100%	100%	**100%**	**Overall**
	LWUs with 3,001 - 10,000 Properties																							
29	Armidale Dumaresq	14.1	Yes*	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	90		Yes*	Yes	Yes		Yes	Yes	Yes*	Yes	Yes	89	
30	Griffith	16.8	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	
30A	Hawkesbury (NO WS)	5.8													Yes*	Yes*	Yes	Yes*	Yes	Yes*	Yes	Yes	YesE	100	
31	Lithgow	13.2	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	YesE	90		Yes	Yes	Yes	Yes	Yes		Yes	Yes	YesE	89	
32	Mid-Western Regional	13.7	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100		Yes*	Yes	Yes	Yes		Yes		Yes	Yes	78	
33	Richmond Valley	13.3	Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
34	Nambucca (Groundwater)	10.3	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	181	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
35	Singleton	8.3	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesE	90		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	
36	Parkes	10.3	Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
37	Inverell	6.9	Yes*	Yes	Yes			Yes	Yes	Yes	Yes		70		Yes*	Yes	Yes			Yes		Yes		56	
38	Moree Plains (Groundwater)	9.8	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	254	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	132
39	Cowra	10.1	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100	
40	Central Tablelands (NO SGE)	5.2	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90												
41	Muswellbrook	9.0	Yes+	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
42	Corowa	9.4	Yes+	Yes	Yes	Yes	Yes		Yes	Yes	Yes	YesC	90		Yes+	Yes	Yes	Yes	Yes		Yes	Yes	YesC	89	
43	Tumut	7.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	
44	Gunnedah (Groundwater)	7.7	Yes	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes*	Yes	YesC	100	
45	Upper Hunter	9.3	Yes	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100	
46	Narrabri (Groundwater)	6.8	Yes*	Yes	Yes		Yes	Yes	Yes	Yes	Yes		80		Yes*	Yes	Yes		Yes	Yes	Yes	Yes		78	
47	Bellingen (Unfiltered)	5.4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
48	Leeton	5.8	Yes*	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesE	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	
49	Young (Reticulator)	6.7	Yes	Yes*	Yes		Yes	Yes	Yes	Yes	Yes	Yes	90		Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	89	

APPENDIX C - 2014-15 Best-practice management implementation

	WATER UTILITY (sorted on connected properties)	WATER SUPPLY & SEWERAGE REVENUE ($M)	WATER SUPPLY — IMPLEMENTATION OF BPM OUTCOMES (see Note 1)												SEWERAGE — IMPLEMENTATION OF BPM OUTCOMES (see Note 1)										
			(1) Strategic Business Plan	(2) Pricing and Developer Charges (Yes/No)				(3) Sound Water Conservation Plan implemented (Yes/No)	(4) Sound Drought Management Plan implemented (Yes/No)	(5) Complete performance Reporting by 15 September each year (Yes/No)	(6) Integrated Water Cycle Management Strategy Commenced (Yes/No)	(7) Overall implementation of all 10 requirements (Note 2) (%)	(8) Proposed Dividend from Surplus $'000		(1) Strategic Business Plan	(2) Pricing and Developer Charges (Yes/No)						(3) Complete performance Reporting by 15 September each year (Yes/No)	(4) Integrated Water Cycle Management Strategy Commenced (Yes/No)	(7) Overall implementation of all 9 requirements (Note 3) (%)	(8) Proposed Dividend from Surplus $'000
			Complete Current 20 to 30-year SBP & FP (Yes/No)	(2a) Full cost-recovery, minimal cross subsidies	(2b) Appropriate Residential Charges	(2c) Revenue from Residential Usage Charges >=75% (Note 8)	(2d) Appropriate Non-Residential Charges	(2e) DSP with Commercial Developer Charges							Complete Current 20 to 30-year SBP & FP (Yes/No)	(2a) Full cost-recovery, minimal cross subsidies	(2b) Appropriate Residential Charges	(2c) Appropriate Non-Residential Charges	(2d) Appropriate Trade Waste Fees & Charges	(2e) DSP with commercial developer charges	(2f) Liquid trade waste regulation policy and approvals implemented				
50	Cooma-Monaro	6.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	
51	Forbes	5.3	Yes*	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100	
52	Snowy River (Unfiltered)	6.9	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
53	Berrigan (Dual Supply)	4.9	Yes*	Yes	Yes			Yes	Yes	Yes	Yes		70		Yes*	Yes	Yes			Yes		Yes		56	
54	Deniliquin	5.3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	91	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	100
55	Warrumbungle	3.9	Yes	Yes*	Yes	Yes			Yes	Yes	Yes	YesE	80		Yes	Yes*	Yes	Yes			Yes	Yes	YesE	78	
56	Yass Valley	5.9	Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes+	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
% of LWUs 'Yes' (3,001 - 10,000 connected properties)			100%	100%	100%	68%	86%	89%	100%	100%	100%	89%	**93%**	**Overall**	100%	100%	100%	82%	86%	89%	89%	100%	89%	**93%**	**Overall**
	LWUs with 1,501 - 3,000 Properties																								
57	Wellington	5.2	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
58	Cootamundra (Reticulator)	3.7	Yes*	Yes*	Yes	Yes	Yes	Yes		Yes	Yes		80		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes		89	
59	Lachlan	4.5	Yes*	Yes*	Yes	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	100		Yes*	Yes*	Yes	Yes	Yes	Yes*	Yes	Yes	Yes	100	
60	Glen Innes Severn	3.3	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
61	Liverpool Plains	3.8		Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesE	80			Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	89	
62	Narromine (Groundwater)	2.8	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
63	Narrandera (Groundwater)	2.8	Yes*	Yes	Yes	Yes	Yes		Yes	Yes	Yes		80		Yes*	Yes	Yes	Yes			Yes	Yes		67	
65	Murray (Dual Supply)	4.4	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	
67	Cobar	5.0	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
66	Cobar WB	4.0	Yes	Yes*							Yes		43												
68	Tenterfield	3.4	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
69	Temora (NO WS)	0.8													Yes*	Yes	Yes	Yes				Yes		56	
70	Kyogle	2.5	Yes*	Yes	Yes		Yes	Yes	Yes	Yes	Yes	YesC	90		Yes*	Yes	Yes	Yes	Yes	Yese	Yes	Yes	YesC	100	
71	Palerang	5.0	Yes	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes		90		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		89	
72	Bland (NO WS)	1.3													Yes*	Yes	Yes		Yes	Yes	Yes	Yes		78	
73	Upper Lachlan	2.8	Yes*	Yes*	Yes	Yes*		Yes	Yes	Yes	Yes	Yes	90		Yes*	Yes	Yes	Yes		Yes	Yes	Yes	Yes	89	
74	Wentworth (Dual Supply)	3.7	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	YesE	100		Yes*	Yes	Yes		Yes	Yes	Yes	Yes	YesE	89	
75	Coonamble (Groundwater)	1.7	Yes*	Yes*	Yes	Yes	Yes	Yese		Yes	Yes		80		Yes*	Yes	Yes	Yes		Yese		Yes		67	
76	Harden (Reticulator)	2.8	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		90		Yes*	Yes	Yes	Yes	Yes	Yes*		Yes		78	
79	Walgett (Dual Supply)	2.4		Yes	Yes	Yes	Yes		Yes	Yes	Yes	YesE	80			Yes	Yes				Yes	Yes	YesE	56	
80	Greater Hume	3.1	Yes	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesE	100	
% of LWUs 'Yes' (1,501 - 3,000 connected properties)			89%	100%	95%	79%	89%	84%	84%	95%	100%	68%	**88%**	**Overall**	90%	100%	100%	85%	75%	85%	85%	100%	65%	**87%**	**Overall**
	LWUs with 200 - 1,500 Properties																								
77	Junee (NO WS)	0.7													Yes*	Yes	Yes				Yes	Yes		56	
78	Blayney (NO WS)	1.2													Yes	Yes	Yes	Yes	Yes	Yes*	Yes	Yes	YesC	100	
81	Gwydir	2.1	Yes+	Yes	Yes	Yes	Yes		Yes	Yes	Yes	YesC	90		Yes+	Yes	Yes	Yes	Yes		Yes	Yes	YesC	89	
83	Oberon (Reticulator)	2.3	Yes	Yes	Yes	Yes			Yes	Yes	Yes	YesE	80		Yes	Yes	Yes	Yes		Yes	Yes	Yes	YesE	89	
84	Gilgandra (Groundwater)	1.7	Yes*	Yes	Yes	Yes	Yes	Yese	Yes	Yes	Yes		90		Yes*	Yes*	Yes	Yes	Yes	Yese	Yes	Yes		89	
85	Uralla	1.5		Yes	Yes	Yes			Yes	Yes	Yes	YesC	70			Yes	Yes	Yes	Yes			Yes	YesC	67	
86	Hay (Dual Supply)	2.1	Yes*	Yes	Yes	Yes		Yese	Yes	Yes	Yes		80		Yes*	Yes	Yes	Yes		Yese	Yes	Yes		78	
87	Bourke (Dual Supply)	2.7	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes	Yes	Yes		Yes	Yese	Yes	Yes	YesC	89	
88	Wakool (Dual Supply)	2.3	Yes	Yes	Yes		Yes	Yes*	Yes	Yes	Yes		80		Yes	Yes	Yes			Yes*		Yes		56	
89	Bogan	3.0	Yes	Yes*	Yes	Yes	Yes	Yese	Yes	Yes	Yes	YesC	100		Yes	Yes	Yes	Yes	Yes	Yese	Yes	Yes	YesC	100	
90	Guyra	1.8	Yes*	Yes*	Yes	Yes		Yese	Yes	Yes	Yes		80		Yes*	Yes	Yes		Yes	Yese	Yes	Yes		78	
91	Cabonne	2.6	Yes*	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100		Yes*	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	YesC	100	
92	Carrathool (Groundwater)	2.3		Yes	Yes	Yes	Yes		Yes	Yes	Yes		70			Yes	Yes					Yes		33	
93	Tumbarumba	1.7	Yes*	Yes	Yes	Yes*	Yes	Yese	Yes	Yes	Yes	YesE	100		Yes*	Yes	Yes	Yes	Yes	Yese	Yes	Yes	YesE	100	
94	Gundagai	1.7	Yes*	Yes	Yes	Yes	Yes	Yes*	Yes	Yes	Yes		90		Yes*	Yes	Yes	Yes	Yes			Yes		67	
95	Weddin (NO WS)	0.5													Yes	Yes	Yes			Yes*	Yes*	Yes	YesC	78	
96	Warren (Dual Supply)	1.2	Yes	Yes	Yes	Yes		Yese	Yes	Yes	Yes	YesC	90		Yes		Yes	Yes	Yes	Yese	Yes	Yes	YesC	89	
97	Bombala	1.1		Yes*	Yes					Yes	Yes	Yes	50			Yes*	Yes	Yes	Yes	Yes		Yes	Yes	78	
98	Walcha	1.0	Yes*	Yes*	Yes	Yes	Yes		Yes		Yes	YesC	80		Yes*	Yes	Yes	Yes	Yes		Yes	Yes	YesC	89	
99	Coolamon (NO WS)	0.5													Yes*	Yes	Yes			Yes		Yes		56	
100	Balranald (Dual Supply)	1.3	Yes*	Yes	Yes	Yes*	Yes		Yes	Yes	Yes		80		Yes*		Yes	Yes	Yes			Yes		56	
101	Murrumbidgee (Groundwater)	0.7	Yes*	Yes	Yes	Yes	Yes				Yes		60		Yes*	Yes*	Yes				Yes	Yes		56	

APPENDIX C - 2014-15 Best-practice management implementation

WATER UTILITY (sorted on connected properties)		WATER SUPPLY & SEWERAGE REVENUE ($M)	WATER SUPPLY — IMPLEMENTATION OF BPM OUTCOMES (see Note 1)												SEWERAGE — IMPLEMENTATION OF BPM OUTCOMES (see Note 1)										
			(1) Strategic Business Plan	(2) Pricing and Developer Charges (Yes/No)					(3) Sound Water Conservation Plan implemented (Yes/No)	(4) Sound Drought Management Plan implemented (Yes/No)	(5) Complete performance Reporting by 15 September each year (Yes/No)	(6) Integrated Water Cycle Management Strategy Commenced (Yes/No)	(7) Overall implementation of all 10 requirements (Note 2) (%)	(8) Proposed Dividend from Surplus $'000	(1) Strategic Business Plan	(2) Pricing and Developer Charges (Yes/No)						(3) Complete performance Reporting by 15 September each year (Yes/No)	(4) Integrated Water Cycle Management Strategy Commenced (Yes/No)	(7) Overall implementation of all 9 requirements (Note 3) (%)	(8) Proposed Dividend from Surplus $'000
			Complete Current 20 to 30-year SBP & FP (Yes/No)	(2a) Full cost-recovery, minimal cross subsidies	(2b) Appropriate Residential Charges	(2c) Revenue from Residential Usage Charges >=75% (Note 8)	(2d) Appropriate Non-Residential Charges	(2e) DSP with Commercial Developer Charges							Complete Current 20 to 30-year SBP & FP (Yes/No)	(2a) Full cost-recovery, minimal cross subsidies	(2b) Appropriate Residential Charges	(2c) Appropriate Non-Residential Charges	(2d) Appropriate Trade Waste Fees & Charges	(2e) DSP with commercial developer charges	(2f) Liquid trade waste regulation policy and approvals implemented				
102	Lockhart (NO WS)	0.4													Yes	Yes	Yes	Yes	Yes		Yes	Yes	YesE	89	
103	Central Darling (Dual Supply)	2.0		Yes	Yes	Yes		Yese	Yes	Yes	Yes	Yes	80			Yes	Yes	Yes	Yese	Yese		Yes	Yes	78	
104	Boorowa	1.1	Yes	Yes*	Yes	Yes*		Yes	Yes	Yes	Yes	Yes	90		Yes	Yes	Yes		Yes	Yese	Yes*	Yes	Yes	89	
105	Brewarrina (Dual Supply)	1.5	Yes	Yes*	Yes	Yes	Yes	Yese	Yes	Yes	Yes	YesC	100		Yes	Yes	Yes			Yese	Yes	Yes	YesC	78	
106	Jerilderie (Dual Supply)	0.7	Yes*	Yes*	Yes	Yes	Yes	Yes*	Yes	Yes	Yes		90		Yes*	Yes	Yes	Yes	Yes		Yes	Yes		78	
107	Urana (NO WS)	0.2													Yes*	Yes*	Yes			Yes		Yes	YesE	67	
% of LWUs 'Yes' (200 - 1,500 connected properties)			82%	100%	100%	91%	64%	64%	91%	91%	100%	59%	**84% Overall**		86%	93%	100%	61%	64%	64%	68%	100%	61%	**77% Overall**	
TOTAL 'YES' for large LWUs (>$10M Revenue)[6]			36	36	34	25	32	34	36	36	36	34	22		32	32	32	30	31	31	31	32	32	28	
% of Large LWUs (36 WS LWUs and 32 SGE LWUs)			100%	100%	100%	69%	89%	94%	100%	100%	100%	94%	61%		100%	100%	100%	94%	97%	97%	97%	100%	100%	88%	
TOTAL 'YES' for remainder of LWUs (<$10M Revenue)[6]			54	60	59	45	47	47	55	57	60	42	21		61	65	67	49	49	52	53	67	46	27	
% of Small LWUs (60 WS LWUs and 67 SGE LWUs)			90%	100%	100%	75%	78%	78%	92%	95%	100%	70%	35%		91%	97%	100%	73%	73%	78%	79%	100%	69%	40%	
TOTAL 'YES' for all LWUs			90	96	93	70	79	82	93	93	96	76	43		93	97	99	79	80	84	84	99	78	55	
% all LWUs			94%	100%	100%	75%	85%	83%	97%	97%	100%	79%	45%		94%	98%	100%	80%	81%	85%	85%	100%	79%	56%	
									Overall Implementation for all WS Businesses				**91%**									**Overall Implementation for all SGE Businesses**		**89%**	

Notes:

1 The Best-Practice Management outcomes which need to be implemented by LWUs are set out in "*Best-Practice Management of Water Supply and Sewerage Guidelines August 2007*" (BPMG).

2 There are 10 outcomes which must be implemented for water supply. These are (1), (2a), (2b), (2c), (2d), (2e), (3), (4), (5) and (6) shown in the table above for water supply.

3 There are 9 outcomes which must be implemented for sewerage. These are (1), (2a), (2b), (2c), (2d), (2e), (2f), (3) and (4) shown in the table above for sewerage.

4 The level of implementation of the 19 planning, pricing and management outcomes of the BPMG shown in the table above is from Notes 2 or 3 of the Special Purpose Financial Statements reported by each LWU in their Annual Financial Statements, supplemented by other data provided to DPI Water by the LWU. Documents which have implemented the required outcomes (including strategic business plans and IWCM evaluations and strategies) provided by LWUs to DPI Water by February 2016 are included in the results reported.

5 As shown above and in Table 8C of the 2014-15 NSW Water Supply and Sewerage Benchmarking Report, 48 LWUs have completed their 30-year IWCM Strategy (shown as 'YesC' in columns (6) and (4) above) for water supply and sewerage respectively. A further 21 LWUs have completed an IWCM Evaluation, and are shown as 'YesE' above. A further 12 LWUs are currently preparing their IWCM Evaluation and are shown as 'Yes' above. The IWCM Evaluations and Strategies have been reviewed by DPI Water and found to be soundly based. Similarly, the strategic business plans and trade waste policies shown as Yes above have been reviewed by DPI Water and found to be soundly based. However, the water conservation and drought management plans have only been briefly examined to confirm that they address the required issues.

6 The revenue for LWUs with water supply only or sewerage only is shown left justified above. For these LWUs, the relevant revenue to be classified as a "large LWU" is $5M.

7 For requirement (2c) utilities with 4,000 or more connected properties which obtained 70% to 74% of residential revenue from usage charges are shown as Yes*. Yes* is also shown for Wyong and Essential Energy, whose prices are determined by IPART. Yes** is shown for Eurobodalla which received 'deemed compliance' for its usage charge of $3.48/kL, which is the second highest in NSW. In addition, the Minister has approved replacement of the 75% requirement with 70% for Eurobodalla (due to the high incidence of holiday houses, which are unoccupied for most of the year). Utilities with fewer than 4,000 connected properties serve 10% of the connected properties in regional NSW and are only required to achieve 50% for requirement (2c). Such utilities which have obtained 45% to 49% residential revenue from water usage charges are shown as Yes*. 30 LWUs (64%) with 4,000 or more properties have met this requirement, as have 40 LWUs (87%) with fewer than 4,000 properties. Bulk water suppliers are not required to meet requirements (2b), (2c) or (2d) which refer to residential water tariffs.

8 Yes* for requirement (1) indicates that as the strategic business plan and financial plan for these 51 LWUs are now over 4 years old, the LWU needs to prepare a new 30-year IWCM Strategy and financial plan in accordance with the July 2014 IWCM Check List (www.water.nsw.gov.au). Similarly, the 17 LWUs whose IWCM Strategy is over 6 years old [shown as Yes^{+}] need to prepare such a new IWCM Strategy, financial plan and report [column 34 on page 87]. Refer also to pages 4, 21 and 22.

9 Yes* for requirement (2a) for water supply or for sewerage indicates that the LWU has significantly increased their 2015/16 charges in order to recover their costs.

10 Yes* for requirement (2e) for water supply or for sewerage indicates that the LWU has commercial developer charges in place but is yet to complete and implement its Development Servicing Plan (DSP).
Yes^{e} for these requirements indicates the LWU is exempt from the requirement to prepare a DSP due to low growth (under 5 lots/a).

11 Yes* for requirement (2f) for sewerage indicates that the LWU has adopted a trade waste policy before 2009, which needs significant updating.

12 As shown above, the overall levels of implementation of the outcomes of the Best-Practice Management Guidelines for water supply (for all 10 outcomes) were:
95% for LWUs with >10,000 properties; 93% for LWUs with 3,001 - 10,000 properties; 88% for LWUs with 1,501 - 3,000 properties and 84% for LWUs with 200 - 1,500 properties respectively. The overall level of implementation for water supply for all LWUs was 91%.

13 As shown above, the overall levels of implementation of the outcomes of the Best-Practice Management Guidelines for sewerage (for all 9 outcomes) were:
100% for LWUs with >10,000 properties; 93% for LWUs with 3,001 - 10,000 properties; 87% for LWUs with 1,501 - 3,000 properties and 77% for LWUs with 200 - 1,500 properties respectively. The overall level of implementation for sewerage for all LWUs was 89%.

14 The overall implementation of outcomes for water supply and sewerage was 90%.

APPENDIX D - 2014-15 NSW water utility performance summary

	WATER UTILITY	CHARACTERISTICS		BILLS / PRICING						HEALTH				LEVELS OF SERVICE				ENVIRONMENT						FINANCIAL								EFFICIENCY		BPM	
		Water Supply Connected Properties	Total Urban Water Supplied	Residential Revenue from Usage Charges	Typical Residential Bill			Typical Developer Charge	Current Replacement Cost	Water Quality Compliance (2011 ADWG)				Water Quality Complaints	Avge Duration of Unplanned Interruption	Water Main Breaks	Total Complaints	Average Annual Residential Water Supplied	Real Water Loss	Sge Treated that was Compliant	Sge Mains Breaks & Chokes	Effluent Recycled		Total Revenue	Net Debt to Equity	Capital Expenditure		Economic Real Rate of Return		Full Cost Recovery		Operating Cost OMA		Best Practice Implementation	
					WS	SGE	WS & SGE	WS & SGE	WS & SGE	E.coli Compliance		Chemical Compliance		WS	WS	WS	WS & SGE		WS			SGE		WS & SGE		WS & SGE		WS	SGE	WS	SGE	WS	SGE	WS & SGE	Strategic Business Plans Completed ? Note 14 (Yes/No)
		(No.)[4]	(ML)[2, 3]	(%)	($)	($)	($)	($/ET)	($/assmnt)	Achieved? Note 12	% Pop'n with Compliance	Achieved? Note 11	% Pop'n with Compliance	(per 1000 props)	(mins)	(per 100km of Main)	(No./1000 props)	(kL/connected prop)	(L / connection / d)	(%)	(No. per 100km of main)	(%)	(ML)	($M)[3, 8]	(%)	($/prop) (25)	($M)					($/prop)	($/prop)	(%)	
		(1) C4	(2) W11	(3) F4	(4) P3	(5) P6	(6) P8	(7)	(8)	(9)	(10) H3	(11)	(12) H4	(13) C9	(14) C15	(15) A8	(16) C13	(17) W12	(18) A10	(19) E4	(20) A14	(21) W27	(22) W26	(23) F1+F2	(24) F22	F28 + F29	(26) F16	(27) F17	(28) F18	(29)	(30)	(31) F11	(32) F12	(33)	(34)
	Sydney Water	1,876,000	528,800	80	563	592	1,156			Yes	100	Yes	100	0.2	147	26	3	201	74		69	8	43,075	2,640	98	341	628	2.3	1.4			386	278		
	Hunter Water	238,800	69,700	95	385	623	1,008			Yes	100	Yes	100	3.0	136	29	6	168	91		54	6	4,600	312	81	333	77	2.5	1.7			270	353		
	Water NSW																										14.0								
LWUs with > 10,000 Properties																																			
1	Gosford	71,830	15,360	73	507	612	1,119	4,260	44,800	Yes	100	Yes	100	12	382	17	14	160	60	100	39	0	19	***95.3***	6	513	36.1	1.3	0.3	Y	Y	331	379	100	Yes+
2	Wyong	63,490	14,400	67*	508	471	979	8,560	39,200	Yes	100	Yes	100	10	133	16	29	150	30	100	49	5	759	***87.8***	9	435	27.4	1.5	0.2	Y	Y	319	336	100	Yes*
3	Shoalhaven	47,150	14,200	75*	309	750	1,059	14,900	26,900	Yes	100	Yes	100	0.5	135	8	2	143	90	94	11	21	1,705	***73.5***	-1	513	22.6	1.7	3.9	Y	Y	276	500	100	Yes+
4	Rous (BS) (NO SGE)	41,230	1,310					9,090		Yes	100	Yes	100	0.0	237	10								***23.0***	5		12.1	1.8		Y		268		100	Yes*
5	MidCoast	38,710	9,160	72	587	948	1,535	15,400	34,900	Yes	100	Yes	100	3		9	11	142	60	98	6	14	941	***71.0***	22	185	6.8	0.7	2.6	Y	Y	477	543	100	Yes*
6	Tweed	32,240	9,170	75*	584	732	1,316	19,100	42,900	Yes	100	Yes	100	6	134	4	29	178	60	100	0	7	551	***62.3***	0	225	7.0	1.6	1.1	Y	Y	419	524	100	Yes*
7	Port Macquarie-Hastings (UF)	30,420	6,610	68	568	736	1,304	13,300	31,700	Yes	100	Yes	100	6	210	3	32	151	40	100	16	5	386	***51.3***	-8	540	15.9	1.2	1.5	Y	Y	398	480	95	Yes*
8	Riverina (GW) (NO SGE)	29,870	15,620	74	574			4,930	11,500	Yes	100	Yes	100	3	185	7	7	311	90					***30.5***	-9	397	11.9	7.5		Y		271		90	Yes
10	Coffs Harbour	25,060	6,100	76*	582	806	1,388	19,900	41,700	Yes	100	Yes	100	0	120	3	1	167	50	100	89	14	1,013	***50.7***	13	586	14.0	2.0	0.1	Y	Y	395	619	100	Yes+
11	Albury	25,700	7,630	75	354	639	993	7,000	29,800	Yes	100	Yes	100	3	137	5	6	205	50	63	65	54	2,398	***37.7***	-6	166	4.1	1.9	4.1	Y	Y	277	393	100	Yes*
12	Fish River WS (UF,BS) (NO SG	23,500	2,700							Yes	100	Yes	100	0	600	6								***10.0***			0.0			Y*				83	Yes*
13	Tamworth Regional	21,680	7,970	55	515	758	1,273	6,560	31,800	Yes	100	Yes	100	0.0		14	59	188	70	100	50	82	4,278	***41.6***	-4	428	9.0	2.0	3.2	Y	Y	518	425	95	Yes*
14	Clarence Valley	21,460	6,280	66	413	988	1,401	12,800	41,500	Yes	100	Yes	100	14	120	11	109	147	110	92	52	7	195	***32.9***	11	1,693	25.5	0.4	2.5	Y	Y	388	462	95	Yes+
15	Eurobodalla	19,580	3,520	58	668	865	1,533	21,700	40,900	Yes	100	Yes	100	0.7	220	13	1	114	50	100	32	7	243	***36.3***	-1	349	6.5	1.1	1.7	Y	Y	405	501	100	Yes+
16	Wingecarribee	19,150	4,540	68	463	739	1,202	14,700	30,600	Yes	100	Yes	100	8	122	5	74	178	60	96	22	3	163	***30.0***	-4	345	5.9	1.5	3.0	Y	Y	371	439	95	Yes*
17	Queanbeyan (R)	17,350	3,940	61	871	470	1,341	9,890	24,100	Yes	100	Yes	100	0.1	180	6	33	173	80	100	61	0	0	***30.8***	-20	159	2.8	0.4	1.3	Y	Y	577	377	95	Yes*
18	Dubbo	17,590	8,590	74	848	690	1,538	10,900	30,600	Yes	100	Yes	100	0.7	131	5	15	327	120	100	46	79	2,183	***37.8***	-3	1,275	21.1	5.0	3.9	Y	Y	482	350	100	Yes+
19	Orange	17,520	7,310	70	564	423	987	12,100	34,000	Yes	100	Yes	100	1	255	7	104	170	60	100	33	78	2,826	***31.6***	-12	1,259	21.9	4.0	2.7	Y	Y	339	409	100	Yes*
20	Goulburn Mulwaree	11,190	2,750	65*	624	724	1,348	7,840	41,900	Yes	100	Yes	100	5	180	10	69	139	70	100	105	93	1,806	***21.1***	-6	763	8.4	0.8	6.2	Y	Y	426	330	95	Yes
21	Bathurst Regional	15,720	7,020	82	522	479	1,001	10,070	33,000	Yes	100	Yes	100	34	120	7	91	225	80	100	99	99	3,712	***27.5***	-12	825	13.0	1.6	2.7	Y	Y	545	435	100	Yes+
22	Lismore (R)	14,320	3,180	70	666	772	1,438	13,200	35,600	Yes	100	Yes	100	0	140	20	4	155	40	68	50	0	5	***23.1***	-2	454	5.9	1.6	0.5	Y	Y	493	454	94	Yes+
23	Bega Valley (UF)	14,360	3,460	65*	541	1,109	1,650	19,000	44,900	Yes	100	Yes	100	13	95	6	16	137	50	92	9	20	446	***26.6***	-3	619	8.2	-0.8	0.7	Y*	Y	543	740	95	Yes*
24	Ballina (R)	14,360	4,220	66	555	807	1,362	11,200	23,800	Yes	100	Yes	100	0	120	5	3	181	160	79	3	10	517	***28.4***	17	579	8.2	1.2	2.7	Y	Y	494	647	95	Yes+
25	Kempsey (GW)	12,510	3,780	59	580	791	1,371	17,100	45,100	Yes	100	Yes	100	0.2	215	7	2	156	100	74	33	3	77	***21.8***	8	594	7.0	1.3	0.4	Y	Y	477	563	95	Yes+
26	Essential Energy	10,530	6,340	59	755	511	1,266			Yes	100	Yes	100	0		14	1	257	80	100	129	57	776	***21.0***		619	6.3		0.0	Y*	Y*	1025	332	100	Yes+
27	Byron (R)	11,220	3,380	73	574	1,093	1,667	22,300	26,100	Yes	100	Yes	100	2	120	9	5	180	50	97	11	14	444	***25.2***	14	111	1.2	1.6	4.0	Y	Y	482	680	100	Yes*
28A	Goldenfields (R) (NO SGE)	10,280	6,180	78	750			7,080	24,000	Yes	100	Yes	100	5	205	13	5	275	90					***14.7***	-13			3.6		Y		830		90	Yes*
28B	Goldenfields (BS) (NO SGE)	19,290	440							Yes	100	Yes	100			0								***5.5***	-15			0.0		Y		150		86	Yes*
	Totals *or Medians (% of LWUs basis excl NO SGE suppliers) for >10,000 Properties*	***613,000***	***185,160***		*574*	*739*	*1,341*	*12,450*	*34,450*					*3*	*136*	*7*	*15*	*168*	*60*	*100*	*39*	*14*	*25,440*	*1,049*	*-2*	*513*	*309*	*1.6*	*2.5*	*27*	*23*	*426*	*454*	*100*	
LWUs with 3,001 - 10,000 Properties																																			
29	Armidale Dumaresq	8,750	2,920	79	691	379	1,070	10,340	32,000	Yes	100	Yes	100	1	133	14	2	198	110	100	95	41	910	***14.1***	-7	644	5.6	2.0	2.6	Y	Y	420	227	89	Yes*
30	Griffith	8,470	7,220	82*	690	750	1,440	8,780	39,200	Yes	100	Yes	100	2	90	13	78	567	110	98	85	8	158	***16.8***	2	159	1.3	0.7	1.4	Y	Y	702	590	100	Yes*
31	Lithgow	8,080	1,520	83	540	836	1,376	4,860	24,700	Yes	100	Yes	100	35	180	58	138	132	***30***	81	101	0	0	***13.2***	10	262	2.0	0.4	1.8	Y	Y	622	566	89	Yes
32	Mid-Western Regional	8,130	2,570	80	649	697	1,346	12,000	27,700	Yes	100	Yes	100	11		9	76	185	60	40	52	0	2	***13.7***	-4	188	1.4	2.8	2.1	Y	Y	533	369	89	Yes*
33	Richmond Valley	7,140	2,850	75	460	896	1,356	13,000	29,600	Yes	100	Yes	100	0		3	0	172	80	98	-	23	420	***13.3***	3	348	2.4	0.9	2.4	Y	Y	537	596	100	Yes+
34	Nambucca (GW)	6,350	1,450	77	517	580	1,097	21,700	37,100	Yes	100	Yes	100	2	120	15	***6***	134	70	67	6	5	79	***10.3***	7	1,861	11.8	2.2	1.2	Y	***Y***	349	***420***	100	Yes*
35	Singleton	6,750	3,740	69*	455	480	935	8,370	26,600	Yes	100	Yes	100	4	120	9	48	251	70	100	28	0	0	***8.3***	-37	171	1.1	-0.5	2.2	Y	Y	499	297	95	Yes
36	Parkes	5,960	4,680	76	670	424	1,094	14,600	39,200	Yes	100	Yes	100	3	120	34	100	280	160	63	126	21	172	***10.3***	-29	2,030	11.7	1.4	2.7	Y	Y	655	303	100	Yes+

APPENDIX D - 2014-15 NSW water utility performance summary

	WATER UTILITY	CHARACTERISTICS		BILLS / PRICING						HEALTH				LEVELS OF SERVICE				ENVIRONMENT						FINANCIAL								EFFICIENCY		BPM	
		Water Supply Connected Properties	Total Urban Water Supplied	Residential Revenue from Usage Charges	Typical Residential Bill			Typical Developer Charge	Current Replacement Cost	Water Quality Compliance (2011 ADWG)				Water Quality Complaints	Avge Duration of Unplanned Interruption	Water Main Breaks	Total Complaints	Average Annual Residential Water Supplied	Real Water Loss	Sge Treated that was Compliant	Sge Mains Breaks & Chokes	Effluent Recycled		Total Revenue	Net Debt to Equity	Capital Expenditure		Economic Real Rate of Return		Full Cost Recovery		Operating Cost OMA		Best Practice Implementation	
					WS	SGE	WS & SGE	WS & SGE	WS & SGE	E.coli Compliance		Chemical Compliance		WS	WS	WS	WS & SGE		WS			SGE	WS & SGE	WS & SGE	WS & SGE		WS	SGE	WS	SGE	WS	SGE	WS & SGE	Strategic Business Plans Completed ? Note 14 (Yes/No)
		(No.)[4]	(ML)[2, 3]	(%)	($)	($)	($)	($/ET)	($/assmnt)	Achieved? Note 12	% Pop'n with Compliance	Achieved? Note 11	% Pop'n with Compliance	(per 1000 props)	(mins)	(per 100km of Main)	(No./1000 props)	(kL/connected prop)	(L / connection / d)	(%)	(No. per 100km of main)	(%)	(ML)	($M)[3, 8]	(%)	($/prop) (25)	($M)					($/prop)	($/prop)	(%)	
		(1) C4	(2) W11	(3) F4	(4) P3	(5) P6	(6) P8	(7)	(8)	(9)	(10) H3	(11)	(12) H4	(13) C9	(14) C15	(15) A8	(16) C13	(17) W12	(18) A10	(19) E4	(20) A14	(21) W27	(22) W26	(23) F1+F2	(24) F22	F28 + F29	(26) F16	(27) F17	(28) F18	(29)	(30)	(31) F11	(32) F12	(33)	(34)
37	Inverell	5,770	1,810	45	564	454	1,018	14,800	30,600	Yes	100	Yes	100	0.3	60	2	12	180	50	99	32	0	0	***6.9***	-6	97	0.5	0.8	0.8	Y	Y	524	305	63	Yes*
38	Moree Plains (GW)	4,600	3,340	75*	1,045	630	1,675	8,700	31,000	Yes	100	Yes	100	3	60	49	113	548	160	100	46	58	793	***9.8***	3	517	2.1	4.1	4.1	Y	Y	598	444	100	Yes*
39	Cowra	5,320	3,010	79	875	781	1,656	12,700	35,500	Yes	100	Yes	100	12	180	15	56	268	110	50	157	0	0	***10.1***	6	551	2.5	2.0	3.1	Y	Y	746	441	100	Yes*
40	Central Tablelands (NO SGE)	5,490	1,710	69*	620			8,560	20,900	Yes	100	Yes	100	5	120	8	19	187	60					***5.2***	-6	154	0.8	0.1		Y		626		90	Yes
41	Muswellbrook	5,810	2,990	69*	547	581	1,128	13,380	28,100	Yes	100	Yes	100	18	270	38	25	245	60	47	5	93	892	***9.0***	-21	673	3.9	-0.5	1.4	Y	Y	626	375	95	Yes+
42	Corowa	5,450	3,120	82	560	668	1,228	2,910	18,800	Yes	100	Yes	100	3	120	12	18	287	120	100	23	21	184	***9.4***	-11	477	2.5	3.6	3.6	Y	Y	469	424	89	Yes+
43	Tumut	4,500	1,570	78*	503	635	1,138	10,800	24,500	Yes	99	Yes	100	3	120	3	30	220	70	97	51	11	101	***7.0***	-1	243	1.0	0.4	-0.2	Y	Y	467	630	100	Yes
44	Gunnedah (GW)	4,350	3,100	74*	628	492	1,120	15,500	29,100	Yes	99	Yes	99	1	150	8	47	427	80	100	20	96	603	***7.7***	-22	655	2.7	3.3	4.9	Y	Y	475	284	100	Yes
45	Upper Hunter	4,400	2,700	73*	798	477	1,275	8,460	29,900	Yes	100	Yes	100	1	60	30	40	306	240	100	10	14	126	***9.3***	-12	925	4.0	5.1	0.2	Y	Y	659	453	100	Yes
46	Narrabri (GW)	4,390	2,610	56	591	677	1,268	8,670	35,100	Yes	100	Yes	100	11	120	35	47	308	200	71	57	55	432	***6.8***	-24	407	1.7	2.6	0.0	Y	Y	480	432	79	Yes*
47	Bellingen (UF)	4,090	1,140	77	343	842	1,185	11,000	32,300	Yes	100	Yes	100	2.4	120	7	31	152	70	100	22	0	0	***5.4***	-18	1,838	5.7	-0.3	0.3	Y	Y	391	662	100	Yes
48	Leeton	4,080	2,700	66	675	492	1,167	9,700	32,100	Yes	100	Yes	100	0	120	10	2	431	150	100	19	0	0	***5.8***	-19	718	2.6	0.4	-0.6	Y	Y	590	466	95	Yes*
49	Young (R)	4,880	1,420	69	659	720	1,379	2,450	25,700	Yes	100	Yes	100	2	120	31	14	166	60	83	80	33	180	***6.7***	3	215	0.9	-0.7	2.7	Y*	Y	254	330	89	Yes
50	Cooma-Monaro	3,670	1,530	64*	872	820	1,692	14,000	37,300	Yes	100	Yes	100	2	180	7	59	339	***60***	100	35	1	5	***6.5***	-10	690	2.5	0.8	2.0	Y	Y	540	532	100	Yes
51	Forbes	3,720	2,350	66	523	644	1,167	10,700	33,800	Yes	100	Yes	100	2	120	20	84	352	90	100	70	1	9	***5.3***	-16	265	0.9	-1.6	0.9	Y*	Y	671	465	100	Yes*
52	Snowy River (UF)	5,310	650	41	534	900	1,434	11,660	32,400	Yes	100	Yes	100	2	120	22	41	83	70	81	33	8	39	***6.9***	-8	387	2.0	1.0	2.6	Y	Y	311	359	95	Yes
53	Berrigan (DS)	3,540	2,550	40	775	477	1,252	7,450	22,600	Yes	100	Yes	100	7	60	17	***82***	399	100	100	84	79	590	***4.9***	-19	54	0.2	3.2	0.4	Y	***Y***	467	***312***	63	Yes*
54	Deniliquin	3,500	1,880	55*	699	770	1,469	8,600	29,600	Yes	100	Yes	100	0.6	90	69	19	474	110	100	28	11	54	***5.3***	-8	180	0.6	0.4	2.1	Y	Y	528	429	100	Yes
55	Warrumbungle	3,310	1,010	51*	715	458	1,173	2,860	32,500	Yes	100	Yes	100	2	142	13	100	201	210	83	128	17	59	***3.9***	-8	179	0.6	-1.2	-1.0	Y*	Y*	673	432	79	Yes
56	Yass Valley	3,250	840	53	902	595	1,497	18,300	32,900	Yes	100	Yes	100	2	240	8	58	161	90	100	29	0	0	***5.9***	18	0		3.8	2.9	Y	Y	439	433	100	Yes+
Totals *or Medians (% of LWUs basis) for 3,001 - 10,000 Properties*		***149,000***	***68,990***		*638*	*635*	*1,252*	*10,520*	*31,000*					*2*	*120*	*14*	*47*	*248*	*85*	*99*	*41*	*11*	*5,808*	*238*	*-8*	*387*	*75*	*0.9*	*2.0*	*28*	*27*	*531*	*432*	*98*	
LWUs with 1,501 - 3,000 Properties																																			
57	Wellington	2,910	1,300	66	785	587	1,372	6,250	25,900	Yes	91	Yes	100	0	120	5	43	213	90	100	31	0	0	***5.2***	6	128	0.3	5.7	1.5	Y	Y	522	405	100	Yes*
58	Cootamundra (R)	3,010	910	53*	662	388	1,050	10,730	18,100	Yes	100	Yes	100	0	90	91	137	190	70	100	210	98	486	***3.7***	-16	70	0.2	-1.6	1.4	Y*	Y	287	229	84	Yes*
59	Lachlan	2,840	2,030	78	1,427	458	1,885	13,600	54,300	Yes	100	Yes	100	0				531	***140***	0	-	24	116	***4.5***	-14	950	2.7	-1.0	-2.6	Y*	Y*	798	452	100	Yes*
60	Glen Innes Severn	3,050	510	52	539	450	989	5,720	18,200	Yes	100	Yes	100	0	180	2	18	131	30	100	47	0	0	***3.3***	6	668	2.0	1.2	1.8	Y	Y	390	287	100	Yes*
61	Liverpool Plains	2,760	870	41	812	504	1,316	13,600	33,900	Yes	100	Yes	100	2	35	23	139	190	100	56	26	0	0	***3.8***	-8	326	0.9	0.5	1.2	Y	Y	587	320	84	
62	Narromine (GW)	2,120	1,290	74	690	548	1,238	8,170	21,600	Yes	100	Yes	100	0	60	19	6	452	160	100	24	0	0	***2.8***	-29	488	1.0	2.8	-0.2	Y	Y	603	474	100	Yes
63	Narrandera (GW)	2,090	2,180	72	957	505	1,462	2,400	20,800	Yes	100	Yes	100	0	120	23	98	678	***180***	-	183	1	3	***2.8***	-27	523	1.0	3.9	1.2	Y	Y	555	435	73	Yes*
65	Murray (DS)	3,050	1,280	51	590	389	979	4,000	15,200	Yes	100	Yes	100	0	90	8	4	280	90	100	16	16	90	***4.4***	-13	228	0.7	4.6	1.9	Y	Y	476	333	100	Yes*
67	Cobar	2,260	950	77	935	320	1,255	2,080	20,700	Yes	100	Yes	100	10			28	342	***70***	100	4	0	0	***5.0***	-15	0		14.7	-1.5	Y	Y*	1015	257	100	Yes
66	Cobar Water Board		340																					***4.0***				-0.5		Y*				43	Yes
68	Tenterfield	1,990	400	44	695	851	1,546	11,000	39,200	Yes	100	Yes	100	1	180	3	57	143	***30***	73	101	15	44	***3.4***	1	668	1.2	0.1	1.2	Y	Y	546	551	95	Yes
70	Kyogle	1,910	490	41	528	643	1,171	4,980	27,800	Yes	100	Yes	100	2	90	4	35	145	30	100	23	19	80	***2.5***	0	310	0.5	0.6	0.2	Y	Y	610	559	95	Yes*
71	Palerang	2,240	550	47	745	946	1,691	20,500	36,700	Yes	100	Yes	100	0.0	90	8	27	158	90	95	61	23	85	***5.0***	3	1,138	2.5	1.4	2.5	Y	Y	573	512	89	Yes
73	Upper Lachlan	1,990	390	47*	779	737	1,516	7,670	32,900	Yes	100	Yes	100	0	120	6	6	143	30	100	9	9	50	***2.8***	-10	349	0.6	-0.7	1.0	Y*	Y	579	476	89	Yes*
74	Wentworth (DS)	2,320	1,280	48	686	705	1,391	8,770	38,600	Yes	100	Yes	100	6.0	35	8	43	504	***20***	100	0	0	0	***3.7***	-15	279	0.6	4.6	2.4	Y	Y	463	321	94	Yes*
76	Harden (R)	1,770	720	52	747	614	1,361	2,120	31,000	Yes	100	Yes	100	9	60	5	81	181	***60***	70	5	13	34	***2.8***	-13	77	0.1	-0.8	-1.2	Y	Y	463	516	84	Yes*
75	Coonamble (GW)	1,680	***1,230***	71*	583	465	1,048		36,400	Yes	100	Yes	100	2	60	13	55	***603***	120	46	9	22	59	1.7	-22	177	0.3	-1.7	0.1	Y*	***Y***	430	***243***	73	Yes*
79	Walgett (DS)	1,930	3,260	57*	1,212	443	1,655		26,100	Yes	93	Yes	100	0	180	12	2	1,341	200	67	2	0	0	***2.4***	-17	1,038	2.0	5.1	3.5	Y	Y	510	164	68	
80	Greater Hume	1,860	650	59	685	489	1,174	6,980	33,600	Yes	100	Yes	100	0	90	9	21	244	90	100	10	15	61	***3.1***	-7	168	0.4	-0.5	0.3	Y*	***Y***	498	***350***	100	Yes
Totals *or Medians (% of LWUs basis excl bulk suppliers) for 1,501 - 3,000*		***42,000***	***20,630***		*720*	*505*	*1,338*	*7,325*	*29,400*					*0*	*90*	*8*	*35*	*228*	*90*	*100*	*23*	*11*	*1,108*	*67.0*	*-13*	*318*	*17*	*0.6*	*1.2*	*19*	*18*	*534*	*377*	*94*	

APPENDIX D - 2014-15 NSW water utility performance summary

WATER UTILITY	CHARACTERISTICS		BILLS / PRICING						HEALTH				LEVELS OF SERVICE				ENVIRONMENT						FINANCIAL								EFFICIENCY		BPM	
	Water Supply Connected Properties	Total Urban Water Supplied	Residential Revenue from Usage Charges	Typical Residential Bill			Typical Developer Charge	Current Replacement Cost	Water Quality Compliance (2011 ADWG)				Water Quality Complaints	Avge Duration of Unplanned Interruption	Water Main Breaks	Total Complaints	Average Annual Residential Water Supplied	Real Water Loss	Sge Treated that was Compliant	Sge Mains Breaks & Chokes	Effluent Recycled		Total Revenue	Net Debt to Equity	Capital Expenditure		Economic Real Rate of Return		Full Cost Recovery		Operating Cost OMA		Best Practice Implementation	
				WS	SGE	WS & SGE	WS & SGE	WS & SGE	E.coli Compliance		Chemical Compliance		WS	WS	WS	WS & SGE		WS			SGE		WS & SGE	WS & SGE	WS & SGE		WS	SGE	WS	SGE	WS	SGE	WS & SGE	Strategic Business Plans Completed ? Note 14 (Yes/No)
	(No.)[4]	(ML)[2, 3]	(%)	($)	($)	($)	($/ET)	($/assmnt)	Achieved? Note 12	% Pop'n with Compliance	Achieved? Note 11	% Pop'n with Compliance	(per 1000 props)	(mins)	(per 100km of Main)	(No./1000 props)	(kL/connected prop)	(L / connection / d)	(%)	(No. per 100km of main)	(%)	(ML)	($M)[3, 8]	(%)	($/prop) (25)	($M)					($/prop)	($/prop)	(%)	
	(1) C4	(2) W11	(3) F4	(4) P3	(5) P6	(6) P8	(7)	(8)	(9)	(10) H3	(11)	(12) H4	(13) C9	(14) C15	(15) A8	(16) C13	(17) W12	(18) A10	(19) E4	(20) A14	(21) W27	(22) W26	(23) F1+F2	(24) F22	F28 + F29	(26) F16	(27) F17	(28) F18	(29)	(30)	(31) F11	(32) F12	(33)	(34)
LWUs with 200 - 1,500 Properties																																		
81 Gwydir	1,470	820	76	790	500	1,290	4,000	20,200	Yes	100	Yes	100	6	180	18	7	320	80	100	78	8	20	***2.1***	-5	0		3.0	2.9	Y	Y	539	323	89	Yes+
83 Oberon (R)	1,300	720	75	606	513	1,119	3,060	24,700	Yes	100	Yes	100	0	120	5	13	148	100	100	21	0	0	***2.3***	-7	189	0.2	2.2	1.7	Y	Y	837	399	84	Yes
84 Gilgandra (GW)	1,350	930	70	730	557	1,287		26,600	Yes	100	Yes	100	4	75	20	73	525	140	100	41	100	238	1.7	-12	274	0.4	0.4	-0.5	Y	Y*	424	363	89	Yes*
85 Uralla	1,450	320	57*	684	520	1,204	1,420	18,000	Yes	100	Yes	100	1	120	10	19	185	20	42	34	0	0	1.5	-11	59	0.1	0.8	-0.4	Y	Y	385	364	68	
86 Hay (DS)	1,330	1,470	57	921	649	1,570		34,100	Yes	100	Yes	100	0	120	43	51	1,048	50	100	81	0	0	***2.1***	-17	159	0.2	0.8	1.1	Y	Y	595	482	79	Yes*
87 Bourke (DS)	1,380	1,760	79	1,200	632	1,832	1,760	29,300	Yes	100	Yes	100	0	60	159	105	1,243	80	100	53	0	0	***2.7***	-13	0		1.5	0.3	Y	Y	1017	455	94	Yes
88 Wakool (DS)	1,450	770	36	905	578	1,483	5,620	46,400	Yes	100	Yes	100	1	60	6	67	502	50	100	0	0	0	***2.3***	-9	611	0.7	0.2	0.1	Y	Y	701	350	68	Yes
89 Bogan	1,190	720	57	1,113	540	1,653		39,000	Yes	100	Yes	100	0	171	48	120	339	200	0	0	14	25	***3.0***	-15	0		-0.6	3.7	Y*	Y	1586	456	100	Yes
90 Guyra	1,260	450	65	566	580	1,146	2,610	36,400	Yes	100	Yes	100	11.1	150	7	25	177	70	100	21	0	0	1.8	-7	64	0.1	-1.2	0.2	Y*	Y	775	333	79	Yes*
91 Cabonne	1,170	260	56	546	475	1,021	13,000	61,000	Yes	100	Yes	100	0.0	180	23	23	187	70	0	22	37	108	***2.6***	-4	1,154	1.9	-0.8	-1.2	Y*	Y*	521	725	100	Yes*
92 Carrathool (GW)	1,210	1,050	62	615	405	1,020	1,730	24,900	Yes	100	Yes	100	1	0	20	38	611	100	100	4	0	0	***2.3***	2	214	0.2	3.2	0.9	Y	Y	993	184	52	
93 Tumbarumba	1,170	270	49	616	579	1,195	920	48,400	Yes	100	Yes	100	0	120	0	8	139	80	85	9	0	0	1.7	-3	2,926	3.0	0.1	1.0	Y	Y	500	325	100	Yes*
94 Gundagai	990	600	77	703	612	1,315	3,900	31,100	Yes	100	Yes	100	0				396	***90***	100	-	100	234	1.7	-12	431	0.4	-0.1	2.8	Y	Y	664	510	78	Yes*
96 Warren (DS)	940	840	52	805	485	1,290		28,800	Yes	100	Yes	100	20	120	350	88	752	100	30	441	0	0	1.2	-19	497	0.4	0.3	-3.4	Y	N	495	488	89	Yes
97 Bombala	890	280	30*	763	562	1,325	4,130	57,300	Yes	100	Yes	100	14	40	26	54	299	30	44	34	10	20	1.1	-15	106	0.1	-0.8	-1.5	Y*	Y*	538	373	64	
98 Walcha	920	170	64	528	440	968		26,600	Yes	100	Yes	100	0	120	7	18	124	***60***	33	23	0	0	1.0	-7	143	0.1	-1.7	0.6	Y*	Y	689	363	84	Yes*
100 Balranald (DS)	910	770	47	798	269	1,067	1,330	31,000	Yes	100	Yes	100	6	90	67	15	660	***40***	100	21	0	0	1.3	-7	0		2.1	-2.3	Y	N	548	271	68	Yes*
101 Murrumbidgee (GW)	790	790	63	422	309	731	2,000	24,700	Yes	100	Yes	100	0				635	***170***	0	-	19	27	0.7	-16	151	0.1	0.2	-1.1	Y	Y*	363	233	58	Yes*
103 Central Darling (DS)	740	360	79	1,046	390	1,436		***73,500***	Yes	100	Yes	100	50	120	39	223	581	30	100	26	0	0	2.0	-2	0		2.2	6.6	Y	Y	942	200	79	
104 Boorowa	650	210	49	837	620	1,457	8,200	48,400	Yes	100	Yes	100	8	75	6	24	185	30	100	97	0	0	1.1	-11	449	0.3	-0.6	-0.2	Y*	Y	634	420	89	Yes
105 Brewarrina (DS)	470	1,260	73	1,953	756	2,709		47,200	Yes	100	Yes	100	9	60	111	110	1,391	110	100	6	0	0	1.5	-17	231	0.1	-0.2	0.1	Y*	Y	1638	583	89	Yes
106 Jerilderie (DS)	490	550	58*	1,588	480	2,068	3,180	33,000	Yes	100	Yes	100	8	120	19	10	1,242	***40***	0	17	65	50	0.7	-27	244	0.1	-1.8	-1.1	Y*	Y	739	419	84	Yes*
Totals *or Medians (% of LWUs basis) for 200 - 1,500 Properties*	***24,000***	***15,370***		*777*	*530*	*1,290*	*3,060*	*32,050*					*1*	*120*	*20*	*32*	*449*	*75*	*100*	*22*	*0*	*723*	*38.2*	*-11*	*174*	*8.5*	*0.2*	*0.2*	*22*	*20*	*649*	*369*	*84*	
LWUs without Water Supply																																		
9 Wagga Wagga	27,180	250			434		3,730	13,500								41			100	80	97	5,620	***19.6***	5	161	4.4		1.3		Y		418	100	Yes
30A Hawkesbury	7,660	18			602		8,460	21,100								15			89	29	9	171	***5.8***	1	46	0.4		-0.3		Y*		563	100	Yes*
69 Temora	2,160	99			311			8,700								12			58	46	30	99	0.8	-8	0	0.0		1.5		Y		179	56	Yes*
72 Bland	1,840	260			669		2,120	11,800								13			100	49	92	262	1.3	-2	0	0.0		3.3		Y		359	78	Yes*
77 Junee	1,640	150			365		1,300	11,900								0			50	74	40	147	0.7	-16	56	0.1		-0.2		Y		260	56	Yes*
78 Blayney	1,940	210			529		3,850	15,400								12			100	29	69	211	1.2	-17	184			-0.2		Y		363	100	Yes
95 Weddin	940	12			427		3,730	12,700								70			100	203	7	12	0.5	-9	0	0.0		1.9		Y		334	78	Yes
99 Coolamon	1,020				380		4,500	16,700								3			100	7	71	75	0.5	-11	109	0.1		0.2		Y		271	56	Yes*
102 Lockhart	880	2			490		1,290	13,800								19			69	0	2	2	0.4	-26	0			1.0		Y		213	89	Yes
107 Urana	320				385		4,100	25,100								0			100	0	0	0	0.2	-9	0	0.0		-0.6		Y*		509	67	Yes*
Totals *or Medians (% of LWUs basis) for LWUs without WS*	***38,000***	***1,001***			*431*		*3,730*	*13,650*								*12*			*100*	*38*	*35*	*6,599*	*30.9*	*-9*	*23*	*4.9*		*0.6*		*9*		*346*	*78*	
Statewide Totals & Medians	Total **828,000** WS Connected Properties	Total **291,000** ML (notes 6 and 16)	Median **72%** (notes 7 and 10)	Median **$566**	Median **$669**	Median **$1,235** per assmnt (note 7)	Median **$10,600** per ET (note 7)	Total **$28,400**M Median **$32,900** per assmnt (note 6)	**100% of LWUs** (95 of 95 LWUs) complied with E.coli guidelines. (note 12)	**100% of LWUs** (95 of 95 LWUs) complied with chemical guidelines (note 11)	Median **3** Quality Complaints per 1000 props	Median **133** (mins)	Median **9** Breaks per 100km (note 7)	Median **19** no. per 1000 props	Median **166kL** /connected prop (notes 7 and 16)	Median **60L** /connctn / day	Median **100%** of Sge treated was compliant (note 13)	Median **35** Breaks & chokes / 100km	**70%** of LWUs reused effluent **22%** of effluent was **recycled**	Total **39,000** ML (note 17)	Total **$1,420** million (note 6)	Median **-1%** (note 8)	Median **$359** per property (note 8)	Total **$416** million (note 8)	Median **1.6%** (note 8)	Median **1.7%** (note 8)	**100%** of WS LWUs had full cost recovery (note 8)	**98%** of SGE LWUs had full cost recovery (note 8)	Median **$400** (note 8)	Median **$420** (note 8)	**90%** Overall implementation of BPM (note 14)	**94%** of LWUs have completed SBP (note 15)

Notes

1. This table shows the key 2014-15 performance indicators for NSW water utilities. More detailed indicators are shown in Tables 6 to 18 and Figures 1 to 68 of the 2014-15 NSW Water Supply and Sewerage Benchmarking Report.
2. **No WS** = not responsible for water supply; **No SGE** = not responsible for sewerage;
   BS = bulk supplier; **DS** = dual supply; **GW** = groundwater; **UF** = unfiltered; **R** = reticulator.
   For LWUs with No WS or No SGE, results are shown left justified and are not included in the median calculation for water supply and sewerage.
   NWI indicator numbers are shown in bold below the column number (eg. column (1), NWI indicator **C4**).
3. Where an LWU has not reported an item for 2014-15, the value previously reported has been used where available.
   Such values are shown in this table in ***italics bold*** .
4. The number of connected properties shown in column (1) for LWUs with "No WS" is the number of sewerage connected properties.
5. **NSW Water Utilities**
   In NSW there are 109 water utilities comprising:
   - 4 metropolitan water utilities (Sydney and Hunter Water Corporations, Water NSW (from 1 January 2015, formerly Sydney Catchment Authority (SCA)) and Hawkesbury Council), and
   - 105 regional Local Water Utilities (LWUs).

   The 105 LWUs comprise:
   - 100 local government councils (under *Local Government Act 1993*),
   - 5 LWUs (Gosford Council, Wyong Water, Cobar WB, Fish River WS, Essential Energy) under the *Water Management Act 2000* .

   Of the 105 LWUs,
   - 96 were responsible for water supply (including 3 for bulk supply - Cobar WB, Fish River WS & Rous Water)
   - 99 were responsible for sewerage.
   - 90 were responsible for both water supply and sewerage, 6 for water supply only and 9 for sewerage only.
6. **Totals for Regional NSW**
   The totals shown below are for regional NSW and therefore exclude Sydney and Hunter Water Corporations, Water NSW and Hawkesbury Council. The totals exclude double-counting where bulk water suppliers are involved.
   - ***Number of water supply connected properties*** in regional NSW was 828,000 (col (1)).
   - ***Total annual urban water supplied*** was 291,000 ML (column (2)).
   - ***Total revenue*** for water supply and sewerage was $1,420M (column (23)).
   - ***Total current replacement cost (CRC)*** of WS and SGE assets was $28,400M, with a median of $32,900 per assessment (column (8)).
7. **Statewide medians (regional LWUs):**
   - ***Residential revenue from water usage charges*** **-** Median is 72% (column (3)), which has increased from 20% to 72% over the past 20 years due to LWU tariff reform and strong pricing signals to encourage efficient water use (page 5).
   - ***Typical residential bill (TRB)*** for water and sewerage - $1235/assessment for 2014-15 (column (6)).
     The water supply TRB was $566 (column (4)) and the sewerage TRB was $669 (column (5)).
   - ***Typical developer charge*** for water and sewerage - $10,600/ET for 2014-15 (column (7) and Appendices E and F).
   - ***Water quality complaints*** - 3 per 1000 properties (column (13)).
   - ***Average duration of unplanned interruptions*** for water supply - 133 minutes (column (14)).
   - ***Water main breaks*** - 9 breaks per 100km of main (column (15)).
   - ***Total water supply and sewerage complaints*** - 19 per 1000 properties (column (16)).
   - ***Average annual residential water supplied*** - 166kL/connected property (col (17)). This has decreased by 50% since 1991 (page 5).
   - ***Real water loss*** - 60 L/connection/d (column (18)).
   - ***Median sewage volume that was compliant*** - 100% (column (19)).
   - ***Median sewerage main breaks and chokes*** - 35 per 100km of main (column (20)).
8. **Statewide medians (financial)**:
   - ***Economic real rate of return (ERRR)*** for water supply and sewerage was 1.4% (page 12).
     The water supply ERRR was 1.6% and the sewerage ERRR was 1.7% (columns (27) and (28)).
     100% of LWUs are achieving full cost recovery for water supply and 98% are achieving full cost recovery for sewerage (columns (29) & (30)).
     The remaining 2 sewerage utilities which are not achieving full cost recovery need to do so. Refer also to Appendices E and F and page 79.
   - ***Net debt/equity*** for water and sewerage was -1% (column (24)).

8. **Statewide medians (financial)** continued from left:
   - ***Operation, maintenance & administration cost (OMA)*** for water supply was $400 and sewerage was $420 (cols (31) & (32)).
     OMA includes part of the OMA cost of the bulk water supplier but excludes the purchase cost of water. However, NWI indicator F11 includes the purchase cost of water and therefore may differ from column (31). Refer to page 101 of Appendix G.
   - ***Management cost*** for water supply and sewerage - $301/connected property.
     Water supply management cost was $141 and sewerage management cost was $160 per connected property.
   - ***Capital expenditure*** for water supply and sewerage - $359/property (column (25)).
     The total capital expenditure for water supply and sewerage was $416M (column (26)).
9. **Category 1 Businesses** - 67 LWUs are Category 1 businesses (ie. with an annual revenue of over $2M) as defined in the *NSW Government's Policy Statement on Application of National Competition Policy to Local Government, June 1996* .
   66 such LWUs are responsible for water supply and 52 such LWUs are responsible for sewerage.
10. **Pay-for-use water supply tariff -** All of the 93 LWUs providing a reticulated water supply have a pay-for-use water supply tariff (Appendix E) (ie. a two-part tariff or an inclining block tariff). Such tariffs comply with IPART recommendations and the *COAG Strategic Framework for Water Reform* .
11. **Physical and chemical water quality** - 98.3% of the 4,600 physical samples and 99.9% of the 4,800 chemical samples tested for NSW LWUs achieved 100% compliance with the *2011 Australian Drinking Water Guidelines (ADWG)* .
    All LWUs complied with chemical quality (health related) and are shown as 'Yes' in column (11) (pages 7, 8, 38, 39 and 101).
    All LWUs complied with physical quality (page 8). The results shown for H4 in column 12 are based on population.
12. **Microbiological water quality** - E.coli contamination is the primary health-related indicator.
    - ***E.coli*** - 99.9% of the 19,400 samples tested for NSW LWUs achieved 100% compliance with the *2011 ADWG.*
      All LWUs complied with these guidelines and are shown as 'Yes' in column (9).
      The public drinking water supply for 99.9% of the urban population in regional NSW complied with both the microbiological and chemical requirements of the *2011 ADWG* (columns (10) and (12)).
13. **Compliance with EPA Discharge Licence for Sewerage**
    - ***BOD*** - 96% of the 4,184 sampling days for NSW LWUs achieved 100% compliance with the 90-percentile limit of their EPA licence for BOD (Biochemical Oxygen Demand). 89% of LWUs complied with the EPA licence for BOD.
    - ***SS*** - 92% of the 4,184 sampling days for NSW LWUs achieved 100% compliance with the 90-percentile limit of their EPA licence for SS (Suspended Solids). 82% of LWUs complied with their EPA licence for SS.
      18 LWUs had no EPA discharge licence limit.
14. **Best-Practice implementation** - overall the LWUs have implemented 90% of the outcomes required by the NSW Best-Practice Management Framework (column 33).
15. **Strategic Business Plans** (page 4) - 99 LWUs (94%) have completed a sound 30-year water and/or sewerage Strategic Business Plan, which includes a 30-year total asset management plan and a 30-year financial plan (column 34). These LWUs have demonstrated the long term financial sustainability of their water supply and sewerage businesses to comply with National Competition Policy. These plans cover over 99% of the connected properties in regional NSW. As the plans of 51 of these utilities are now over 4 years old (shown as "Yes*" in column 34), these utilities now need to prepare a 30-year IWCM Strategy, financial plan and report in accordance with the July 2014 IWCM Check List (www.water.nsw.gov.au). Similarly, the 17 LWUs whose IWCM Strategy is over 6 years old [shown as Yes*] need to prepare such a new IWCM Strategy, financial plan and report [column 34].
16. **Total Urban Water Supplied** of 291,000 ML(column (2)) comprises 260,000 ML potable water, 20,000 ML non-potable water and 11,600 ML recycled water. Similarly, the average annual residential water supplied (column 17) includes non-potable & recycled water.
17. **Reuse of recycled water** comprised 39,000 ML which is 22% of the volume of sewage collected and was carried out by 70% of utilities, mostly for agriculture (columns 21 & 22). Refer also to pages 55 and 74.
18. **National Water Initiative (NWI) Indicators** - The 32 NSW water utilities with over 10,000 connected properties (3 metropolitan utilities and 29 regional utilities) are required to report their performance under the NWI. The results that have met the rigorous NWI auditing requirements have been published in the *National Performance Report 2014-15.* Refer also to Notes 12 and 13 on page 32.
19. The performance indicators for Sydney and Hunter Water Corporations and Water NSW were obtained from the *National Performance Report 2014-15 for Urban Water Utilities* (www.bom.gov.au).

APPENDIX E - Water supply - residential charges, bills & cost recovery

	WATER UTILITY	RESIDENTIAL CHARGES: Type of Tariff (1) P1 14/15	15/16	Fixed Charge (or Minimum) ($) (2) P1.2 13/14	14/15	15/16	Special Levies ($) (4) P1.12 15/16	Usage Charge (for Step 1 and Step 2) Step 1 Step (kL) (5a) P1.3 13/14	14/15	15/16	Step 1 Charges (c/kL) (5b) P1.3 13/14	14/15	15/16	Step 2 Step (kL) (5c) P1.4 13/14	14/15	15/16	Step 2 Charges (c/kL) (5d) P1.4 13/14	14/15	15/16	Billing (2006 National Guidelines) (% Imple-mentation) (5e) 13/14	14/15	Operating Cost (OMA) (c/kL) (6) 12/13	13/14	14/15	Typical Developer Charge ($/ET) (7) 13/14	14/15	15/16	Typical Residential Bill based on Col(14b) (Includes Special Levies) (8) P3 13/14	14/15	15/16	COST RECOVERY: Return on Assets (%) (11) 12/13	13/14	14/15	ERRR (Water Supply) (%) (12) F17 12/13	13/14	14/15	Residential Revenue from Usage Charges (% of residential bills) (13) F4 13/14	14/15	Avge Annual Residential Water Supplied[3] Potable kL/prop (14a) 13/14	14/15	Potable + Non Potable kL/prop (14b) W12 13/14	14/15	L/c/d (14c) 14/15	Full Cost Recovery? (FCR) (Y/Y*/N) (14d) 14/15	Total Connected Properties (15) C4 14/15
	Sydney Water	Two Part	Two Part	127	114	103		All	All	All	221	223	228							100	100						581	563	562				1.9	1.9	2.3	79	80	206	201	206	201		Y	1,876,000
	Hunter Water	Two Part	Two Part	17	18	18		All	All	All	217	219	222							100	100						409	385	390				2.8	3.5	2.5	96	95	181	168	181	168		Y	238,800
	LWUs with > 10,000 Properties																																															
1	Gosford	Two Part	Two Part	126	150	174		All	All	All	217	223	226							100	100	170	156	151	1,310	2,320	2,370	475	507	536	-0.2	0.0	0.4	0.7	0.8	1.3	76	73	161	160	161	160	180	Y	71,830
2	Wyong	Two Part	Two Part	170	172	167		All	All	All	217	223	226							100	100	131	117	118	2,840	3,570	3,620	518	508	507	-0.2	0.0	0.4	1.2	1.4	1.5	67*	67*	157	150	158	150	160	Y	63,490
3	Shoalhaven	Two Part	Two Part	81	81	80		All	All	All	160	160	165							100	100	92	87	92	6,580	6,580	6,580	317	309	315	2.0	1.6	2.3	1.2	0.9	1.7	74	75*	147	142	148	143	193	Y	47,150
4	Rous (Bulk Supplier) (No Sge)																					96	96	99	8,860	9,090	9,250				0.8	1.2	1.3	1.1	1.7	1.8							Y	41,230
5	MidCoast	Inclining Block	Inclining Block	180	205	215		<200	<200	<200	257	270	292	>200	>200	>200	288	302	326	97	97	190	166	202	5,820	5,980	6,160	565	587	629	-1.5	-0.7	-0.9	0.1	0.7	0.7	75	72	150	142	150	142	169	Y	38,710
6	Tweed	Inclining Block	Inclining Block	138	148	159		<300	<300	<300	225	245	270	>300	>300	>300	340	370	405	100	100	149	138	147	12,580	12,910	13,130	553	584	639	-0.2	1.7	0.9	0.6	2.4	1.6	77	75*	184	178	184	178	192	Y	32,240
7	Port Macquarie-Hastings (Unfilte	Inclining Block	Inclining Block	173	183	194		<270	<270	<270	241	255	270	>270	>270	>270	482	510	540	33	33	168	172	181	9,760	9,800	9,550	550	568	602	-0.2	1.8	1.6	-0.5	1.7	1.2	69*	68	157	151	157	151	142	Y	30,420
8	Riverina (Groundwater) (No Sge)	Inclining Block	Inclining Block	140	160	160		<500	<500	<500	121	133	140	>500	>500	>500	183	200	210	100	100	71	63	52	4,800	4,930	5,920	532	574	596	3.6	5.6	7.9	3.5	5.3	7.5	76	74	324	311	324	311	326	Y	29,870
10	Coffs Harbour	Inclining Block	Inclining Block	139	143	143		<365	<365	<365	255	263	267	>365	>365	>365	383	395	401	100	100	146	149	161	9,680	9,940	10,130	569	582	588	0.6	-0.2	0.6	1.8	1.2	2.0	76*	76*	169	167	169	167	150	Y	25,060
11	Albury City	Inclining Block	Inclining Block	94	113	128		<225	<225	<225	107	118	130	>225	>225	>225	206	216	227	100	100	92	86	87	3,400	3,000	3,050	349	354	393	0.8	1.9	2.2	0.7	1.7	1.9	79	75	232	205	232	205	260	Y	25,700
12	Fish River WS (Bulk Supplier) (N			MAQ	MAQ	MAQ																								10.9	15.6		10.9	15.6										Y*	23,500
13	Tamworth Regional	Inclining Block	Inclining Block	242	248	254		<400	<400	<400	138	142	145	400-800	400-800	400-800	207	213	218	80	80	110	105	131	4,510	4,630	4,710	638	515	526	1.9	3.6	2.3	1.5	3.3	2.0	64	55	287	188	287	188	223	Y	21,680
14	Clarence Valley	Inclining Block	Inclining Block	156	149	177		<450	<450	<450	168	179	191	>450	>450	>450	252	268	287	95	95	137	121	133	4,990	5,120	5,210	427	413	458	-0.5	0.2	-0.1	-0.1	0.7	0.4	67	66	161	147	161	147	167	Y	21,460
15	Eurobodalla	Two Part	Two Part	228	282	289		All	All	All	340	340	348							98	98	213	229	225	11,290	11,590	11,780	631	668	684	-0.5	0.3	1.0	-0.3	0.4	1.1	64	58	119	114	119	114	184	Y	19,580
16	Wingecarribee	Inclining Block	Inclining Block	148	154	158		<225	<225	<225	163	174	178	>225	>225	>225	245	261	267	80	80	129	108	130	6,310	6,480	6,540	474	463	474	0.9	2.1	1.8	0.7	1.8	1.5	69	68	200	178	200	178	209	Y	19,150
17	Queanbeyan (Reticulator)	Inclining Block	Inclining Block	348	381	417		<160	<160	<176	250	274	297	>160	>160	>176	367	402	456	100	100	212	120	133	8,290	8,500	8,610	815	871	930	-0.7	1.1	0.8	-0.9	0.9	0.4	64	61	178	173	178	173	198	Y	17,350
18	Dubbo	Two Part	Two Part	228	242	250		All	All	All	174	185	191							100	100	81	97	99	5,340	5,450	5,490	836	848	875	2.1	2.6	4.4	2.9	3.3	5.0	75	74	350	327	350	327	396	Y	17,590
19	Orange	Inclining Block	Inclining Block	201	222	252		<450	<450	<450	184	202	220	>450	>450	>450	278	303	330			100	92	81	7,320	7,490	7,560	521	564	625	4.3	3.3	4.4	3.7	2.9	4.0	71	70	174	170	174	170	180	Y	17,520
20	Goulburn Mulwaree	Inclining Block	Inclining Block	157	165	170	40	<292	<292	<292	271	280	280	>292	>292	>292	365	378	378	25	25	143	143	174	4,170	3,370	3,370	678	624	599	0.6	0.7	0.4	1.0	1.0	0.8	66*	65*	165	139	165	139	171	Y	11,190
21	Bathurst Regional	Inclining Block	Inclining Block	116	121	156		<250	<250	<250	171	180	180	>250	>250	>250	257	270	270			111	118	122	4,950	5,100	5,400	503	522	557	1.1	2.0	1.7	0.9	1.8	1.6	83	82	227	223	227	225	259	Y	15,720
22	Lismore (Reticulator)	Two Part	Two Part	185	204	234		All	All	All	272	299	322							75	75	228	124	122	2,020	2,910	3,050	606	666	732	-0.8	-0.1	1.3	-0.9	0.2	1.6	70	70	155	155	155	155	170	Y	14,320
23	Bega Valley (Unfiltered)	Two Part	Two Part	193	198	203		All	All	All	243	250	270							99	99	167	193	225	7,500	7,910	8,040	520	541	574	-1.1	-0.3	-0.5	-1.4	-0.6	-0.8	63	65*	134	137	134	137	202	Y*	14,360
24	Ballina (Reticulator)	Inclining Block	Inclining Block	178	189	195		<350	<350	<350	191	202	208	>350	>350	>350	287	304	313	100	100	196	89	84	4,510	3,540	3,160	549	555	572	-0.2	0.7	1.8	-0.7	0.3	1.2	68	66	194	181	194	181	170	Y	14,360
25	Kempsey (Groundwater)	Inclining Block	Inclining Block	248	255	268		<250	<250	<250	203	209	219	>250	>250	>250	292	301	316	76	95	154	157	157	9,040	9,300	9,450	567	580	609	-0.3	-0.8	0.7	0.3	0.0	1.3	59	59	157	156	157	156	174	Y	12,510
26	Essential Energy	Two Part	Two Part	254	313	317		<400	All	All	167	172	174	>400			280			100	100	172	197	170				723	755	765							66	59	281	257	281	257	356	Y*	10,530
27	Byron (Reticulator)	Inclining Block	Inclining Block	150	155	175		<450	<450	<450	221	232	242	>450	>450	>450	332	348	363	90	90	154	93	91	3,380	3,440	3,500	550	574	612	0.1	2.1	2.1	-0.5	1.6	1.6	74	73	181	180	181	180	233	Y	11,220
28A	Goldenfields (Reticulator) (No Sg	Two Part	Two Part	165	174	178		All	All	All	202	212	217							95	100	146	105	109	8,760	7,080	7,430	738	750	767	1.4	2.7	4.0	1.1	2.3	3.6	79	78	284	272	287	275	232	Y	10,280
28B	Goldenfields (Bulk Supplier) (No																					31	31	31							1.2	1.3	0.5	0.7	0.9	***0.0***							Y	19,290
	Medians (% of LWUs basis excl bulk suppliers) for >10,000 Properties			*170*	*174*	*178*					*203*	*212*	*220*				*287*	*303*	*321*			*146*	*120*	*131*	*5,580*	*5,715*	*6,040*	*550*	*574*	*599*	*-0.1*	*1.4*	*1.4*	*0.7*	*1.3*	*1.6*	*71*	*70*	*174*	*170*	*174*	*170*	*192*	*0 LWU without FCR*	
	LWUs with 3,001 - 10,000 Properties																																														
29	Armidale Dumaresq	Inclining Block	Inclining Block	220	215	215		<400	<400	<400	241	241	241	400-1000	400-1000	400-1000	320	320	320	10	10	119	154	126	5,520	5,470	5,690	756	691	691	2.7	0.9	2.1	2.7	1.0	2.0	78	79	223	198	231	198	205	Y	8,750
30	Griffith	Inclining Block	Inclining Block	129	129	129		<200	<200	<200	63	65	67	>200	>200	>200	120	125	130	15	15	78	70	76	4,420	5,160	5,900	621	690	711	1.0	1.0	0.9	0.4	0.7	0.7	80*	82*	505	545	525	567	420	Y	8,470
31	Lithgow	Inclining Block	Inclining Block	135	150	160		<250	<250	<250	284	296	311	>250	>250	>250	426	445	467	40	40	185	162	232	2,230	2,700	2,700	662	540	570	0.9	3.5	0.0	1.2	2.0	0.4	81	83	186	132	186	132	164	Y	8,080
32	Mid Western Regional	Two Part	Two Part	135	140	144		All	All	All	265	275	281							30	30	158	148	165	8,030	8,250	8,460	676	649	664	2.9	2.5	2.8	3.1	2.6	2.8	80*	80	204	185	204	185	217	Y	8,130
33	Richmond Valley	Inclining Block	Inclining Block	120	127	133		<200	<200	<200	185	194	203	>200	>200	>200	278	292	307			121	113	114	4,950	5,040	5,130	427	460	482	0.8	0.3	1.0	0.4	0.3	0.9	76	75	166	172	166	172	174	Y	7,140
34	Nambucca (Groundwater)	Two Part	Two Part	109	128	128		All	All	All	281	290	290									119	143	152	12,030	12,360	12,570	490	517	517	2.9	1.3	1.2	2.3	2.1	2.2	79	77	135	134	135	134	148	Y	6,350
35	Singleton	Inclining Block	Inclining Block	171	149	154		<450	<450	<450	103	122	135	>450	>450	>450	191	226	245	100	100	105	107	87	5,100	5,230	5,390	477	455	492	4.5	3.7	1.7	1.2	1.3	-0.5	71*	69*	297	251	297	251	214	Y	6,750
36	Parkes	Inclining Block	Inclining Block	225	215	180		<400	<400	<400	155	165	180	>400	>400	>400	300	310	320	70	70	77	75	77	10,960	11,300	11,990	608	670	677	4.5	3.5	3.1	1.5	0.9	1.4	67	76	247	276	251	280	316	Y	5,960
37	Inverell	Inclining Block	Inclining Block	320	330	347		<500	<500	<600	124	130	137	>500	>500	>600	144	150	160			169	165	163	10,830	11,150	11,320	548	564	593	0.7	1.3	0.9	0.5	1.0	0.8	49	45	183	180	183	180	217	Y	5,770
38	Moree Plains (Groundwater)	Inclining Block	Inclining Block	270	270	280		<750	<750	<750	131	144	158	>750	>750	>750	169	186	205	60	60	103	98	82	6,650	4,000	6,800	1066	1045	1131	0.2	3.0	3.1	1.4	3.9	4.1	76*	75*	608	538	618	548	559	Y	4,600
39	Cowra	Two Part	Two Part	186	186	192		All	All	All	286	286	295									119	122	120	7,360	7,360	7,580	824	875	903	2.2	-0.4	1.2	2.5	0.1	2.0	77	79	223	241	239	268	366	Y	5,320
40	Central Tablelands (No Sge)	Two Part	Two Part	200	200	200		<450	All	All	215	225	236	>450			323			80	80	152	160	185	8,330	8,560	8,700	613	620	640	0.7	0.9	0.1	0.7	1.0	0.1	68	69*	192	187	192	187	148	Y	5,490
41	Muswellbrook	Inclining Block	Inclining Block	175	175	175		<350	<350	<350	147	152	160	>350	>350	>350	220	228	240	100	100	118	123	118	6,190	6,350	6,500	597	547	567	3.7	1.9	0.8	2.3	0.1	-0.5	71	69*	287	245	287	245	271	Y	5,810
42	Corowa	Inclining Block	Inclining Block	200	100	100		All	<450	<450	111	160	160		>450	>450		240	240	100	100	59	64	82	730	910	910	490	560	560	4.1	2.3	4.2	3.5	1.7	3.6	81*	82	261	287	261	287	399	Y	5,450

APPENDIX E - Water supply - residential charges, bills & cost recovery

	WATER UTILITY	RESIDENTIAL CHARGES: Type of Tariff (1) P1 14/15	15/16	Fixed Charge (or Minimum) ($) (2) P1.2 13/14	14/15	15/16	Special Levies ($) (4) P1.12 15/16	Usage Charge (for Step 1 and Step 2) Step 1 Step (kL) (5a) P1.3 13/14	14/15	15/16	Step 1 Charges (c/kL) (5b) P1.3 13/14	14/15	15/16	Step 2 Step (kL) (5c) P1.4 13/14	14/15	15/16	Step 2 Charges (c/kL) (5d) P1.4 13/14	14/15	15/16	Billing (2006 National Guidelines) (% Imple-mentation) (5e) 13/14	14/15	Operating Cost (OMA) (c/kL) (6) 12/13	13/14	14/15	Typical Developer Charge ($/ET) (7) 13/14	14/15	15/16	Typical Residential Bill based on Col(14b) (Includes Special Levies) (8) P3 13/14	14/15	15/16	COST RECOVERY: Return on Assets (%) (11) 12/13	13/14	14/15	ERRR (Water Supply) (%) (12) F17 12/13	13/14	14/15	Residential Revenue from Usage Charges (% of residential bills) (13) F4 13/14	14/15	Avge Annual Residential Water Supplied[3] Potable kL/prop (14a) 13/14	14/15	Potable + Non Potable kL/prop (14b) W12 13/14	14/15	L/c/d (14c) 14/15	Full Cost Recovery? (FCR) (Y/Y*/N) (14d) 14/15	Total Connected Properties (15) C4 14/15
43	Tumut	Inclining Block	Two Part	221	227	130		<300	<300	All	123	126	211	>300	>300		246	252		50	100	113	118	134	5,500	5,640	5,790	487	503	591	0.5	-0.4	0.0	1.2	1.2	0.4	58	78*	216	219	225	220	277	Y	4,500
44	Gunnedah (Groundwater)	Inclining Block	Inclining Block	170	170	170		<400	<400	<400	100	104	108	>400	>400	>400	150	156	162			72	64	66	8,200	8,490	8,700	570	628	645	2.6	4.4	4.1	1.6	3.6	3.3	75	74*	400	427	400	427	461	Y	4,350
45	Upper Hunter	Inclining Block	Inclining Block	300	258	217		<300	<300	<300	159	175	192	>300	>300	>300	228	262	307	100	100	108	123	107	7,650	6,920	7,100	1005	798	811	4.9	2.0	5.1	4.8	2.0	5.1	75*	73*	400	306	400	306	259	Y	4,400
46	Narrabri (Groundwater)	Two Part	Two Part	293	323	333		All	All	All	83	87	90									70	71	81	3,360	3,460	3,500	607	591	610	13.0	8.7	4.2	8.6	6.8	2.6	62	56	378	308	378	308	268	Y	4,390
47	Bellingen (Unfiltered)	Inclining Block	Inclining Block	131	112	117		<365	<365	<365	175	152	163	>365	>365	>365	263	228	245	85	85	109	109	140	6,300	6,300	6,300	417	343	365	1.0	2.3	0.9	0.3	1.4	-0.3	77	77	163	152	163	152	154	Y	4,090
48	Leeton	Inclining Block	Inclining Block	246	252	264		<300	<300	<300	84	86	91	300-600	300-600	300-600	123	126	133			85	89	83	4,500	4,600	4,600	663	675	712	1.5	0.3	1.1	0.7	-0.4	0.4	65	66	434	431	434	431	465	Y	4,080
49	Young (Reticulator)	Inclining Block	Two Part	225	250	275		<480	<480	All	230	246	270	>480	>480		345	369		50	50	83	67	59	1,050	1,100	3,370	623	659	723	-1.2	-1.8	-0.2	-1.8	-2.0	-0.7	66	69	173	166	173	166	196	Y*	4,880
50	Cooma-Monaro	Inclining Block	Inclining Block	300	315	331		<300	<300	<300	147	154	162	>300	>300	>300	232	244	256	100	100	155	182	129	6,650	6,780	6,850	668	872	917	0.8	0.5	1.1	0.5	0.2	0.8	55*	64*	250	339	250	339	404	Y	3,670
51	Forbes	Two Part	Two Part	201	206	211		<600	All	All	77	90	103	>600			113			40	50	78	75	79	6,460	6,620	6,780	477	523	573	-0.1	-1.0	-0.8	-1.1	-1.7	-1.6	63	66	359	352	359	352	408	Y*	3,720
52	Snowy River (Unfiltered)	Inclining Block	Inclining Block	360	360	363		<300	<300	<300	200	210	230	>300	>300	>300	325	330	350	99	99	248	214	254	4,000	6,500	9,560	546	534	553	0.6	1.3	1.2	0.3	1.1	1.0	42	41	93	83	93	83	252	Y	5,310
53	Berrigan (Dual Supply)	Two Part	Two Part	461	474	497		All	All	All	94	94	94							25	30	86	63	65	5,500	5,600	5,750	773	775	798	2.7	2.9	3.6	2.4	2.6	3.2	49*	40	237	241	427	399	492	Y	3,540
53	Berrigan (Non Potable)	Two Part	Two Part					All	All	All	47	47	47																																	190	157			3,540
54	Deniliquin	Inclining Block	Inclining Block	368	320	328		<800	<800	<800	60	80	85	>800	>800	>800	100	120	125	100	100	78	100	98	3,760	3,950	3,250	654	699	731	2.7	0.4	1.1	2.2	-0.4	0.4	54*	55*	476	474	476	474	602	Y	3,500
55	Warrumbungle	Two Part	Two Part	355	360	364		All	All	All	170	180	190									168	173	220	1,530	1,560	1,590	736	715	739	0.3	0.1	-1.1	0.2	-0.2	-1.2	53*	51*	224	197	226	201	257	Y*	3,310
56	Yass Valley	Two Part	Two Part	450	450	450		All	All	All	280	280	290							50	50	232	163	168	12,200	12,500	12,820	934	902	918	-0.3	0.9	1.7	1.7	0.0	3.8	54	53	173	161	173	161	196	Y	3,250
Medians (% of LWUs basis) for 3,000 to 10,000 Properties				221	215	206					147	154	163				230	240	245			111	116	116	5,855	5,970	6,400	617	638	654	1.3	1.3	1.1	1.3	1.0	0.9	67	75	231	241	239	245	264	0 LWU without FCR	
LWUs with 1,501 - 3,000 Properties																																															
57	Wellington	Inclining Block	Inclining Block	358	366	377		<300	<300	<300	193	197	203	300-500	300-500	300-500	196	201	207	100	100	162	163	112	4,600	4,600	4,500	730	785	809	2.6	3.3	4.6	4.1	4.6	5.7	55	66	193	213	193	213	227	Y	2,910
58	Cootamundra (Reticulator)	Two Part	Two Part	302	312	320		All	All	All	178	184	193							30	30	72	46	70	6,160	6,470	6,790	686	662	687	1.9	4.3	-1.6	1.9	4.3	-1.6	56*	53*	216	190	216	190	248	Y*	3,010
59	Lachlan	Inclining Block	Inclining Block	288	308	355		<450	<450	<600	190	203	220	>450	>450	>600	285	305	330	100	100	111	115	111	5,800	5,800	5,800	1401	1427	1493	-0.3	-0.7	-0.7	-0.8	-1.2	-1.0	79*	78	541	517	554	531	584	Y*	2,840
60	Glen Innes Severn	Inclining Block	Inclining Block	260	270	284		<450	<450	<450	198	205	215	>450	>450	>450	298	308	323			190	220	233	2,720	2,790	2,860	551	539	566	0.0	0.3	0.3	0.7	1.2	1.2	53	52	147	131	147	131	151	Y	3,050
61	Liverpool Plains	Inclining Block	Inclining Block	559	575	690		<300	<300	<300	120	125	128	>300	>300	>300	197	203	208	50	50	153	193	176	10,690	10,690	10,990	791	812	933	1.3	1.3	0.5	1.1	1.3	0.5	44	41	193	190	193	190	233	Y	2,760
62	Narromine (Groundwater)	Two Part	Two Part	183	193	203		All	All	All	105	110	115							92	93	65	77	99	4,380	4,500	4,590	700	690	723	5.4	6.5	4.4	3.7	4.8	2.8	74	74	493	452	493	452	451	Y	2,120
63	Narrandera (Groundwater)	Two Part	Two Part	258	266	273		All	All	All	99	102	102									59	44	53	1,000	1,750	1,800	752	957	964	12.7	8.4	6.3	9.6	5.5	3.9	66*	72	499	678	499	678	742	Y	2,090
65	Murray (Dual Supply)	Two Part	Two Part	250	262	275		All	All	All	87	91	96									77	111	111	2,730	2,810	2,890	568	590	619	3.7	4.4	4.7	3.6	4.3	4.6	56*	51	172	168	287	280	304	Y	3,050
65	Murray (Non Potable)	Two Part	Two Part	92	97	102		All	All	All	66	69	72																															115	112			3,050
67	Cobar	Inclining Block	Inclining Block	227	233	240		<450	<450	<450	200	205	210	450-550	450-550	450-550	290	300	310			158	224	242	1,160	1,160	1,160	992	935	959	2.6	-0.1	14.8	2.6	-0.2	14.7	79	77	382	342	464	342	300	Y	2,260
66	Cobar WB																					58	69	713							-2.0	-0.6	-0.4	-2.1	-0.6	-0.5								Y*	0
68	Tenterfield	Inclining Block	Inclining Block	379	398	438		<450	<450	<450	197	207	228	>450	>450	>450	227	238	262			222	213	229	5,500	5,000	5,400	675	695	765	-0.8	1.8	0.2	-0.7	1.8	0.1	44*	44	150	143	150	143	184	Y	1,990
70	Kyogle	Inclining Block	Inclining Block	321	340	344		<200	<200	<200	120	130	150	>200	>200	>200	180	180	190	90	90	236	197	209	2,570	2,850	3,170	492	528	561	-0.1	-1.6	0.4	0.1	-1.4	0.6	42	41	143	145	143	145	178	Y	1,910
71	Palerang	Inclining Block	Inclining Block	397	407	422		<200	<200	<200	208	214	222	>200	>200	>200	328	337	349	100	100	238	233	234	9,000	9,330	9,680	732	745	773	0.9	0.3	1.0	0.8	0.8	1.4	50	47	161	158	161	158	165	Y	2,240
73	Upper Lachlan	Inclining Block	Inclining Block	393	413	430		<200	<200	<200	240	256	269	>200	>200	>200	318	339	356	90	90	211	269	297	3,700	3,700	3,800	722	779	815	5.2	1.7	-0.8	4.5	1.7	-0.7	54	47*	137	143	137	143	236	Y*	1,990
74	Wentworth (Dual Supply)	Inclining Block	Inclining Block	260	265	270		<250	<250	<250	120	120	120	>250	>250	>250	280	280	280			122	105	80	2,400	2,520	2,520	617	686	696	5.0	4.6	4.2	4.5	4.7	4.6	58*	48	74	99	407	504	779	Y	2,320
74	Wentworth (Non Potable)	Inclining Block	Inclining Block	135	140	145		<700	<700	<700	40	40	40	>700	>700	>700	110	110	110																									333	405			2,320
75	Coonamble (Groundwater)	Inclining Block	Inclining Block	145	170	210		<370	<370	<370	49	55	70	>370	>370	>370	74	90	110			67	52	58	670	880	900	348	583	725	2.3	0.3	-1.1	0.9	-0.8	-1.7	63	71*	399	603	399	603	604	Y*	1,680
76	Harden (Reticulator)	Inclining Block	Inclining Block	350	358	367		<450	<450	<450	210	215	220	>450	>450	>450	314	321	329	90	90	62	33	92	3,310	1,290	1,360	1308	747	765	0.7	1.2	-0.3	0.5	1.0	-0.8	73*	52	454	181	454	181	163	Y	1,770
79	Walgett (Dual Supply)	Inclining Block	Inclining Block	411	423	455		<500	<500	<500	35	36	76	>500	>500	>500	49	50	106			36	99	30				1174	1212	1682	-1.1	-12.8	5.1	-0.9	-12.0	5.1	65*	57*	720	720	1341	1341	910	Y	1,930
79	Walgett (Non Potable)	Inclining Block	Inclining Block	411	423	455		<600	<600	<600	11	12	25	>600	>600	>600	16	17	36																									621	621			1,930
80	Greater Hume	Inclining Block	Inclining Block	280	308	339		<200	<200	<200	140	140	160	>200	>200	>200	220	220	240	75	75	144	90	92	2,870	2,960	3,050	636	685	764	-0.1	-0.5	-0.2	-0.4	-0.8	-0.5	60	59	235	244	235	244	207	Y*	1,860
Medians (% of LWUs basis) for 1,500 to 3,000 Properties				295	310	342					159	162	177				254	259	271			133	113	111	3,310	2,960	3,170	711	720	765	1.6	1.3	0.5	1.0	1.3	0.9	54	52	205	190	261	228	242	0 LWU without FCR	
LWUs with 200 - 1,500 Properties																																														
81	Gwydir	Inclining Block	Inclining Block	390	390	390		<600	<600	<600	120	125	125	>600	>600	>600	195	195	195	25	25	112	66	97	2,000	2,000	2,000	861	790	790	1.7	4.5	1.3	3.0	6.0	3.0	75	76	393	320	393	320	430	Y	1,470
83	Oberon (Reticulator)	Two Part	Two Part	265	292	330		All	All	All	193	213	280									193	86	60	1,310	1,350	1,390	536	606	743	-0.4	-0.8	2.1	-0.4	-0.5	2.2	57	75	140	148	140	148	139	Y	1,300
84	Gilgandra (Groundwater)	Two Part	Two Part	212	219	233		All	All	All	95	98	104							10	10	50	69	62				664	730	775	1.5	1.4	1.0	0.8	0.8	0.4	68*	70	476	521	492	525	507	Y	1,350
85	Uralla	Two Part	Two Part	283	295	305		All	All	All	200	210	220							100	100	222	199	174	880	910	930	682	684	712	-0.1	0.4	1.1	-0.8	0.1	0.8	59	57*	199	185	199	185	228	Y	1,450
86	Hay (Dual Supply)	Inclining Block	Inclining Block	126	129	132		<300	<300	<300	106	108	110	>300	>300	>300	160	164	165			62	59	53				886	921	944	-0.1	-0.5	1.0	-0.4	-0.7	0.8	86*	57	155	159	1019	1048	1407	Y	1,330

APPENDIX E - Water supply - residential charges, bills & cost recovery

RESIDENTIAL CHARGES

No.	WATER UTILITY	Type of Tariff (1) P1 14/15	Type of Tariff (1) P1 15/16	Fixed Charge (or Minimum) ($) (2) P1.2 13/14	14/15	15/16	Special Levies ($) (4) P1.12 15/16	Usage Charge Step 1 Step (kL) (5a) P1.3 13/14	14/15	15/16	Step 1 Charges (c/kL) (5b) P1.3 13/14	14/15	15/16	Step 2 Step (kL) (5c) P1.4 13/14	14/15	15/16	Step 2 Charges (c/kL) (5d) P1.4 13/14	14/15	15/16	Billing (2006 National Guidelines) (% Implementation) (5e) 13/14	14/15
86	Hay (Non Potable)	Two Part	Two Part	320	327	335		All	All	All	32	33	34								
87	Bourke (Dual Supply)	Two Part	Two Part	164	168	176		All	All	All	216	216	216							100	100
87	Bourke (Non Potable)	Unmetered	Unmetered	409	418	437		All	All	All											
88	Wakool (Dual Supply)	Inclining Block	Inclining Block	245	245	250		<600	<600	<600	95	99	100	>600	>600	>600	149	153	158	5	5
88	Wakool (Non-Potable)	Unmetered	Unmetered	504	519	535		All	All	All											
89	Bogan	Two Part	Two Part	485	510	536		All	All	All	170	178	187							100	100
90	Guyra	Inclining Block	Inclining Block	300	300	310		<400	<400	<400	145	150	155	400-1000	400-1000	400-1000	175	180	185	75	75
91	Cabonne	Inclining Block	Inclining Block	258	283	312		<300	<300	<300	160	175	190	300-500	300-500	300-500	370	407	450	100	100
92	Carrathool (Groundwater)	Two Part	Two Part	380	390	402		All	All	All	84	87	90							100	100
93	Tumbarumba	Inclining Block	Inclining Block	320	330	343		<200	<200	<200	199	205	209	>200	>200	>200	334	344	351		
94	Gundagai	Inclining Block	Inclining Block	150	165	170		<300	<300	<300	115	125	125	300-500	300-500	300-500	155	170	170	100	100
96	Warren (Dual Supply)	Inclining Block	Inclining Block	310	320	330		<450	<450	<450	97	100	103	>450	>450	>450	147	151	155	100	100
96	Warren (Non Potable)	Inclining Block	Inclining Block					<450	<450	<450	36	37	38	>450	>450	>450	62	64	66		
97	Bombala	Inclining Block	Inclining Block	520	538	565		<350	<350	<350	60	120	130	>350	>350	>350	130	175	180		
98	Walcha	Inclining Block	Inclining Block	180	190	210		<300	<300	<300	257	272	272	>300	>300	>300	374	396	396		
100	Balranald (Dual Supply)	Inclining Block	Inclining Block	170	187	187		<600	<600	<600	92	94	94	>600	>600	>600	138	141	141		
100	Balranald (Non Potable))	Inclining Block	Inclining Block	180	198	198		<600	<600	<600	50	52	52	>600	>600	>600	75	78	78		
101	Murrumbidgee (Groundwater)	Inclining Block	Inclining Block	180	185	195		<500	<500	<500	34	36	40	500-800	500-800	>500	40	42	60		
103	Central Darling (Dual Supply)	Two Part	Two Part	120	120	150		All	All	All	350	350	350							15	15
103	(Non Potable-Wilcannia)	Unmetered	Unmetered	478	478	598		All	All	All											
104	Boorowa	Inclining Block	Inclining Block	458	458	472		<200	<200	<200	192	205	211	>200	>200	>200	324	410	422	80	80
105	Brewarrina (Dual Supply)	Two Part	Two Part	409	421	431		All	All	All	180	190	190							100	100
105	Brewarrina (Non Potable)	Unmetered	Unmetered	354	365	374		All	All	All											
106	Jerilderie (Dual Supply)	Inclining Block	Inclining Block	231	231	243		<250	<250	<250	137	144	152	>250	>250	>250	153	160	177	85	85
106	Jerilderie (Non Potable)	Two Part	Two Part	336	336	353		All	All	All	65	69	73								
	Medians (% of LWUs basis) for 200 to 1,500 Properties			*265*	*292*	*310*					*141*	*147*	*154*				*158*	*173*	*179*		
	Median All LWUs (% of LWUs basis)				*Fixed Charge*	*$243*			*Usage Charge for Step 1*		*190 c/kL*				*Usage Charge for Step 2*		*260 c/kL*				
	Median All LWUs (Statewide basis)					***$174***					***226 c/kL***										

OPERATING COST, DEVELOPER CHARGE, TYPICAL RESIDENTIAL BILL AND COST RECOVERY

No.	WATER UTILITY	Operating Cost (OMA) (c/kL) (6) 12/13	13/14	14/15	Typical Developer Charge ($/ET) (7) 13/14	14/15	15/16	Typical Residential Bill based on Col(14b) (Includes Special Levies) (8) P3 13/14	14/15	15/16	Return on Assets (%) (11) 12/13	13/14	14/15	ERRR (Water Supply) (%) (12) F17 12/13	13/14	14/15	Residential Revenue from Usage Charges (% of residential bills) (13) F4 13/14	14/15	Avge Annual Residential Water Supplied[3] Potable kL/prop (14a) 13/14	14/15	Potable + Non Potable kL/prop (14b) W12 13/14	14/15	Potable + Non Potable L/c/d (14c) 14/15	Full Cost Recovery? (FCR) (Y/Y*/N) (14d) 14/15	Total Connected Properties (15) C4 14/15
86	Hay (Non Potable)																				865	889			1,330
87	Bourke (Dual Supply)	82	91	80	830	830	830	1186	1200	1227	0.8	-0.2	2.1	0.2	-0.9	1.5	86*	79	284	284	1114	1243	1855	Y	1,380
87	Bourke (Non Potable)																				830	959			1,380
88	Wakool (Dual Supply)	121	109	118	2,805	2,810	2,810	885	905	927	0.3	0.3	0.4	0.1	0.1	0.2	73*	36	143	142	507	502	595	Y	1,450
88	Wakool (Non-Potable)																				363	360			1,450
89	Bogan	137	158	261				1133	1113	1169	1.0	-0.3	-0.3	0.6	-0.6	-0.6	60	57	381	339	381	339	372	Y*	1,190
90	Guyra	133	127	219	1,040	1,070	1,100	682	566	585	0.5	0.6	-0.7	0.0	0.1	-1.2	70	65	263	177	263	177	221	Y*	1,260
91	Cabonne	187	191	239	6,490	6,680	6,680	488	546	597	-1.3	-0.3	-0.4	-1.8	-0.8	-0.8	62	56	144	150	180	187	282	Y*	1,170
92	Carrathool (Groundwater)	97	106	86	1,050	1,050	1,080	615	615	841	-1.4	1.0	3.1	-1.4	0.9	3.2	57	62	313	488	392	611	633	Y	1,210
93	Tumbarumba	140	140	213	490	490	490	727	616	634	-0.3	-0.6	-0.3	0.0	-0.2	0.1	56*	49	203	139	203	139	230	Y	1,170
94	Gundagai	86	69	110	3,300	3,300	3,300	579	703	708	0.5	1.1	0.3	-0.1	0.6	-0.1	74*	77	354	396	354	396	383	Y	990
96	Warren (Dual Supply)	70	64	53				793	805	829	-1.3	-0.7	0.5	-1.7	-1.0	0.3	65*	52	302	328	797	752	835	Y	940
96	Warren (Non Potable)																				494	424			940
97	Bombala	268	256	174	1,760	1,800	1,860	633	763	809	-0.6	-0.6	-0.2	-1.4	-1.2	-0.8	30*	30*	188	188	188	299	322	Y*	890
98	Walcha	362	307	362				576	528	548	-0.6	-0.8	-1.6	-0.7	-0.9	-1.7	69	64	154	124	154	124	151	Y*	920
100	Balranald (Dual Supply)	47	89	62	910	700	700	664	798	798	-2.0	1.1	1.6	-0.8	2.2	2.1	74*	47	133	167	516	660	860	Y	910
100	Balranald (Non Potable))																				384	493			910
101	Murrumbidgee (Groundwater)	41	43	36	1,000	1,000	1,000	379	422	476	0.4	-0.4	0.7	-0.1	-1.0	0.2	63	63	571	635	571	635	717	Y	790
103	Central Darling (Dual Supply)	162	275	193				1225	1046	1195	-1.6	4.4	2.3	-1.6	4.4	2.2	90*	79	179	128	632	581	843	Y	740
103	(Non Potable-Wilcannia)																				453	453			740
104	Boorowa	305	196	193	7,470	7,670	7,670	827	837	862	-0.6	-0.5	-0.5	-0.8	-0.6	-0.6	46*	49	193	185	193	185	213	Y*	650
105	Brewarrina (Dual Supply)	83	90	61				1810	1953	1972	6.0	0.1	-0.5	5.8	6.4	-0.2	58*	73	581	614	1163	1391	981	Y*	470
105	Brewarrina (Non Potable)																					777			470
106	Jerilderie (Dual Supply)	66	61	65	2,250	2,250	2,250	1516	1588	1676	0.0	0.3	-0.7	-1.5	-0.8	-1.8	85*	58*	246	219	1187	1242	1595	Y*	490
106	Jerilderie (Non Potable)																				942	1023			490
	Medians (% of LWUs basis) for 200 to 1,500 Properties	*117*	*99*	*103*	*1,310*	*1,350*	*1,390*	*705*	*777*	*804*	*-0.1*	*-0.1*	*0.4*	*-0.4*	*-0.4*	*0.2*	*62*	*63*	*225*	*186*	*393*	*502*	*469*	*0 LWU without FCR*	
	Median All LWUs (% of LWUs basis)		*OMA (c/kL)*	*118*		*Developer Charge*	*$5400*		*TRB*	*$691*		*ROA*	*1%*		*ERRR*	*1.1%*		*66%*			*AARW 200 kL/prop*			*96 LWUs achieved FCR (76 with 'Y' and 20 with Y*)*	
	Median All LWUs (Statewide basis)			***129***			***$5900***			***$593***			***1%***			***1.6%***		***72%***				***166 kL/prop***		*0 LWU did not achieve FCR*	

NOTES: 1. **Residential Revenue from Usage Charges**: Where this is marked *, it has been calculated from the projected typical residential bill for the 2015/16 financial year as this provides a higher value than the result for the 2014/15 financial year. 30 LWUs with 4,000 or more properties (64%) obtained at least 70% of residential revenue from water usage charges (column 13). This includes Wyong and Essential Energy, who have been granted a deemed compliance as their prices are regulated by IPART. 38 LWUs (87%) with fewer than 4,000 properties obtained at least 45% of their residential revenue from usage charges.

2. **The charges, bills and costs** shown for each financial year are those applicable at that time and involve no CPI adjustment. Column (5e) shows that 47% of LWUs now have residential water billing in accordance with the National Guidelines for Residential Customers' Water Accounts. A further 18% of LWUs have made significant progress towards such billing.

3. **Dual Water Supplies:** 12 LWUs had a dual water supply to over 50% of their residential customers with a potable supply for indoor use and a non-potable supply for outdoor use (refer to General Notes - Note 8 on page 31).

4. **Average Annual Residential Water Supplied (Dual Supplies):** The 12 Dual Supply LWUs are shown on two rows. The first row is labelled Dual Supply while the second row is labelled Non-Potable.
The first row in column (14a) shows the **potable** average Annual Residential Water Supplied while the second row in column (14b) shows the **non-potable** Average Annual Residential Water Supplied (see also Note 8 on page 31).
The total potable plus non-potable Average Annual Residential Water Supplied is shown in the first row in column (14b) and column (14c).

5. **Median Annual Residential Water Supplied:** The median Average Annual Residential Water Supplied (potable plus non-potable) has fallen by 50% over the last 24 years to 166 kL/property (184 L/person/d).

6. **Full Cost Recovery** has been achieved by all 96 LWUs. These comprise 76 utilities which had either an Economic Real Rate of Return or Return on Assets of >=0 for the 2014/15 financial year (shown as "Y" in col (14d)).
They also include 20 utilities which have significantly increased their 2015/16 charges in order to recover their costs (shown as "Y*").

APPENDIX F - Sewerage - residential charges & bills, cost recovery

	WATER UTILITY	RESIDENTIAL CHARGES						NON-RESIDENTIAL CHARGES										Typical Residential Bill			COST RECOVERY								
		Fixed Charge ($) (or Minimum)			Operating Cost (OMA)			Non-Res Sewer Usage Charge		Liquid Trade Waste Charges				Non-Res & Trade Waste		Typical Developer Charge					Return on Assets			Economic Real Rate of Return (Sewerage)			Full Cost Recovery?	Recycled Water Usage Charge	Sewage Collected	Connected Properties
		($)			(c/kL)			(Not including SDF) (c/kL) (3a)		Usage Charge (c/kL) (3b)		Appropriate TW Charges ? (4)		Charges (% of Annual Charges) (5)	Volume (% of sge collected) (6)	($/Equivalent Tenement [ET]) (7)			($/assessment) (8) P6			(%) (9)			(%) (11) F18			(FCR) (Y/Y*/N) (11a)	(c/kL) (11b)	(kL/prop) (11c) W19	(No.) (12) C8
		13/14	14/15	15/16	12/13	13/14	14/15	14/15	15/16	14/15	15/16	14/15	15/16	14/15	14/15	13/14	14/15	15/16	13/14	14/15	15/16	12/13	13/14	14/15	12/13	13/14	14/15	14/15	14/15	14/15	14/15
	Sydney Water	580	592	609				120	110	184	213	Y	Y						552	592	609				1.4	1.4	1.4	Y	178	309	1,827,000
	Hunter Water	579	586	594				67	67			Y	Y						616	623	631				2.1	1.8	1.7	Y	190	316	227,500
	LWUs with > 10,000 Properties																														
1	Gosford	576	612	641	189	181	136	99	92	167	168	Y	Y	19	15	2,850	1,940	2,010	576	612	641	-0.4	-0.2	0.2	-0.4	-0.1	0.3	Y	167	278	70,000
2	Wyong	458	471	477	126	144	130	83	83	126	148	Y	Y	13	25	2,610	4,990	5,060	458	471	477	-0.2	-0.3	0.2	-0.2	-0.4	0.2	Y	112	259	61,930
3	Shoalhaven	714	750	772	255	239	223	130	140	164	168	Y	Y	14	15	8,340	8,340	8,340	714	750	772	1.4	1.6	3.4	1.9	2.2	3.9	Y		224	41,870
5	MidCoast (Combined)	920	948	970	263	304	279	245	252	250	263	Y	Y	13	20	9,150	9,400	9,680	920	948	970	1.3	1.3	1.3	2.8	2.8	2.6	Y		195	35,140
6	Tweed	691	732	782	175	229	199	140	150	200	210	Y	Y	17	25	6,040	6,200	6,310	691	732	782	0.5	1.5	1.0	0.6	1.7	1.1	Y		263	30,760
7	Port Macquarie-Hastings	704	736	769	145	160	170	111	116	155	158	Y	Y	12	6	4,650	3,530	3,620	704	736	769	0.7	2.6	1.3	0.6	2.9	1.5	Y	127	282	27,830
9	Wagga Wagga	434	434	454	188	191	195	200	200	175	180	Y	Y	32	15	3,500	3,730	3,760	434	434	454	-0.3	-0.5	0.5	0.5	0.3	1.3	Y	89	214	27,180
10	Coffs Harbour	783	806	806	199	267	199	206	209	163	166	Y	Y	21		9,260	9,940	9,690	783	806	806	-0.4	-0.4	-0.8	0.1	0.5	0.1	Y		310	23,710
11	Albury City	561	639	703	205	210	212	283	292	166	175	Y	Y	25	28	4,160	4,000	4,070	561	639	703	2.2	3.9	4.0	2.6	4.2	4.1	Y		185	23,970
13	Tamworth Regional	738	758	777	152	192	160	115	118	172	176	Y	Y	24	53	1,880	1,930	1,960	738	758	777	0.9	1.6	2.4	1.8	2.5	3.2	Y	10	265	19,680
15	Eurobodalla	844	865	886	296	324	260	170	175	136	140	Y	Y	13	12	9,830	10,080	10,250	844	865	886	0.7	0.6	1.3	1.1	1.0	1.7	Y		193	18,050
17	Queanbeyan	414	470	533	205	172	177	94	107	204	232	Y	Y	18	16	1,330	1,390	1,390	414	470	533	-1.0	3.6	2.4	-2.2	2.6	1.3	Y		213	17,280
19	Orange	384	423	452	137	163	172	202	216	202	216	Y	Y	24	27	4,500	4,600	4,640	384	423	452	2.2	2.7	3.7	1.2	1.7	2.7	Y		237	16,550
18	Dubbo	652	690	712	204	200	205	198	204	165	183	Y	Y	3	36	5,340	5,450	5,490	652	690	712	2.3	3.4	4.4	1.8	2.7	3.9	Y		170	16,420
16	Wingecarribee	711	739	756	151	237	133	130	133	165	182	Y	Y	15	17	8,030	8,250	8,330	711	739	756	0.8	0.6	2.4	1.4	1.1	3.0	Y		331	15,730
14	Clarence Valley	907	988	1076	232	287	238	299	326	260	260	Y	Y	17	11	7,480	7,670	7,810	907	988	1076	-0.3	0.6	0.9	1.1	2.3	2.5	Y		194	14,710
21	Bathurst Regional	456	479	503	137	139	168	135	145	210	230	Y	Y	35	46	4,820	4,970	5,260	456	479	503	1.1	2.2	3.0	0.7	1.8	2.7	Y		259	15,870
24	Ballina	734	807	864	201	306	169	205	219	163	167	Y	Y	19		7,470	7,700	4,880	734	807	864	-0.2	-0.2	0.5	0.6	1.4	2.7	Y	161	383	14,110
22	Lismore	738	772	808	128	159	145			103	106	Y	Y	21	21	8,310	10,330	10,810	738	772	808	1.0	0.3	0.6	0.5	0.2	0.5	Y		313	12,790
23	Bega Valley	1081	1109	1136	455	425	402	369	378	100	100	Y	Y	10	24	10,500	11,070	11,260	1081	1109	1136	-0.7	-0.1	0.3	-0.2	0.4	0.7	Y		184	12,180
27	Byron*	758	780	802	171	217	234	231	236	220	220	Y	Y	26	33	12,580	18,810	13,150	1060	1093	1121	-1.5	1.3	1.6	1.2	3.9	4.0	Y	1	291	10,660
26	Essential Energy	497	511	518	234	225	238	122	124	196	199	Y	Y	21	40				497	511	518							Y*	18	140	9,720
20	Goulburn Mulwaree	699	724	749	215	211	183	283	292	250	259	Y	Y	30	28	3,930	4,470	4,470	699	724	749	5.6	5.6	6.2	5.8	5.6	6.2	Y		180	10,740
25	Kempsey	736	791	850	216	275	241	192	206	192	206	Y	Y	24	19	7,630	7,840	7,970	736	791	850	-1.2	-1.1	-0.2	-0.6	-0.4	0.4	Y	93	233	9,780
	Medians (% of LWUs basis) for >10,000 Properties	*708*	*738*	*771*	*200*	*214*	*197*	*23 out of 24 have non-res sewer usage charges*		*181*		*24 out of 24 have trade waste charges*				*6,040*	*6,200*	*5,490*	*708*	*738*	*771*	*0.7*	*1.3*	*1.3*	*0.7*	*1.7*	*2.5*	*0 LWUs did not achieve FCR*		*235*	
	LWUs with 3,001 - 10,000 Properties																														
29	Armidale Dumaresq	379	379	379	164	124	87			145	145	Y	Y	34	23	4,870	4,870	5,070	379	379	379	0.5	2.1	3.1	-0.1	1.8	2.6	Y		262	8,490
31	Lithgow*	836	836	878	155	222	198	155	163	160	170	Y	Y	7		1,790	2,160	2,160	836	836	878	1.8	1.8	0.6	3.5	1.7	1.8	Y		286	7,490
30A	Hawkesbury	584	602	666	238	204	182			123	131	Y	Y	30	30	8,250	8,460	8,610	584	602	666	-0.1	-0.2	-0.3	-0.2	-0.4	-0.3	Y*	167	310	7,660
30	Griffith	729	750	774	199	209	196	144	148	119	122	Y	Y	22	14	3,100	3,620	4,130	729	750	774	0.6	0.3	0.4	1.6	1.3	1.4	Y		301	7,050
33	Richmond Valley	870	896	918	220	230	217	197	202	157	162	Y	Y	17		8,000	8,000	8,000	870	896	918	1.6	0.9	1.5	2.9	2.5	2.4	Y		274	6,640
32	Mid Western Regional	651	697	739	198	258	222	223	236					17	24	3,650	3,770	3,860	651	697	739	2.8	1.1	1.5	3.3	1.8	2.1	Y		166	7,350
34	Nambucca	588	580	612	178	214	163	330	331	174	177	Y	Y	26	7	9,090	9,340	9,490	588	580	612	-1.5	0.0	0.7	-1.1	0.4	1.2	Y		258	5,720
35	Singleton	468	480	495	142	161	150	161	166	148	152	Y	Y	22	7	3,060	3,140	3,230	468	480	495	8.6	5.6	4.8	5.3	2.9	2.2	Y		198	5,700
37	Inverell	440	454	476	106	111	151							9	10	3,510	3,610	3,670	440	454	476	1.1	1.3	0.7	0.5	0.6	0.8	Y		202	4,570
41	Muswellbrook	568	581	595	212	233	224	191	201	128	131	Y	Y	14		6,850	7,030	7,190	568	581	595	11.9	6.0	2.2	10.7	5.0	1.4	Y		168	5,730
36	Parkes	412	424	436	127	149	183	120	125	180	185	Y	Y	32	12	4,100	3,250	3,450	412	424	436	5.2	3.2	3.8	3.1	1.4	2.7	Y		165	5,070
42	Corowa	625	668	685	249	230	249	128	131	166	170	Y	Y	14	17	2,010	2,000	2,000	625	668	685	2.0	2.8	2.8	2.5	3.3	3.6	Y		170	5,190

APPENDIX F - Sewerage - residential charges & bills, cost recovery

	WATER UTILITY	RESIDENTIAL CHARGES						NON-RESIDENTIAL CHARGES										Typical Residential Bill			COST RECOVERY								
		Fixed Charge ($) (or Minimum)			Operating Cost (OMA)			Non-Res Sewer Usage Charge		Liquid Trade Waste Charges				Non-Res & Trade Waste		Typical Developer Charge					Return on Assets			Economic Real Rate of Return (Sewerage)			Full Cost Recovery?	Recycled Water Usage Charge	Sewage Collected	Connected Properties
		($)			(c/kL)			(Not including SDF)		Usage Charge		Appropriate TW Charges ?		Charges (% of Annual Charges) (5)	Volume (% of sge collected) (6)	($/Equivalent Tenement [ET])			($/assessment)			(%)			(%)			(FCR) (Y/Y*/N)	(c/kL)	(kL/prop)	(No.)
		(1) **P4.1**			(2)			(c/kL) (3a)		(c/kL) (3b)		(4)				(7)			(8) **P6**			(9)			(11) **F18**			(11a)	(11b)	(11c) **W19**	(12) **C8**
		13/14	14/15	15/16	12/13	13/14	14/15	14/15	15/16	14/15	15/16	14/15	15/16	14/15	14/15	13/14	14/15	15/16	13/14	14/15	15/16	12/13	13/14	14/15	12/13	13/14	14/15	14/15	14/15	14/15	14/15
38	Moree Plains	565	630	650	184	137	126	116	120	168	200	Y	Y	34	15	4,670	4,700	4,780	565	630	650	0.4	0.2	4.0	0.3	0.3	4.1	Y	14	352	3,950
44	Gunnedah	456	492	505	111	133	150	152	156	146	150	Y	Y	26	25	6,810	7,050	7,230	456	492	505	3.2	3.5	5.8	2.3	2.7	4.9	Y		190	3,970
46	Narrabri	615	677	697	184	223	226			200	200	Y	Y	18	33	5,080	5,210	5,280	615	677	697	5.5	1.5	0.5	4.6	1.0	0.0	Y		191	3,960
43	Tumut	620	635	651	218	206	303	185	190			Y	Y	26		5,000	5,130	5,260	620	635	651	2.0	2.1	0.0	1.6	1.5	-0.2	Y		208	4,230
49	Young	720	720	720	97	229	229			156	156	Y	Y	21	28	1,280	1,350	4,070	720	720	720	5.1	1.3	1.4	5.3	2.9	2.7	Y		144	3,810
39	Cowra	781	781	804	222	262	284	73	75	159	161	Y	Y	22		5,360	5,360	5,520	781	781	804	1.3	1.5	1.5	3.5	3.1	***3.1***	Y		156	3,550
45	Upper Hunter	454	477	501	170	185	216	92	96			Y	Y	19	8	2,300	1,540	1,580	454	477	501	1.9	-1.0	1.0	0.9	-1.9	0.2	Y		210	4,290
52	Snowy River	840	900	930	315	421	339	308	315	175	180	Y	Y	35	34	5,400	5,160	7,420	840	900	930	0.1	1.2	2.5	0.0	1.4	2.6	Y		106	4,870
51	Forbes	466	644	660	285	219	225	147	153	67	70	Y	Y	22	35	3,980	4,080	4,170	466	644	660	-1.6	0.9	1.0	-1.8	0.8	0.9	Y		207	3,200
50	Cooma-Monaro	781	820	861	255	311	224			170	170	Y	Y	15		7,000	7,170	7,210	781	820	861	1.1	1.4	2.4	0.6	1.0	2.0	Y		238	3,290
53	Berrigan	464	477	501	214	170	161							9	10	1,800	1,850	2,100	464	477	501	-2.0	1.9	1.3	-2.9	0.8	0.4	Y	26	194	3,580
48	Leeton	480	492	519	162	231	187	80	87	177	183	Y	Y	32	17	5,000	5,100	5,100	480	492	519	1.0	0.4	0.2	-0.5	-0.7	-0.6	Y		249	3,330
54	Deniliquin	750	770	789	246	236	246	130	135	166	170	Y	Y	16	7	4,700	4,650	4,500	750	770	789	5.5	4.7	2.0	5.3	5.0	2.1	Y		174	3,250
Medians (% of LWUs basis) for 3,000 to 10,000 Properties		*602*	*640*	*656*	*191*	*221*	*217*	*18 out of 24 have non-res sewer usage charges*		*170*		*21 out of 24 have trade waste charges*				*4,685*	*4,675*	*4,640*	*602*	*640*	*656*	*1.7*	*1.5*	*1.5*	*2.0*	*1.5*	*2.1*	*0 LWUs did not achieve FCR*		*200*	
LWUs with 1,501 - 3,000 Properties																															
47	Bellingen	725	842	882	241	313	264	94	97	140	142	Y	Y	6	10	4,790	4,680	4,810	725	842	882	0.0	0.9	0.9	-0.4	0.3	***0.3***	Y		250	3,050
60	Glen Innes Severn	434	450	473	120	129	151	98	103	162	169	Y	Y	6	10	2,850	2,930	3,000	434	450	473	1.3	1.7	1.8	1.5	1.9	1.8	Y		191	2,760
58	Cootamundra	376	388	398	114	136	130	211	222	140	200	Y	Y	25	15	4,030	4,260	4,370	376	388	398	1.3	1.3	1.4	1.3	1.3	1.4	Y		176	2,820
57	Wellington	574	587	611	199	203	193	84	87	151	157	Y	Y	24	10	1,910	1,650	1,650	574	587	611	-1.3	-1.2	0.8	-0.6	-0.4	1.5	Y		209	2,650
91	Cabonne	465	475	487	305	361	471	120	120	160	160	Y	Y	17		5,300	6,280	6,350	465	475	487	-0.5	-0.5	-1.0	-0.6	-0.7	-1.2	Y*		154	1,930
80	Greater Hume	445	489	504	177	185	226	132	136	160	160	Y	Y	26	15	3,000	4,020	4,140	445	489	504	-0.4	0.4	0.5	-0.6	0.1	0.3	Y	60	155	2,620
59	Lachlan	440	458	545	190	199	205	120	125	140	145	Y	Y	4		7,750	7,750	7,750	440	458	545	-0.7	-0.7	-1.7	-2.2	-2.1	-2.6	Y*		220	2,200
65	Murray	381	389	397	143	157	182	53	54	166	169	Y	Y	30	36	1,160	1,190	1,210	381	389	397	2.2	2.6	2.5	1.6	2.0	1.9	Y		182	3,140
62	Narromine	534	548	565	122	298	257	200	205	200	205	Y	Y	22		4,110	3,670	3,820	534	548	565	0.8	1.3	0.4	0.3	0.7	-0.2	Y		185	1,960
56	Yass Valley	580	595	620	240	220	226	225	230	160	170	Y	Y		23	5,650	5,790	5,940	580	595	620	1.4	1.7	3.2	1.0	0.0	2.9	Y		192	2,470
61	Liverpool Plains	490	504	516	170	171	242	170	174	300	300	Y	Y	14	28	2,860	2,910	2,960	490	504	516	2.0	2.2	1.9	1.4	1.8	1.2	Y		132	2,020
55	Warrumbungle	445	458	469	211	358	309	77	79	160	160			22	29	1,280	1,300	1,320	445	458	469	0.4	0.0	-0.3	-0.3	-1.1	-1.0	Y*		140	2,540
69	Temora	296	311	326	155	147	119	34	36					22	17				296	311	326	0.3	0.1	1.7	0.0	0.0	1.5	Y	80	151	2,160
71	Palerang	922	946	982	282	260	290	269	279	200	250	Y	Y	5		10,800	11,200	11,610	922	946	982	0.3	0.6	1.6	1.1	1.7	2.5	Y	150	177	2,110
72	Bland	614	669	685	184	183	184	22	35	85	156	Y	Y	4		1,760	2,120	2,120	614	669	685	2.2	2.7	3.4	2.1	2.6	3.3	Y		195	1,840
63	Narrandera	505	505	518	256	224	248	120	123					20		1,300	650	1,000	505	505	518	3.9	2.8	1.7	3.4	2.1	1.2	Y	20	175	1,710
67	Cobar	310	320	330	76	118	103	175	180	170	175	Y	Y	11	7	920	920	950	310	320	330	-0.6	-1.3	-1.1	-0.6	-1.7	-1.5	Y*	35	250	1,740
74	Wentworth	690	705	720	22	23	25			165	173	Y	Y	10		5,670	6,250	6,560	690	705	720	3.7	2.4	2.7	3.7	2.1	2.4	Y		1,306	1,630
75	Coonamble	440	465	479	143	132	103	85	88					18	11				440	465	479	0.4	0.5	1.0	-1.0	-0.3	0.1	Y		236	1,190
70	Kyogle	625	643	662	202	284	225	100	103	100	103	Y	Y	18	20	1,900	2,130	2,340	625	643	662	-0.2	0.1	-0.1	0.1	0.4	0.2	Y		248	1,710
77	Junee	378	365	365	124	125	112							13	13	1,650	1,300	1,350	378	365	365	0.4	-0.1	0.3	-0.2	-0.8	-0.2	Y	50	231	1,640
78	Blayney	496	529	545	235	248	229	115	115	155	160	Y	Y	10	10	3,270	3,850	3,950	496	529	545	0.2	1.8	0.4	-0.3	1.2	-0.2	Y		159	1,940
79	Walgett	430	443	454	96	107	92							11					430	443	454	1.7	2.4	4.5	1.6	2.4	3.5	Y		179	1,620
68	Tenterfield	826	851	877	303	299	327	104	107	145	149	Y	Y	21	7	6,500	6,000	6,600	826	851	877	0.1	0.8	0.6	0.9	1.5	1.2	Y		168	1,710
Medians (% of LWUs basis) for 1,500 to 3,000 Properties		*478*	*497*	*517*	*181*	*192*	*215*	*21 out of 24 have non-res sewer usage charges*		*160*		*18 out of 24 have trade waste charges*				*3,000*	*3,670*	*3,820*	*478*	*497*	*517*	*0.4*	*0.9*	*0.9*	*0.2*	*0.6*	*1.2*	*0 LWUs did not achieve FCR*		*184*	

APPENDIX F - Sewerage - residential charges & bills, cost recovery

	WATER UTILITY	RESIDENTIAL CHARGES						NON-RESIDENTIAL CHARGES										Typical Residential Bill			COST RECOVERY									
		Fixed Charge ($) (or Minimum)			Operating Cost (OMA)			Non-Res Sewer Usage Charge		Liquid Trade Waste Charges				Non-Res & Trade Waste		Typical Developer Charge					Return on Assets			Economic Real Rate of Return (Sewerage)			Full Cost Recovery?	Recycled Water Usage Charge	Sewage Collected	Connected Properties
		($)			(c/kL)			(Not including SDF)		Usage Charge		Appropriate TW Charges ?		Charges (% of Annual Charges) (5)	Volume (% of sge collected) (6)	($/Equivalent Tenement [ET])			($/assessment)			(%)			(%)			(FCR) (Y/Y*/N)	(c/kL)	(kL/prop)	(No.)
		(1) P4.1			(2)			(c/kL) (3a)		(c/kL) (3b)		(4)				(7)			(8) P6			(9)			(11) F18			(11a)	(11b)	(11c) W19	(12) C8
		13/14	14/15	15/16	12/13	13/14	14/15	14/15	15/16	14/15	15/16	14/15	15/16	14/15	14/15	13/14	14/15	15/16	13/14	14/15	15/16	12/13	13/14	14/15	12/13	13/14	14/15	14/15	14/15	14/15	14/15
	LWUs with 200 - 1,500 Properties																														
84	Gilgandra	515	557	602	142	176	189	136	150	215	168	Y	Y	23	19				515	557	602	-1.5	0.8	-0.2	-1.6	0.6	-0.5	Y*		192	1,240
73	Upper Lachlan	705	737	752	94	116	134	256	269					18	6	3,900	3,970	4,050	705	737	752	1.4	2.5	1.5	1.1	1.9	1.0	Y		355	1,530
87	Bourke	618	632	673	189	252	276			177	177	Y	Y	11	3	930	930	930	618	632	673	3.0	2.0	1.1	1.9	1.1	0.3	Y		165	1,210
86	Hay	634	649	664	182	205	219	108	110					15	4				634	649	664	2.0	1.3	1.5	1.5	0.9	1.1	Y		220	1,280
83	Oberon	446	513	590	225	218	141	195	225					41	5	1,660	1,710	1,770	446	513	590	-0.1	-0.9	2.0	-0.5	-1.3	1.7	Y		284	1,250
81	Gwydir	500	500	500	90	104	149	245	245	130	130	Y	Y	31	14	2,000	2,000	2,000	500	500	500	-15.2	7.0	3.4	-16.4	5.7	2.9	Y	12	217	1,150
85	Uralla	495	520	540	257	341	311	100	105	120	125	Y	Y	4	5	490	510	530	495	520	540	1.0	-0.7	0.3	-0.6	-1.4	-0.4	Y		117	1,120
95	Weddin	356	427	512	101	146	190							4	8	3,040	3,730	3,730	356	427	512	1.2	1.9	2.0	1.0	1.8	1.9	Y		176	940
89	Bogan	540	540	540	45	221	243	196	196	157	161	Y	Y	43	51				540	540	540	3.7	3.4	4.7	2.8	2.5	3.7	Y		188	960
76	Harden	600	614	629	49	50	83	215	220	215	220	Y	Y	18		824	830	890	600	614	629	2.6	2.2	-0.8	1.8	1.5	-1.2	Y		623	940
88	Wakool	561	578	595	122	106	103							21	9	2,810	2,810	2,810	561	578	595	-0.7	0.2	0.5	-1.3	-0.3	0.1	Y		339	1,010
93	Tumbarumba	541	579	620	143	160	246	119	119	135	135	Y	Y	20	33	430	430	430	541	579	620	0.9	2.0	1.1	0.0	1.1	1.0	Y		132	1,000
94	Gundagai	544	612	660	291	153	181	262	262	316	316	Y	Y	38		600	600	600	544	612	660	2.3	3.1	3.1	2.1	2.8	***2.8***	Y		282	830
92	Carrathool	375	405	425	194	89	151									680	680	710	375	405	425	-1.6	0.6	0.6	-1.6	0.6	0.9	Y		122	830
96	Warren	485	485	500	217	243	227	180	180	177	178	Y	Y	23	10				485	485	500	-1.0	-1.6	-1.8	-3.5	-3.6	-3.4	N		215	820
99	Coolamon	360	380	410	275	303	263								4	4,500	4,500	4,500	360	380	410	0.1	-0.3	0.6	-0.4	-0.7	0.2	Y	23	103	1,020
102	Lockhart	475	490	490	202	228	150	191	191	75	75	Y	Y			1,250	1,290	1,320	475	490	490	0.0	0.4	1.5	-0.9	-0.2	1.0	Y	62	141	880
98	Walcha	425	440	460	198	220	190	99	97	150	150	Y	Y	21					425	440	460	2.1	1.8	1.4	1.2	0.9	0.6	Y		191	800
100	Balranald	269	269	269	85	127	125	15	15	130	130	Y	Y			630	630	630	269	269	269	-0.1	-1.0	-2.2	-0.9	-1.8	-2.3	N		216	850
97	Bombala	543	562	646	144	149	166	22	22	22	22	Y	Y	20		2,270	2,330	2,400	543	562	646	-0.9	-0.8	-1.0	-1.4	-1.3	-1.5	Y*		225	770
101	Murrumbidgee	300	309	375	110	130	128									1,000	1,000	1,000	300	309	375	-0.5	-0.5	-0.5	-1.2	-1.3	-1.1	Y*		182	790
90	Guyra	561	580	596	212	186	187					Y	Y	13	7	1,500	1,540	1,580	561	580	596	-0.2	0.0	0.2	-0.2	0.1	0.2	Y	11	178	1,200
104	Boorowa	563	620	640	168	173	218					Y	Y	10	9	520	530	530	563	620	640	0.6	0.3	0.5	-0.3	-0.3	-0.2	Y		192	660
105	Brewarrina	734	756	774	124	145	154							10	14				734	756	774	4.5	-0.1	0.2	4.4	6.0	0.1	Y		379	480
106	Jerilderie	480	480	480	206	222	234	75	75	162	169	Y	Y	32		930	930	930	480	480	480	2.6	1.3	0.7	0.0	-0.9	-1.1	Y		179	430
103	Central Darling	385	390	488	597	211	93					Y	Y			400	400	400	385	390	488	-1.7	1.4	4.0	-1.7	2.0	6.6	Y		216	370
107	Urana	350	385	485	132	127	181									4,100	4,100	4,100	350	385	485	-0.2	0.2	-0.4	-0.4	0.0	-0.6	Y*		281	320
	Medians (% of LWUs basis) for 200 to 1,500 Properties	*500*	*520*	*540*	*168*	*173*	*181*	*16 out of 27 have non-res sewer usage charges*		*156*		*17 out of 27 have trade waste charges*				*1,000*	*1,000*	*1,000*	*500*	*520*	*540*	*0.1*	*0.6*	*0.6*	*-0.4*	*0.6*	*0.2*	*2 LWUs did not achieve FCR*		*192*	
	Median All LWUs (% of LWUs basis)	*Access Charge*		*$611*	*OMA (c/kL)*		*200*	*Non-Res Usage Charge*	*$150*							*Developer Charge*		*$4100*	*TRB*		*$600*	*ROA*		*1.3%*	*ERRR*		*1.2%*	*97 LWUs had 'FCR' (88 'Y', 9 Y*)*			
	Median All LWUs (Statewide basis)			***$697***			***193***	***$150***										***$5100***			***$697***			***1.3%***			***1.7%***	*2 LWUs did not achieve FCR*			
	79 out of 99 LWUs have non-residential usage charges and 80 out of 99 have appropriate trade waste charges																														

NOTES: 1. 79 LWUs have non-residential sewerage charges which substantially meet the requirements of the Best-Practice Management Guidelines (Appendix C, page 84) and 80 LWUs have appropriate trade waste fees and charges.

2. **The charges, bills and costs** shown for each financial year are those applicable at that time and involve no CPI adjustment.
3. **Full Cost Recovery for sewerage** has been achieved by 97 utilities. These comprised 87 utilities which had either an Economic Real Rate of Return or Return on Assets of >=0 for the 2014/15 financial year, shown as 'Y" in col (11a). In addition they include 10 utilities which have significantly increased their 2015/16 charges in order to recover all their costs which are shown as "Y*". A total of 2 LWUs did not achieve full cost recovery. These are shown as "N".
4. Byron also has a residential sewer usage charge of 177c/kL. Lithgow removed its sewer usage charge in 2013/14.

APPENDIX G – Data validation processes for the NSW performance monitoring system

G1 Introduction

The NSW Performance Monitoring System (page 1) is a **'one stop shop'** that minimises red tape, avoids duplication in reporting, and enables DPI Water to annually provide the required local water utility (LWU) data to the Australian Bureau of Meteorology (BOM) - for the annual National Performance Report for Urban Water Utilities (www.bom.gov.au) and the Australian Bureau of Statistics.

A prime objective of the NSW Performance Monitoring System is to reliably determine the statewide performance of the regional NSW local water utilities. This requires analysis of statewide medians and totals for key performance indicators in order to reveal historical trends and enable interstate performance comparisons[26]. A further objective is to publish performance data which is accurate and which is not misleading, both for individual LWUs and for statewide indicators. The achievement of these objectives is contingent on obtaining a full and accurate data set. To this end, DPI Water annually critically reviews all reported data to identify any anomalies or inconsistencies and undertakes actions where appropriate to validate and/or correct such anomalous data. In addition, in order to obtain a fully representative data set for six of the more critical performance indicators, DPI Water adopts the previous year's reported data for those few LWUs that omitted to report such data for the current year. Such data is shown in italics bold in Appendices C, D, E and F (section G3 on page 96).

In addition to the extensive independent auditing of the reported NSW data (page xi and footnote 27 on page 97), this appendix outlines the data validation processes undertaken by DPI Water to identify and address apparent anomalies in the reported data and to develop a full data set, which assures ongoing data reliability for the NSW Performance Monitoring System.

DPI Water is responsible for managing implementation of Goal 21 of the State Plan, NSW 2021 for regional NSW, the NSW Government's *Country Towns Water Supply and Sewerage (CTWSS) Program* (www.water.nsw.gov.au), which is a major reform program and the Regional Water and Waste Water Backlog (RWWWB) program. DPI Water oversees and monitors utility performance, provides leadership, guidance, software and training (page 15) to the utilities and is the primary regulator for the 105 regional LWUs.

G2 Anomalous data

The quality and consistency of data reported by LWUs in the NSW Performance Monitoring Database varies significantly. To assist LWUs in reporting their data, the database includes a facility that screens the data and provides an alert to notify the user where data is inconsistent, out of range or incomplete. Most LWUs accurately report their performance data. However, review by DPI Water of the full data set from all LWUs consistently reveals a small but significant percentage of anomalous data. This may arise due to misinterpretation of an indicator definition, errors in data handling (input or misreading), inconsistencies in the data stream, or errors/omissions in the data itself.

Data that is inconsistent or anomalous includes:

- **Incomplete data** - data that is not reported or left blank in the current year's reported data.
- **Inconsistent data** - reported data that is inconsistent with historic values or out of expected range.
- **Errors in data** - reported data that is in error (eg text instead of numerals, percentage greater than 100, data where the summation does not agree etc).
- **Unsubstantiated data** - reported data that is out of expected range with no substantiating evidence (eg leakage less than 6% of the total water supplied or a reported number of assessments which differs significantly from historical trends or from that reported in the utility's annual financial statements).

[26] Refer to page 17 and Appendix A on page 69. Such performance comparisons may provide valuable insights on opportunities for continuing to improve performance and to provide better value for money to residents.

- **Data that conflicts with data from other sources** - reported data that differs significantly from data available elsewhere (eg drinking water quality compliance results from NSW Health, data from the LWU's annual financial statements, IWCM strategies etc.).

Anomalous data must be reviewed and either validated or rejected. The procedures undertaken by DPI Water to validate data are outlined in the following sections.

G3 Validation of data

DPI Water undertakes various broad screening procedures as well as intensive manual and computerised validation procedures. The criteria used in the validation process for the more critical indicators are shown in section G4 on page 99. Following screening and validation, DPI Water reviews all anomalous reported values and anomalies are either:

- referred to the LWU for confirmation
- adjusted where relevant data from other sources is available
- rejected and left as blank, or
- adjusted where the reported value is unsubstantiated or does not meet adopted criteria.

In addition, in order to enable reporting of statewide totals and medians for six of the more critical indicators (total urban water supplied, operating cost, management cost, current replacement cost, total volume of sewage collected and volume of effluent recycled), where a LWU has not reported current data, the data reported for the previous year has been adopted and is shown in italics bold in Appendices C, D, E and F of this report and Tables 3 to 18 of the *2014-15 NSW Water Supply and Sewerage Benchmarking Report*.

It is noted that the 105 NSW LWUs each report more than 180 water supply indicators and a similar number of sewerage indicators together with their financial indicators (from the LWUs' annual financial statements). Of these indicators, approximately 50 for each of water supply and sewerage are key indicators, which are shown on each LWU's annual TBL performance report (pages 80 and 81). Of these 50 key indicators, 20 are considered to be critical indicators to determine a LWU's performance and the criteria for validating these critical indicators are described in section G4 on page 97.

Screening and validation procedures identify the more significant anomalies, and anomalies occurring in key indicators will be followed up with the LWU. However, there may be instances where an error is not identified. To allow for this, DPI Water also provides a draft copy of tables of performance indicators to each LWU for its review prior to finalisation of the annual report.

DPI Water procedures for validation and adjustment of selected data are detailed below.

Incomplete data - Where a LWU has not reported data, the validation process is as follows:

- For critical indicators, refer to the criteria outlined in section G4.
- For other key indicators, DPI Water will contact the LWU to obtain such data, unless the reported value can be adjusted in accordance with data obtained from an alternative source.
- For less significant indicators, the field will be left blank.

Inconsistent data - Where the reported value is inconsistent with historic values, out of expected range or otherwise inconsistent, the validation process is as follows:

- For critical indicators, refer to the criteria outlined in section G4.
- For other key indicators, DPI Water will contact the LWU to review the reported data, unless the reported value can be adjusted in accordance with data from an alternative source.
- For less significant indicators, the reported value will be deleted and the field left blank.

Errors in data - Where a reported value is obviously in error (eg numbers reported as text, values reported as $M instead of $'000 etc.), DPI Water will correct the error. Where there is some doubt, if it is a key indicator the LWU will be requested to review the reported value, otherwise it will be deleted and the field left blank.

Unsubstantiated data - Where the reported value is out of the expected range and is unsubstantiated, the validation process is as follows:

- For critical indicators, refer to the criteria outlined in section G4.

- For other key indicators, DPI Water will contact the LWU to review the reported data, unless the reported value can be adjusted in accordance with data from an alternative source.
- For less significant indicators, the reported value will be deleted and the field left blank.

Data that conflicts with data from other sources - Where reported data conflicts with data obtained from alternative sources (eg the utility's strategic business plan or IWCM strategy, NSW Health, Environment Protection Authority, Special Schedules etc.) DPI Water will review the data and will either adjust the data to agree with the alternative source or request confirmation of the data from the LWU.

Audited data - The NWI requires an independent audit to be undertaken every 3 years[27] of the water supply and sewerage performance reporting for those LWUs with over 10,000 connected properties. DPI Water approves each LWU's proposed auditor, after confirming that the auditor has met the NWI auditing requirements and reviews the audit findings for the non-financial data and requests confirmation or follow up by the LWU's auditor for indicators that fail the audit.

Financial data – DPI Water reviews the financial data and any omissions or inconsistencies are referred to the LWU for confirmation. Independent audits are conducted annually for all of the 30 NWI financial performance indicators, which are reported in Notes 2 and 3 of the special purpose financial statements to each LWU's annual financial statements.

LWUs are required to annually report the fair value[28] and the current replacement cost depreciation of their water supply and sewerage assets in their audited annual financial statements

G4 Criteria for adjustment of critical indicators

DPI Water takes care to ensure that the critical indicators are consistent and accurate. The criteria adopted by DPI Water to review and where necessary adjust anomalous data for critical indicators are outlined on pages 97 to 100.

G4.1 Aggregated businesses

The performance indicators in the NSW Performance Monitoring System are determined for each LWU's aggregated water supply or sewerage businesses rather than for individual water supply or sewerage systems. This is done to align with national performance reporting and to facilitate comparisons. In addition, detailed data showing the performance of each of the 535 LWU water and sewerage treatment works is published in Appendices D1 and D2 of the annual *NSW Water Supply and Sewerage Benchmarking Report* (www.water.nsw.gov.au). Refer also to section G4.6 on page 99.

G4.2 Connected properties

Performance indicators are determined on a 'per connected property' basis for consistency with the National Performance Framework. A connected property is one that is connected to the water supply or sewerage system, as opposed to an assessment, which is a bill issued by a water utility.

Determination of number of assessments – The number of assessments is determined by a review of the data reported by the LWU in the NSW Performance Monitoring Database and the number of assessments reported by the LWU in its annual financial statements (Special Schedule Nos 3 and 5) together with the historic data. The number of assessments adopted must be consistent with historic data.

Calculation of connected properties – The number of connected properties is calculated as the product of the number of assessments times the ratio of the number of connected properties per assessment for each of water supply and sewerage (Tables 9 and 14 of the *NSW Benchmarking Report*). DPI Water has worked with LWUs to establish these ratios, which do not change significantly from year to year.

[27] Independent audits of the auditable indicators in the *National Performance Framework 2013-14* for the 29 LWUs required to report nationally were undertaken in 2006-07, 2009-10 and 2012-13. Indicators which met the rigorous national auditing requirements have been published in the *National Performance Report 2014-15*. These LWUs serve 74% of the connected properties in regional NSW. In addition the reported values for the 30 NWI financial performance indicators have been independently audited annually since 2006-07 for all of the LWUs.

[28] In accordance with the Australian Accounting Standards Board's AASB116 Property Plant and Equipment. The *NSW Reference Rates Manual for Valuation of Water Supply, Sewerage and Stormwater Assets*, NSW Office of Water 2014 provides current unit rates and guidance on the valuation and depreciation of such assets. Available at www.water.nsw.gov.au.

G4.3 Charges and bills

Charges – water supply and sewerage charges (access charges and usage charges) are shown in Appendices E and F on pages 89 and 92 for a LWU's principal water supply or sewerage system (charges are also shown for the non-potable supply component in dual supply systems). LWUs with multiple residential tariffs (ie those with different charges for separate water supply or sewerage systems) are shown in Tables 6A and 7A of the *NSW Benchmarking Report*. The charges shown in Appendices E and F include the charges for the current reporting year (2014-15) and also for the forthcoming year (2015-16) and are obtained by DPI Water from each LWU's website.

Typical residential bill (TRB) – the TRB is calculated for each LWU's principal water supply system. The TRB is calculated from the utility's average annual volume of residential water supplied per connected property multiplied by the usage charge and added to the access charge. If the LWU has a dual supply system, the above calculation is repeated to obtain the non-potable water component, which is added to the potable component to obtain the total TRB. Refer also to note 4 on page 30.

The current TRB is calculated from the current charges and the current residential water supplied. The TRB for the forthcoming reporting year is estimated from the forthcoming year's charges applied to the current residential water supplied. In the following year, the TRB will be recalculated using the actual volume of residential water supplied in that year. Therefore the current TRB shown in column 8 of Appendix E may differ from the corresponding TRB shown in the previous year's reports.

G4.4 Urban water supplied

Total potable urban water supplied – Where a LWU has not reported its total potable urban water supplied, the data reported for the previous year has been adopted (shown in italics bold in the tables).

Residential water supplied – Where a LWU has reported residential water use but not commercial or industrial use, the reported residential use has been reduced and a commercial component has been included. Similarly, where a LWU has not reported residential water use, a residential component has been included. The residential component in each case has been calculated on the basis of the statewide average percentage of 58% of the LWU's total potable urban water supplied (NWI Indicator W11.1).

Real Losses (mostly leakage) - Where a LWU has reported a real loss of less than 6% of the total potable urban water supplied and has not provided evidence to substantiate such a low value of leakage, the reported real loss has been increased to 6%. In this case, the total potable urban water supplied has also been increased to include the additional leakage component. These adjusted values of real losses are shown in italics bold in column 8 of Table 8 of the 2014-15 Benchmarking Report. Refer also to page 10 and note 8 on page 31.

Non Revenue Water (NRW) (real losses (mostly leakage), apparent losses (under-registration of customer meters and illegal use) plus unbilled water supplied (eg mains flushing and fire fighting)) – Where a LWU has reported NRW of less than 10% of the total potable urban water supplied (W11.1), the reported NRW has been increased to 10%, unless the LWU has provided evidence of a Real Loss of less than 6%. In such cases, the adopted value for NRW has been determined as the Real Loss plus 4%. The adjusted values of NRW and total potable urban water supplied (W11.1) are shown in italics bold in columns 9 and 10 of Table 8 of the Benchmarking Report. Refer also to note 8 on page 31.

G4.5 Efficiency

Operating Cost (OMA) – NWI indicators F11 and F13 (water supply operating cost per property and water and sewerage operating cost per property respectively) are calculated in accordance with the NWI definitions and reported accordingly in the *National Performance Report* and in Appendix F of the *NSW Benchmarking Report*.

However in this *Performance Monitoring Report* and in Tables 5 and 11 and Figures 31 to 33 of the *NSW Benchmarking Report*, where a LWU purchases water from a bulk water provider, the operating cost calculated for the LWU excludes the purchase cost of the bulk water but includes an appropriate proportion of the operating cost of the bulk water provider. The cost allocated to the LWU is calculated by multiplying the operating cost of the bulk provider by the ratio of the water purchased by the LWU to the total water supplied by the bulk provider to all customers. This is done in order to provide a 'level playing field' comparison of operating costs by not penalising reticulators through inclusion of the capital cost component of providing the bulk supply, which is included in the purchase price of the water.

Where a LWU has not reported its operating cost, the previous year's operating cost per property has been adopted (shown in italics bold in the tables).

Management Cost – Where a LWU has not reported its management cost, the previous year's management cost per property has been adopted (shown in italics bold in the tables).

G4.6 Drinking water quality compliance

Drinking Water Quality Compliance for each LWU is based on the number of samples tested as part of the *NSW Health Drinking Water Monitoring Program* supplemented with samples reported by the LWU in the *NSW Performance Monitoring Database*. A LWU has complied with the 2011 NHMRC/NRMMC Australian Drinking Water Guidelines (2011 ADWG) for microbiological water quality (ie it is shown as 'Yes' in column (9) of page 85) if the required number of samples has been tested and at least 98% of samples had no E.coli[29]. Where E. coli is detected in a microbiological sample, further investigation is needed to determine whether there is a real problem with drinking water quality in accordance with the NSW Health protocol: (www.health.nsw.gov.au/environment/water/Pages/nswhrp-microbiological.aspx).

Similarly, chemical water quality (health related[30]) is satisfactory (shown as 'Yes' in column (7) of page 85) if the required number of samples has been tested and the 95th percentile of results does not exceed the guideline value for each chemical. Non-potable supplies are excluded.

Physical (aesthetic) water quality is satisfactory if the required number of samples has been tested and the mean of results does not exceed the guideline value for each characteristic.

Where a LWU has more than one treatment works, the reported compliance has been pro-rated on the basis of the number of samples tested at each treatment works. Where a LWU has not reported the number of samples tested or the compliance of samples from a particular treatment works and no details are available from NSW Health, the percentage of complying samples for that treatment works is deemed to be zero.

As noted on page 26, annual review of your Drinking Water Management System (DWMS) is required and any corrective action needs to be included in your annual action plan to council. Refer also to Circular LWU 18 (page 8).

It is important that specialist LWU infrastructure, such as water and sewage treatment works, dams and recycling projects, is fit for purpose, robust, cost-effective and without wasteful '**gold plating**', which penalises residents with an **unwarranted increase** to their typical residential bill (**TRB**). In this regard, any LWU proposals for the construction or modification of a dam, a water or sewage treatment works or a recycling project require DPI Water approval under section 60 of the *Local Government Act, 1993* (www.water.nsw.gov.au). Similarly, acceptance of a high or medium risk trade waste discharge to a LWU sewerage system requires a DPI Water Section 90(1) concurrence (page 102).

The section 60 approval involves an independent and objective review that allows DPI Water to share its insights and expertise in overseeing the 535 LWU water and sewage treatment works and 119 LWU dams. The section 60 review provides assurance to the community that the proposed key specialist barrier works are fit for purpose and provide a robust, safe, cost-effective and soundly based solution, without wasteful 'gold plating'. These works protect public health and safety and minimise adverse environmental and social impacts. Refer also to pages 106 and 112.

In addition, under section 61 of the Local Government Act, 1993, DPI Water carries out regular inspections of the 535 LWU water and sewage treatment works and provides feedback and mentoring to the LWU operators. Refer also to pages 26, 106 and 112.

Each operator in charge of a water or sewage treatment works in regional NSW is required to have appropriate qualifications and experience (www.water.nsw.gov.au). DPI Water conducts comprehensive operator training courses for LWU water and sewage treatment works operators (www.water.nsw.gov.au

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[29] This value (98%) has been determined by NSW Health in accordance with section 10.3.1 on page 10-11 of 2011 ADWG and is the same value as applied for the 2004 ADWG.

Where a LWU has not complied with 2011 ADWG, the percentage of samples which complied is shown in columns (9) and (11) of page 85 for microbiological and chemical compliance respectively.

[30] The 2011 ADWG specify guideline limits for chemical water quality (health related). Aesthetic parameters such as aluminium, calcium, chloride, iodine, iron, magnesium, sodium, total dissolved solids (TDS) and zinc are excluded.

and urbanwater.ctw@dpi.nsw.gov.au (page 15)). The detailed performance of each of these treatment works is publicly disclosed annually in Appendices D1 and D2 of the *NSW Benchmarking Report* (www.water.nsw.gov.au). Refer also to pages 106 and 112.

Similarly, under the Aboriginal Communities Water and Sewerage Program (www.water.nsw.gov.au), DPI Water carries out regular inspections of the water and sewerage infrastructure for 60 discrete Aboriginal Communities in NSW. The 2014-15 drinking water quality results for these communities are disclosed in Appendix D3 of the *2014-15 NSW Benchmarking Report* (www.water.nsw.gov.au).

G4.7 Sewerage

Sewage Collected – Where a LWU did not report the current year's volume of sewage collected, either the previous year's value or the current year's volume of sewage treated has been adopted, whichever is the larger (shown in italics bold in the tables).

Effluent Recycled – Where a LWU has not reported a value for effluent recycled but has reported greater than 10% recycling in previous years, the percentage recycled for the current reporting year is assumed to be the same as that for the previous year (shown in italics bold in the tables).

Compliance with Licence for Prescribed Indicators – LWU Licence limits are generally 90 percentile limits. A LWU is deemed to comply with its licence for each prescribed indicator (ie compliance is 100%) if it achieves>= 90% compliance. Where there is no licence limit for a prescribed indicator, compliance is shown as 100%. Where a LWU has not reported the compliance for a sewage treatment works, compliance for that treatment works is deemed to be zero.

Sewage Treatment Works (STW) Compliance - A STW is fully compliant if it meets its licence conditions for all prescribed indicators. If any indicator that is prescribed in the licence fails to meet the licence conditions (ie BOD, Suspended Solids, Total Nitrogen, Oil and Grease, Phosphorous, Faecal Coliforms, Ammonia, pH), then the STW is deemed not to comply with its licence. Refer also to page 11.

G5 Implementation of the Best-Practice Management Framework

LWUs must implement the 19 planning, pricing and management outcomes required by the *NSW Best-Practice Management Framework* (pages xii, 21 and footnote 39 on page 106). LWUs will thus achieve appropriate, affordable, cost-effective and sustainable piped water supply and sewerage services and comply with National Competition Policy and with the *National Water Initiative*. Meeting the outcomes required by the Framework is a pre-requisite for payment of a dividend from the surplus of the water supply or sewerage businesses to the council's general revenue and for financial assistance towards the capital cost of backlog infrastructure (as at 1996) under the CTWSS Program (page 24 and page 12).

Each LWU reports its implementation of the outcomes of the *Best-Practice Management Framework* in Notes 2 and 3 of the special purpose financial statements to its annual financial statements. DPI Water assesses this reported implementation against the 19 outcomes set out in Table 1 of the *Best-Practice Management Guidelines, 2007* (10 for water supply and 9 for sewerage – refer to pages 23, xii and 105). The assessment procedure for each outcome is shown below. Where a LWU has not reported its implementation against one or more of the outcomes, DPI Water will assess the LWU's implementation from other available data (eg annual financial statements, Strategic Business Plans submitted previously and completion of performance reporting via the *NSW Performance Monitoring Database*). Otherwise, the LWU will be deemed not to have implemented that particular outcome. Each LWU's implementation results are shown in Appendix C on page 82.

A LWU's **peak planning document** for water supply and sewerage is the **later of** its **IWCM strategy and financial plan** and **SBP and financial plan** (page 21).

Strategic Business Plan and Financial Plan – The strategic business plan needs to be prepared in accordance with the July 2014 Strategic Business Plan Check List (www.water.nsw.gov.au). Guidance for LWUs is available in the *NSW Water and Sewerage Strategic Business Planning Guidelines*, NSW Office of Water, July 2011 (www.water.nsw.gov.au). Refer also to pages 105, 108 and 110.

As noted on page 4, DPI Water reviews LWU strategic business plans and financial plans in order to ensure they are soundly based. A LWU has met the required outcome if it has prepared a sound 30-year water and/or sewerage strategic business plan and financial plan in accordance with the above Check List. Such a plan must include a sound 30-year total asset management plan (TAMP) (pages 21 and 22) and demonstrate the long-term financial sustainability of the LWU's water and/or sewerage businesses and compliance with National Competition Policy. Where a LWU has a strategic business plan but the

plan is more than 4 years old, it is deemed to have provisionally met the outcome, and is shown as Yes* in Appendix C on page 82 (columns 1) and Appendix D on page 85 (column 34).

As noted on pages 4, 84 and 88, such a LWU now needs to prepare a 30-year IWCM strategy and 30-year financial plan in accordance with the July 2014 IWCM check list (www.water.nsw.gov.au).

As noted on pages 25 and 26 each LWU needs to annually 'roll forward', review and update its 30-year total asset management plan for projects completed, modified or deferred and to prepare an updated 30-year financial plan. A brief report to council should be provided on the updated financial plan, including any necessary corrective action (An example report to council is provided on page 131 of the *NSW Strategic Business Planning Guidelines*). Refer also to pages 104 and 108.

Pricing – The **11 pricing outcomes** required by the NSW Best-Practice Management Framework (page xii) are outlined below. These incorporate implementation of the NSW Framework for Regulation of Sewerage and Trade Waste[31], which includes implementation of appropriate sewerage and trade waste charges and developer charges, as well as a sound trade waste regulation policy and an approval for each trade waste discharger. As noted on pages 22, 101 and 102, the required pricing outcomes include a non-residential sewer usage charge/kL and non-compliance trade waste usage and excess mass charges. In addition, the framework for regulation of sewerage and trade waste also involves mentoring and coaching of dischargers and enforcement measures which include financial penalties and finally, disconnection of a trade waste discharger in the event of persistent failure to comply with approval conditions (pages xii and 22).

Full cost recovery – Full cost recovery (lower bound pricing) is achieved if either the economic real rate of return or the return on assets is >=0 (shown as 'Y' in column 14d of Appendix E on page 89 and column 11a of Appendix F on page 92). As noted on page 97, assets must be valued at fair value and current replacement cost depreciation must be applied.

Alternatively, if a LWU has significantly increased its charges in order to recover its costs, it is also deemed to have full cost recovery (shown as 'Y*' in column 14d of Appendix E on page 89 and column 11a of Appendix F on page 92). Refer also to pages 12 and 79 of this report and to Appendix G on page 84 of the *2010-11 NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au).

Pay-for-use-pricing – For water supply, this requires pay-for-use pricing, with the residential tariff independent of land value and no free water allowance. Refer to column 2a of Appendix C on page 82. Refer also to columns 1, 5b and 5d of Appendix E on page 89. All the NSW utilities have now met this outcome (page 5).

Residential revenue from water usage charges > 75% – In order to provide strong pricing signals to residents and encourage efficient water use, the water supply tariff for LWUs with 4,000 or more connected properties must be such that at least 75% of residential revenue is obtained through water usage charges. At least 50% of residential revenue from usage charges is required for LWUs with fewer than 4,000 properties. Where a LWU has not met the above outcome but has obtained at least 70% (or 45% for fewer than 4,000 properties) of residential revenue from usage charges, it is deemed to have provisionally met the outcome and is shown as Yes*. Refer also to page 5, page 17, column 2c of Appendix C on page 82, column 13 of Appendix E on page 89 and to column 3 of Appendix D on page 85.

Appropriate non-residential water supply charges – Appropriate water usage charge per kL and access charge relative to customer's capacity requirements. Refer to column 2d of page 82.

Residential sewerage charges – Residential tariff is independent of land value. Refer to column 2b of Appendix C on page 82.

Non-residential sewerage charges – This requires a two part tariff, with an appropriate sewer usage charge/kL and an access charge that is reflective of the peak load the customer may place on the sewerage system. Refer to column 2c of Appendix C on page 82 and column 3a of Appendix F on page 92.

[31] The NSW Framework for Regulation of Sewerage and Trade Waste is a preventative risk management approach for achieving effective and efficient use of the sewerage system, which is a common pool resource (page xii).

Liquid trade waste fees and charges – This requires appropriate trade waste fees and charges[32] to be applied to all liquid trade waste dischargers. These include non-compliance trade waste usage and excess mass charges (page xii). Refer to column 2d of Appendix C on page 82 and to column 4 of Appendix F on page 92.

A sound liquid **trade waste regulation policy** (endorsed by DPI Water) and an appropriate approval for each trade waste discharger is a further required outcome. Refer to column 2f of Appendix C on page 82. Refer also to page 22.

In view of the potential risks to sewerage infrastructure, public health and safety and the environment, from uncontrolled trade waste discharges, the acceptance of trade waste discharges to the sewerage system requires DPI Water's concurrence under section 90(1) of the *Local Government Act, 1993* (www.water.nsw.gov.au).

Developer charges – The required outcome is met if an appropriate development servicing plan (DSP) with commercial developer charges is implemented. Utilities that have commercial developer charges but have not completed a DSP are assigned provisional implementation and are shown as Yes*. In addition utilities with growth of under 5 lots/a are granted an exemption and are shown as Yes[e]. Refer to columns 2e of Appendix C on page 82. Refer also to column 7 of Appendix E on page 89 (water supply) and column 7 of Appendix F on page 92 (sewerage). Until the release of any new developer charges guidelines, the NSW utilities are authorised to continue to annually index their existing water supply and sewerage developer charges.

Complete performance report by due date – A LWU meets the required outcome if it completes its performance reporting for water and/or sewerage by the due date (currently 15 September each year) and prepares and implements a sound annual action plan to council (pages 25 and 26). Refer to column 5 of Appendix C on page 82 (water) and column 3 on page 82 (sewerage). Refer also to pages 23, 104 and 108.

Water conservation – The required outcome is met if the LWU has a water conservation and demand management plan. Refer to column 3 of Appendix C on page 82. Refer also to page 22.

Drought management – The required outcome is met if the LWU has a drought management plan. Refer to column 4 of Appendix C on page 82. Refer also to page 22.

Integrated water cycle management – As noted on page 21, a utility's IWCM strategy needs to 'right size' any necessary infrastructure projects and identify a 30-year strategy for water supply, sewerage and stormwater which provides the best value for money on the triple bottom line (TBL) basis of social, environmental and economic considerations. DPI Water reviews each LWU's IWCM strategy to ensure it is soundly based. The IWCM strategy needs to identify the best mix of capital works, non-build solutions, policies and operation and maintenance activities. Note that the 19 outcomes required by the BPM framework aid the development of such a strategy through the required sound planning, pricing and management of services. Refer also to pages 104, 108 and 110.

The required outcome is met if the LWU has commenced an integrated water cycle management (IWCM) study. Refer to column 6 of Appendix C on page 82 (water supply) and to column 4 on page 82 (sewerage). Refer also to pages 15, 23 and 24.

Following the 2014 streamlining of the NSW BPM framework (page 103), a LWU that prepares a 30-year IWCM strategy and financial plan in accordance with the July 2014 IWCM check list (www.water.nsw.gov.au – shown as Yes[s]) will meet 6 of the 19 BPM outcomes (IWCM (W, S), strategic business planning (W, S), water conservation and drought management). Refer also to pages 21, 23 and 105.

[32] Liquid Trade Waste Regulation Guidelines, 2009 (www.water.nsw.gov.au). Refer also to pages 11, 15, 22, 23, 100 and 101.

APPENDIX H – Streamlining of the NSW best-practice management framework

H1 Overview

As noted on page 21, the *NSW Best-Practice Management (BPM) of Water Supply and Sewerage Framework* (page xii) has been streamlined with the introduction of the July 2014 Integrated Water Cycle Management (IWCM) check list and the strategic business planning (SBP) check list (www.water.nsw.gov.au), which has eliminated nine documents. This minimises the regulatory burden and cost to LWUs, without diminishing any effectiveness or efficiency in achieving the outcomes of the BPM framework (Figure H2 on page 109).

As also noted on page 21, a LWU's **peak planning document** for water supply and sewerage is the **later of** its 30-year **IWCM Strategy and financial plan** (on the basis of the July 2014 IWCM Check List) and its **SBP and financial plan** (on the basis of the July 2014 SBP Check List). The IWCM Strategy and SBP are required every 8 years on a rotation of every 4 years (Figures H1 and H3 on pages 108 and 110). The key **outputs** of the IWCM strategy or SBP are the **30-year TAMP**[33] and **30-year financial plan** and an affordable required typical residential bill (**TRB**) on the basis of meeting regulatory requirements, the agreed levels of service (LOS) and the projected demographic growth[34].

The focus of an **IWCM strategy** is evaluating the merits of the available scenarios (a combination of options) for cost-effectively addressing any current and future deficiencies in meeting regulatory requirements and the agreed levels of service (LOS) with respect to water security, water quality, water distribution system and sewage management system. The LWU's analysis will enable it to 'right size' any required infrastructure and identify the IWCM scenario which provides the best value for money on the triple bottom line (TBL) basis of social, environmental and economic considerations (Figure H3).

The **SBP**, which is a mid-term review of the IWCM strategy, involves 'rolling forward', reviewing and updating the TAMP from the IWCM Strategy and analysing the renewals component of the TAMP to develop a sound 30 year renewals plan (footnote 37 on page 105).

The annual **Action Plan** provided to Council for endorsement and implementation closes the LWU's 'planning loop' by annually updating the progress/achievements against the adopted 30 year TAMP and FP after 'rolling forward', reviewing and updating the TAMP and FP and reviewing its Drinking Water Management System (DWMS) and TBL Performance Report from DPI Water (Figure H1).

All the regional NSW urban water utilities need to implement the 19 planning, pricing and management outcomes required by the BPM framework (footnote 39 on page 106). These outcomes aid the development of a robust IWCM strategy and SBP through sound planning, pricing and management of services.

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[33] A 30-year **total asset management plan (TAMP)** is required as part of the utility's IWCM strategy or SBP and provides a framework for the utility to negotiate appropriate levels of service with the community and develop its 30-year TAMP. This involves a cost-effective capital works program, which discloses each of the growth, improved standards and renewals components (page 4), together with a sound operation plan, which involves cost-effective non-build solutions, and a maintenance plan. As noted above, the IWCM strategy and financial plan needs to be in accordance with the July 2014 IWCM check list and the SBP and financial plan need to be in accordance with the July 2014 strategic business planning check list.

[34] Care is required to ensure that the projected demographic growth is realistic and that **sensitivity analysis** (Item17 of the strategic business planning check list) is carried out to ensure that the adopted financial plan is robust, with an affordable required typical residential bill (TRB).

A **high** level of **demographic growth** will require significant investment in water supply and sewerage infrastructure, which a LWU may plan to largely fund by projected future developer charges and annual charges from the new development. However, if the infrastructure required for such demographic growth is constructed by the LWU and the growth fails to materialise, the LWU will face shortfalls in revenue from both future developer charges and annual charges from the new development. Meeting the LWU's loan obligations for this infrastructure may therefore require a significant increase to the LWU's projected TRB. However, sensitivity analysis on the above basis would enable the LWU to make prudent investment decisions based on **realistic** demographic projections and to prepare a robust financial plan and required TRB which can cope with likely future movements in inflation and borrowing and investment rates.

H2 The streamlined BPM framework

Figures H1 to H6 on pages 108 to 113 highlight the key characteristics of the streamlined BPM framework, financial planning considerations, and associated infrastructure technology and operation strategies:

- Figure H1 on page 108 shows the **streamlined BPM framework**, which requires the preparation of a 30 year IWCM strategy, financial plan and report[35] and a strategic business plan (SBP), financial plan and report every 8 years, on a rotation of every 4 years. As noted on page 103, the 30-year IWCM strategy 'right sizes' any required infrastructure and identifies the scenario which provides the best value for money on the above TBL basis (page 103).

  Figure H1 also shows each LWU needs to continue to prepare and implement an annual action plan to council (page 25 and 26) after 'rolling forward', reviewing and updating its 30-year total asset management plan (TAMP – capital works plan, operation plan, maintenance plan and non-build solutions), updating its 30-year financial plan, reviewing its drinking water management system (DWMS) and annual triple bottom line (TBL) performance reports and section 61 inspection reports provided by DPI Water and addressing any emerging issues or areas of underperformance. The LWU's annual action plan thus continues to close the LWU's 'planning loop' with the later of its IWCM strategy and SBP (page 103) and to highlight any corrective action the LWU needs to carry out.

  The required TRB depends on the quantum of works in the TAMP, which in turn is dependent on the agreed LOS and the projected demographic growth[34]. For instance adopting a higher LOS and higher demographic growth would generally result in a large quantum of works in the TAMP resulting in a higher required TRB. Therefore it is imperative that the community and the LWU carefully consider and regularly review the LOS and demographic growth when developing the IWCM strategy and SBP.

  Figure H1 shows that rather than placing its completed IWCM Strategy or SBP on a shelf to gather dust, each LWU needs to annually 'roll forward' the 30-year TAMP in its IWCM strategy and to review and update the TAMP for projects completed, modified or deferred. The LWU needs to update its 30-year financial plan using the updated TAMP and the LWU's latest annual financial statements (Special Schedules 3 and 4 for water supply and 5 and 6 for sewerage) in order to **determine**:

  - **whether** the **required TRB** (in the current year's dollars) in its IWCM strategy or SBP remains **satisfactory**
  - **whether** the **actual TRB** in its annual TBL performance report is **consistent with** the above **required TRB**[36]. Where the above analysis identifies the need for corrective action, the LWU must implement the necessary changes to the next year's annual charges to ensure the LWU continues to achieve full cost recovery and to provide the necessary strong pricing signals, which encourage efficient use of water and sewerage infrastructure. Refer also to note 3 on page 79.

  The annual **action plan** to council, which is the key water and sewerage working document provided to council for endorsement and implementation each year, highlights the LWU's **achievements** to date and any **corrective actions** needed to address emerging issues or areas of under-performance. Refer also to the footnote 36 below.

  The action plan to council must report whether the LWU's water and sewerage systems are performing in accordance with its adopted peak planning document (the later of the SBP and financial plan and the IWCM strategy and financial plan (page 103)) and whether corrective action is needed to achieve the required BPM outcomes eg:

  - Full cost recovery
  - Strong pricing signals

[35] An example 30-year financial plan and report to assist LWUs is available from DPI Water on request (urbanwater.ctw@dpi.nsw.gov.au).

[36] Appendix H of the *NSW Water and Sewerage Strategic Business Planning Guidelines* (www.water.nsw.gov.au) provides an example and guidance on the annual updating of the financial plan, assessing the adequacy of the actual TRB and preparing a brief report to council on the updated financial plan.

- Drinking water management system review
- Rectify areas of under-performance.

Refer also to page 104 and Figure H5 on page 112.

- Figure H2 on page 109 compares the 2013 requirements with the streamlined 2014 requirements and shows the deleted documents over the 8 year planning cycle, as a result of the streamlined BPM framework (the **9 deleted documents** are: 4 x water conservation plans, 2 x IWCM evaluation studies, 1 x IWCM strategy, 1 x SBP, 1 x drought management plan).
- A LWU's **peak planning document** for water supply and sewerage is the **later of** its 30-year **IWCM strategy and financial plan** and 30-year **SBP and financial plan**.

  DPI Water has compiled a 20-year water supply and sewerage planning data set of 170 performance indicators to help each LWU prepare an IWCM strategy or SBP. The data set is based on the LWU data reported in the NSW Performance Monitoring System since 1994/95. An example data set based on the data reported by Coffs Harbour City Council (PDF 1.1 MB) can be downloaded. Such data sets are available to each LWU on request from DPI Water by contacting an urban water officer (performance monitoring).

  Figure H3 on page 110 shows the key characteristics of a LWU's **IWCM strategy** and financial plan and the **SBP** and financial plan. As noted on page 103, the focus of the IWCM strategy is evaluating alternative options/scenarios to cost effectively address current and future issues/deficiencies in meeting the regulatory requirements and agreed levels of service with respect to water security, water quality, water distribution system and sewage management system to 'right size' any required infrastructure and identify the best-value IWCM scenario and strategy on a triple bottom line basis. However the focus of the SBP is on 'rolling forward', reviewing and updating the TAMP from the IWCM strategy and analysing the renewals component of the TAMP to develop a sound **30-year renewals plan**[37], the first 5 years of which include only proven evidence based renewals that provide value for money. Refer also to the boxes on page 3 and 12 and Tables 5C and 5D of the *2014-15 NSW Benchmarking Report*.

  Preparation of an **IWCM strategy**, financial plan and report in accordance with the July 2014 IWCM check list will address **6** of the 19 **BPM outcomes** (2 x IWCM strategy, 2 x SBP, water conservation plan, drought management plan). After 4 years the LWU will need to prepare a SBP, financial plan and report in accordance with the July 2014 SBP check list.

  Preparation of an annual **action plan** to council for each of water supply and sewerage will address another **5 BPM outcomes** (2 x performance monitoring, 2 x full cost recovery and 1 x strong pricing signals (NWI Indicator F4)).

  The remaining **8 pricing outcomes**[38] required by the BPM framework are addressed through:

  - Commercial developer charges (x 2) (page 102)
  - Sound residential pricing (x 2) (page 101)
  - Sound non-residential pricing (x 2) (page 101)
  - Sound trade waste regulation policy and approval conditions (page 102)
  - Appropriate trade waste fees and charges (page 102).
- Figure H4 on page 111 shows the **water** supply and sewerage **inputs to** each council's Integrated Planning and Reporting (**IPR**) from its IWCM strategy and financial plan or its SBP and financial plan. As shown on page 111, the adopted 30-year **TAMP** and **financial plan** from the later of a council's IWCM strategy and SBP is the **Resourcing Strategy** of the IPR for water supply and sewerage. The Delivery Program and Operation Plan comprise the first four years of the TAMP and financial plan. The annual action plan to council provides the key information for the Annual Report of the IPR. The water supply and sewerage levels of service (LOS) from the IWCM strategy or SBP are also a key input to the Community Strategic Plan.

[37] DPI Water will be preparing tools and guidance materials on identifying and implementing a cost-effective and robust 30-year renewals plan. Refer also to Item 7F of the July 2014 strategic business planning check list (www.water.nsw.gov.au).

[38] Refer to page 101 for further information on all **11 pricing outcomes** required by the BPM framework.

It is important to note that under IPR[39], each **council is required to implement** the outcomes required by the **BPM framework** for water supply and sewerage infrastructure. Importantly as shown on page xii, the BPM framework addresses the **10 key national requirements** for water supply and sewerage, including National Competition Policy, the National Water Initiative (NWI), the National Urban Water Planning Principles 2008, the NWI Pricing Principles 2010, the National Sewage Quality Management Framework 2012, the Australian Drinking Water Guidelines (updated 2013), and the National Performance Framework 2014.

- Figure H5 on page 112 shows the **interaction** between the **BPM framework**, **S60**, **S61** and **LWU operations**. Section 60 of the *Local Government Act 1993* assures the use of **'right infrastructure technology'** for the key specialist barrier works of water and sewage treatment works, dams and water recycling projects (page 99). These works protect public health and safety and minimise adverse environmental and social impacts. The section 61 inspections assure **effective**, efficient and safe **operation and maintenance** for this infrastructure (page 99). **Nationally certificated training** in water and wastewater treatment, fluoridation, dam safety inspection and liquid trade waste regulation enables LWU operators to acquire the necessary knowledge and skills to effectively and efficiently operate and maintain this infrastructure (pages 15 and 99). Significantly, 348 LWU operators have met the requirements of the National Certification Framework for Water Treatment Operators (www.water.nsw.gov.au) and 419 LWU operators are fully qualified wastewater treatment operators (page 16).

  As noted on page 21, implementation of the 19 outcomes required by the BPM Framework by each LWU ensures sound planning, pricing, management and operation and maintenance of their urban water services. This includes maintaining a current 30-year total asset management plan (TAMP), 30-year financial plan, full cost recovery and strong pricing signals to encourage efficient use of the LWU's water infrastructure.

  Each utility annually reports in the **'one stop shop'** NSW Performance Monitoring System and DPI Water provides each utility with its annual TBL performance report in March[40] each year following release of the national performance report by the Bureau of Meteorology (BOM).

  As shown in Figure H1 on page 108 and noted on page 103, each utility needs to continue to prepare and implement an annual action plan to council after 'rolling forward', reviewing and updating its total asset management plan (TAMP – capital works plan, operation plan, maintenance plan and non-build solutions), updating its financial plan, reviewing its drinking water management system (DWMS) and annual triple bottom line (TBL) performance reports and section 61 inspection reports provided by DPI Water and addressing any emerging issues or areas of underperformance. The LWU's annual action plan thus continues to close the LWU's 'planning loop' with its IWCM strategy or SBP and highlights any corrective action needed. Refer also to pages 25 and 26.

- Figure H6 on page 113 provides an overview of the **BPM framework planning process** and its timeline for the IWCM strategy, the strategic business plan, and the annual update of the financial plan for the annual action plan to council.

  Figure H6 shows that through the **IWCM strategy**, a new 30-year TAMP is determined on the triple bottom line basis of social, environmental and economic considerations. Approximate typical residential bills (TRBs) are satisfactory for comparing the IWCM scenarios on a triple bottom line

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[39] Page 20 of the *Integrated Planning and Reporting Manual for local government in NSW, March 2013* (www.olg.nsw.gov.au) highlights the following more stringent requirements which apply for water supply and sewerage:

"Councils responsible for water supply and sewerage infrastructure

Councils with responsibility for water supply and sewerage infrastructure need to comply with the requirements and timeframes of the NSW Government's Best-Practice Management of Water Supply and Sewerage Guidelines, 2007. These requirements include:

- Preparing and implementing a 30-year integrated water cycle management (IWCM) strategy
- Preparing and implementing a 20-30 year strategic business plan, financial plan and associated asset management plans
- Annual performance monitoring, including preparing an annual action plan to review the council's performance and to identify and address any areas of under-performance. The review also includes whether the current typical residential bill is in accordance with the projection in the strategic business plan and any proposed corrective action.

The development of both the IWCM strategy and the strategic business plan require significant community involvement. Further information on these requirements is available from the DPI Water website www.water.nsw.gov.au."

[40] To assist LWU planning, a draft of each LWU's TBL reports will be made available by DPI Water in February each year.

basis. The preferred IWCM scenario with its 30-year TAMP is then 'fine-tuned' as the LWU prepares its 30-year financial plan and report. This includes sensitivity analysis34 to ensure the LWU's financial plan is robust and the projected TRB remains affordable.

Figure H6 also shows that the **SBP** and the **annual financial plan** for the annual **action plan** 'roll forward', review and update the TAMP from the preferred IWCM scenario to prepare a 30-year financial plan. The plan uses the LWU's latest Special Schedules 3 to 6 (page 104) and the IWCM strategy, the financial plan and report for the SBP include appropriate sensitivity analysis to ensure the projected TRB remains affordable.

In regard to existing water supply or water and sewerage **county councils**, Page 19 of the *IPR Manual for local government in NSW, March 2013* indicates:

'Requirements for county councils

It is not expected that County Councils will prepare a Community Strategic Plan, because this work will be undertaken by their constituent councils.

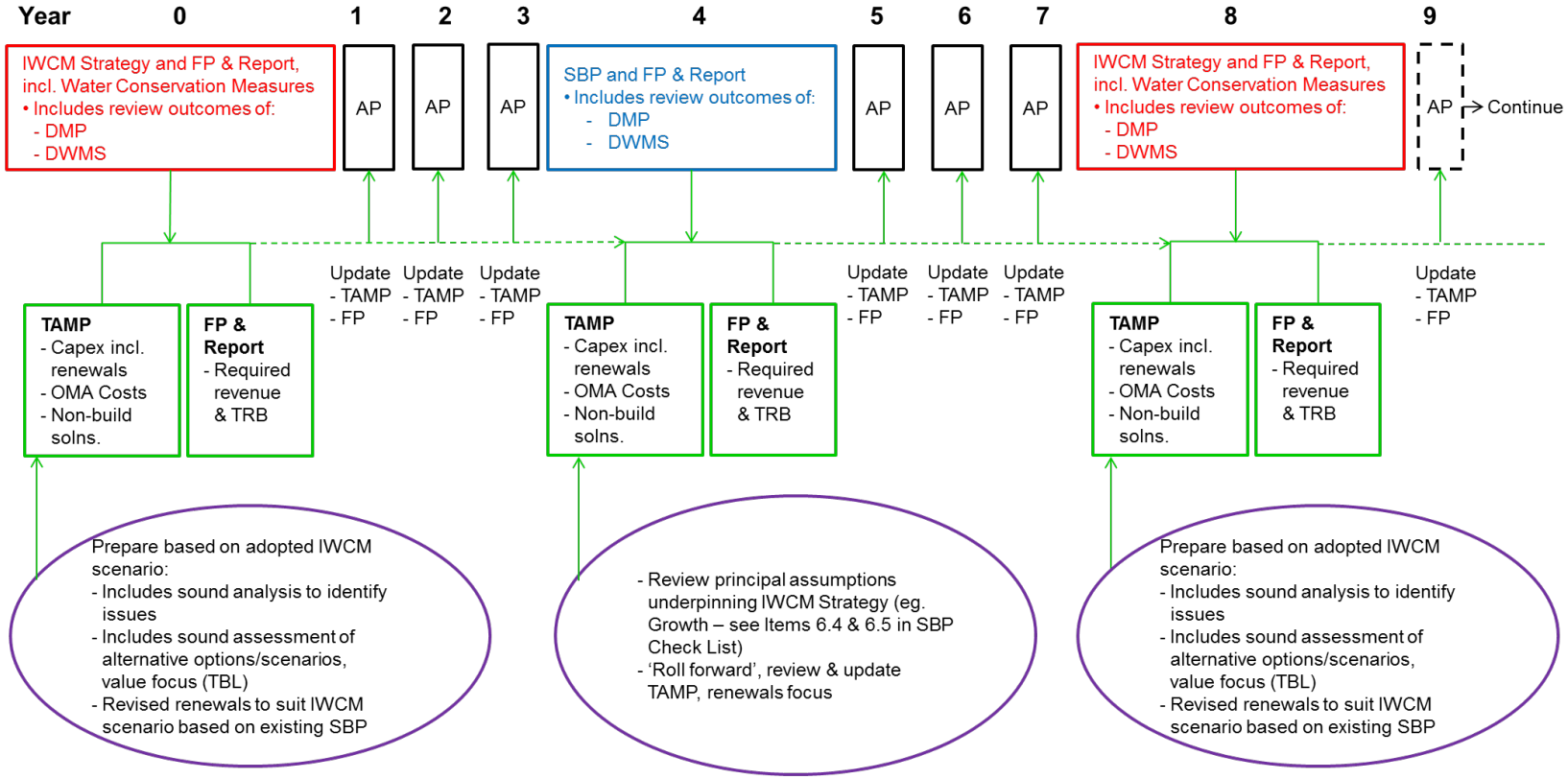
However, County Councils will be required to prepare a minimum 10 year strategic plan for the activities undertaken by their organisation. This plan must give due regard to the Community Strategic Plan/s of the constituent councils and be developed in consultation with the constituent councils. Community engagement will also be required on the issues specific to the County Council's plan.'

As noted in footnote 39 on page 106, all **councils** responsible for water supply or sewerage, including county councils, **need to implement** the outcomes required by the **BPM framework**. As a '10 year business activity strategic plan' does not meet the BPM framework outcomes, each **county council must prepare a 30-year** water supply and sewerage **IWCM strategy and financial plan**[41], which also needs to address relevant considerations in the Community Strategic Plans of its constituent councils. Refer also to footnote 4 on page 1 of the July 2014 IWCM check list (www.water.nsw.gov.au).

[41] The IWCM strategy and financial plan need to be prepared in accordance with the July 2014 check list (www.water.nsw.gov.au). Refer also to page 21. As noted on pages 106 and 111, the adopted 30-year total asset management plan (**TAMP**) and financial plan from the later of a council's IWCM strategy and strategic business plan is its **Resourcing Strategy** of the IPR for water supply and sewerage.

Figure H1 - The Streamlined BPM Framework

2 Documents Required Every 8 Years (IWCM Strategy and SBP)



IWCM - Integrated Water Cycle Management
SBP - Strategic Business Plan (Water & Sewerage)
FP - Financial Plan
TAMP - Total Asset Management Plan – Capex, OMA plans, Non-build solutions
OMA - Operation, Maintenance & Administration costs
DMP - Drought Management Plan
DWMS - Drinking Water Management System – incl. Circular LWU 18, Section 61 Reports
TRB - Typical Residential Bill
TBL - Triple Bottom Line
AP - Annual Action Plan to Council – after 'roll forward', review & update TAMP, FP & review of TBL Performance Report, DWMS

Figure H2 - Comparison: 2013 Requirements and the 2014 Streamlined Requirements

9 Documents Deleted

2013 Requirements (11 Documents)

Year	0	1	2	3	4	5	6	7	8
SBP	SBP & FP				SBP & FP				SBP & FP
IWCM	Evaluation Study Strategy						Evaluation Study Strategy		
Water Cons. Plan (WCP)	WCP		WCP		WCP		WCP		WCP
Drought Mgt. Plan (DMP)	DMP								
Development Servicing Plan (DSP)	DSP					DSP			
Drinking Water Mgt. System (DWMS)	DWMS	Review	Review	Review	Full Review	Review	Review	Review	Full Review

2014 Streamlined Requirements (9 Documents Deleted)

Year	0	1	2	3	4	5	6	7	8
SBP	~~SBP & FP~~				SBP & FP				~~SBP & FP~~
IWCM	~~Evaluation Study~~ Strategy & FP						~~Evaluation Study~~ ~~Strategy~~		Strategy & FP
Water Cons. Plan (WCP)	~~WCP~~		~~WCP~~		~~WCP~~		~~WCP~~		~~WCP~~
Drought Mgt. Plan (DMP)	~~DMP~~								
Development Servicing Plan (DSP)	DSP					DSP			
Drinking Water Mgt. System (DWMS)	DWMS	Review	Review	Review	Full Review	Review	Review	Review	Full Review

Note:

In addition to the peak planning documents of IWCM Strategy & FP and SBP & FP, each LWU needs to continue to prepare an annual **Action Plan to Council** (pages 104 & 108).

FP - Financial Plan
IWCM - Integrated Water Cycle Management
SBP - Strategic Business Plan (Water & Sewerage)
DMP - Drought Management Plan
WCP - Water Conservation Plan
DWMS - Drinking Water Management System – incl. Circular LWU 18, Section 61 Reports

Figure H3 - The Peak Planning Documents – IWCM Strategy & FP and SBP & FP

2014 Streamlined Requirements - 2 Documents Required Every 8 Years (IWCM Strategy & FP and SBP & FP)

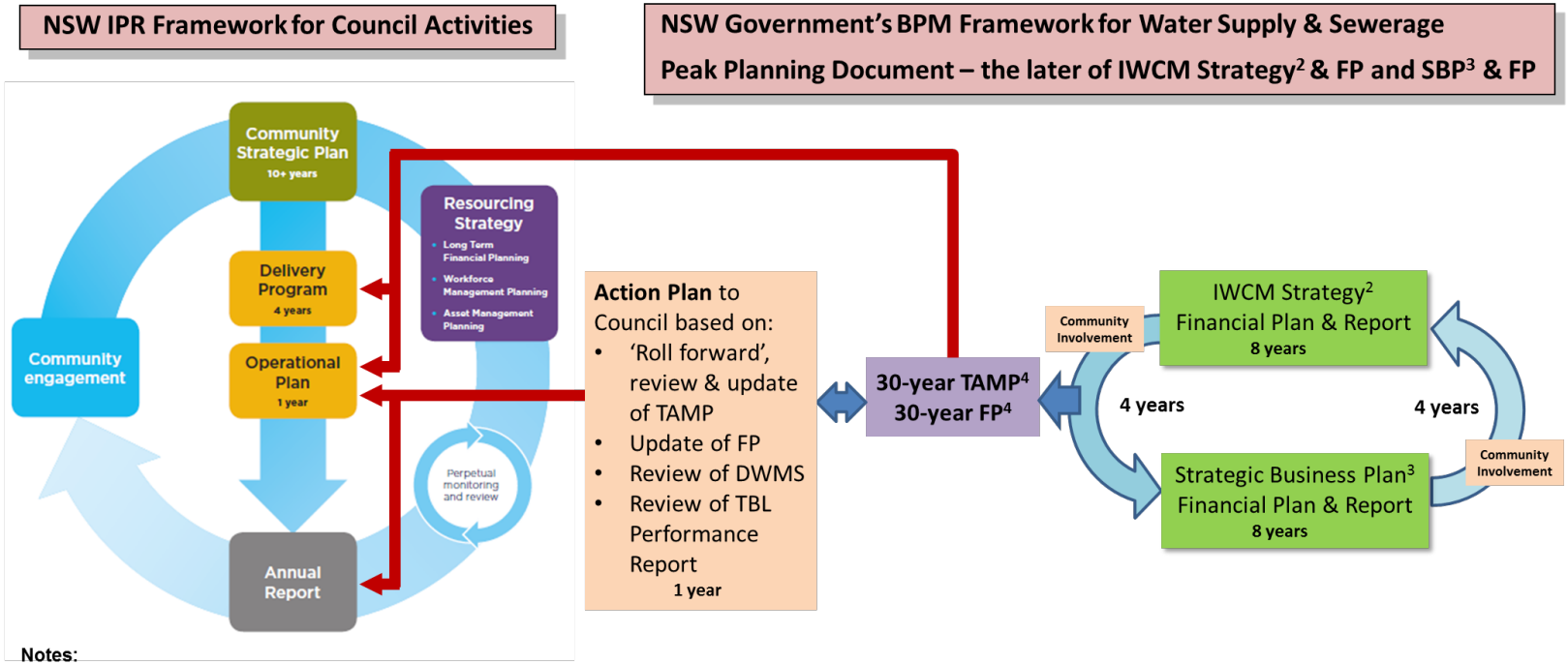
Years	0	1	2	3	4	5	6	7	8
SBP & FP					SBP and FP & Report Including 'roll forward', review & update TAMP, renewals focus, Required revenue & TRB • Includes review outcomes of: - DMP - DWMS				
IWCM Strategy & FP	IWCM Strategy and FP & Report, including Water Conservation Measures, TAMP – sound assessment of alternative scenarios, value focus (TBL), Required revenue & TRB • Includes review outcomes of: – DMP – DWMS								IWCM Strategy and FP & Report, including Water Conservation Measures, TAMP – sound assessment of alternative scenarios, value focus (TBL), Required revenue & TRB • Includes review outcomes of: – DMP – DWMS

Note:

In addition to the peak planning documents of IWCM Strategy & FP and SBP & FP, each LWU needs to continue to prepare an annual **Action Plan to Council** (pages 104 & 108).

IWCM - Integrated Water Cycle Management
SBP - Strategic Business Plan (Water & Sewerage)
FP - Financial Plan
TAMP - Total Asset Management Plan – Capex, OMA plans, Non-build solutions
OMA - Operation, Maintenance & Administration costs
DMP - Drought Management Plan
DWMS - Drinking Water Management System – incl. Circular LWU 18, Section 61 Reports
TBL - Triple Bottom Line
TRB - Typical Residential Bill

Figure H4 - Inputs to Integrated Planning & Reporting (IPR) Framework from NSW Government's BPM Framework for Water Supply & Sewerage

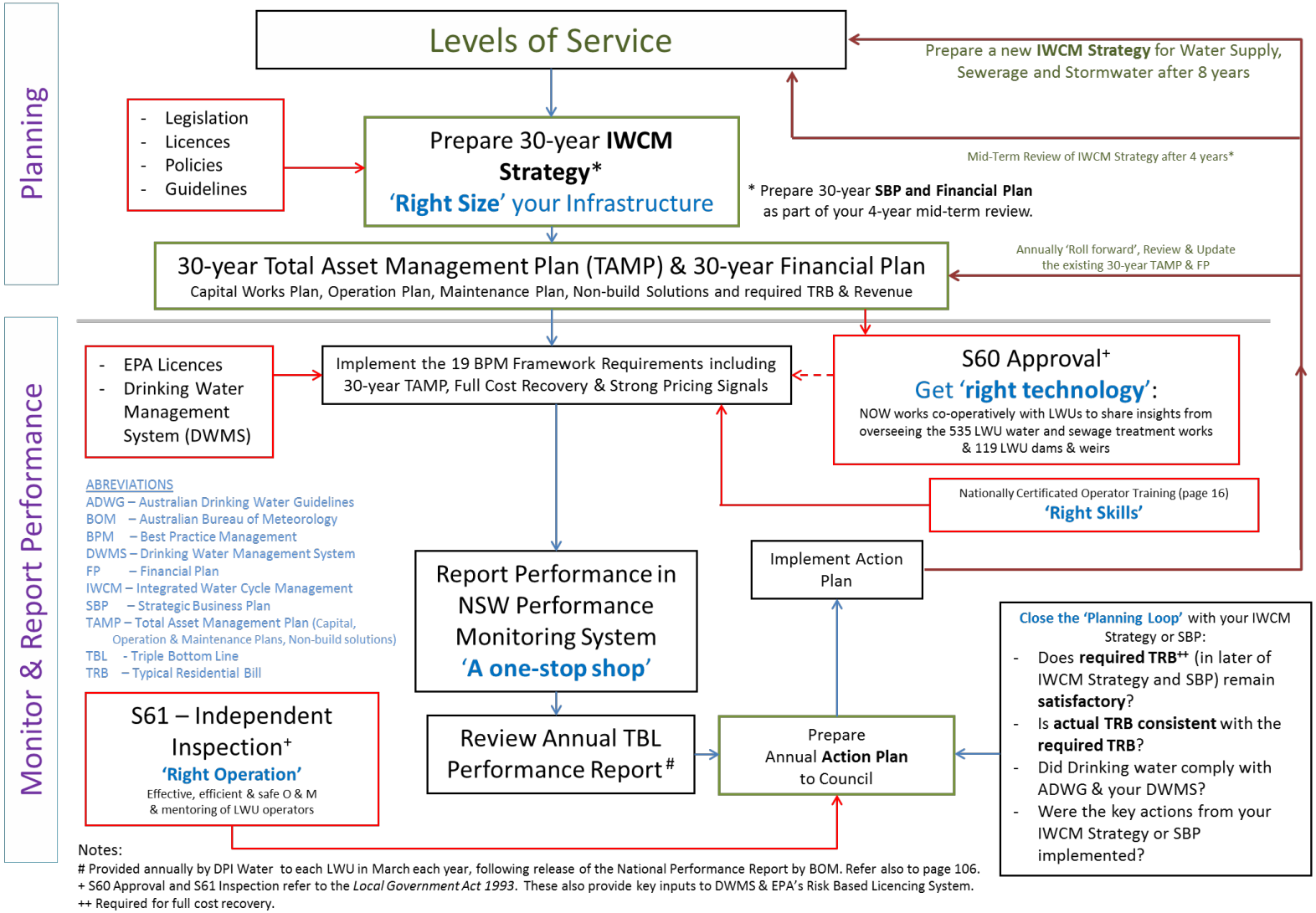


Notes:

1. As indicated on page 20 of the *Integrated Planning & Reporting Manual for local government in NSW, March 2013* (www.olg.nsw.gov.au) Councils responsible for water supply and sewerage infrastructure need to comply with the requirements of the *NSW Government's Best-Practice Management of Water Supply and Sewerage Guidelines, 2007*. Refer also to footnotes 38 and 41 on pages 106 and 107.
2. In accordance with the IWCM Strategy Check List of July 2014 (www.water.nsw.gov.au).
3. In accordance with the Strategic Business Planning Check List of July 2014 (www.water.nsw.gov.au).
4. The adopted 30-year total asset management plan (**TAMP**) and 30-year **financial plan** from the later of a Council's IWCM Strategy and Strategic Business Plan are its '**Resourcing Strategy**' for water supply and sewerage.

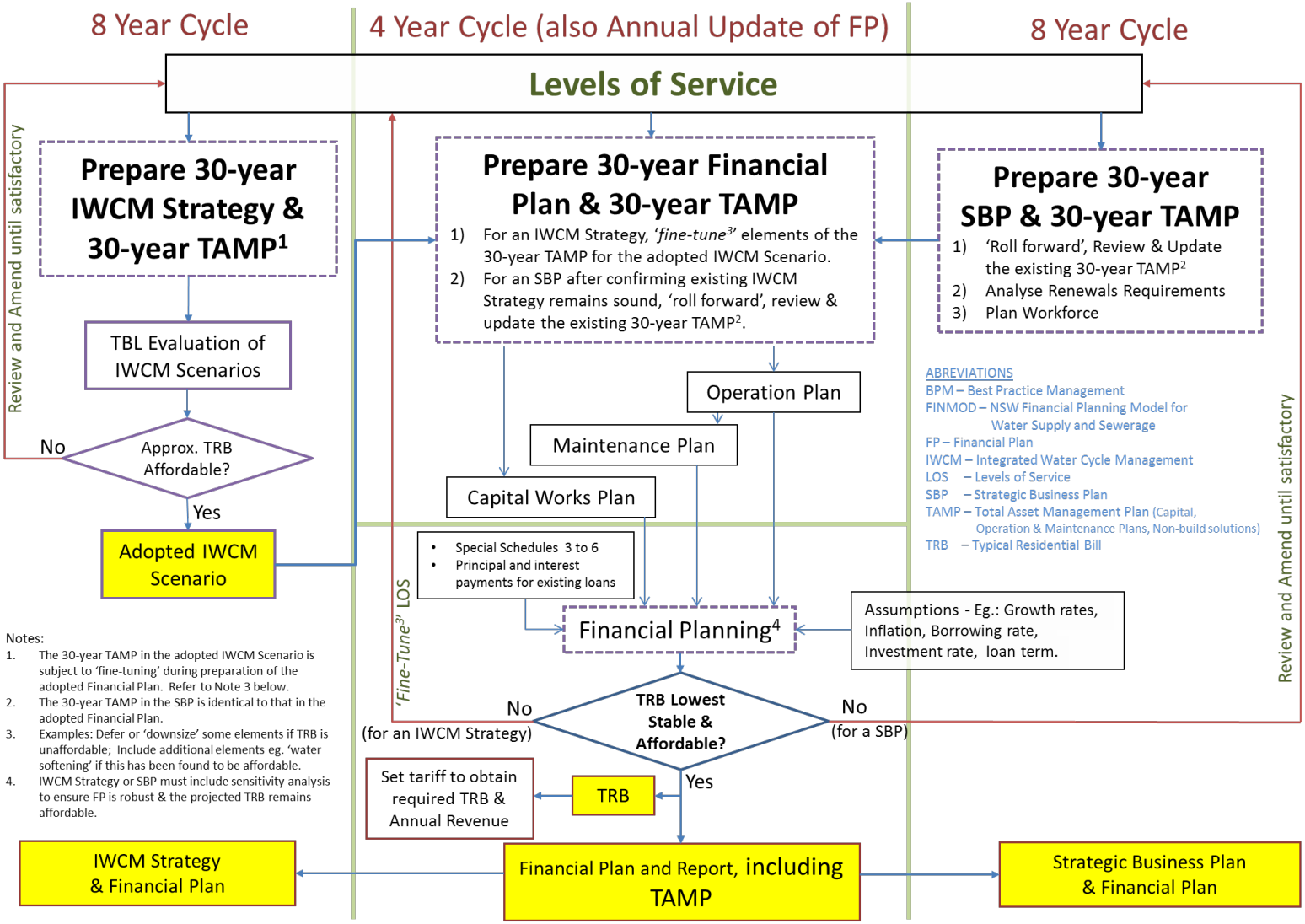
BPM - Best-Practice Management
IWCM - Integrated Water Cycle Management
SBP - Strategic Business Plan (Water & Sewerage)
FP - Financial Plan
TAMP - Total Asset Management Plan – Capex, OMA plans, Non-build solutions
OMA - Operation, Maintenance & Administration costs
DWMS - Drinking Water Management System – incl. Circular LWU 18, Section 61 Reports
TBL - Triple Bottom Line
TRB - Typical Residential Bill

Figure H5 - Interaction of BPM Framework, S60, S61 & LWU Operations



Notes:
Provided annually by DPI Water to each LWU in March each year, following release of the National Performance Report by BOM. Refer also to page 106.
+ S60 Approval and S61 Inspection refer to the *Local Government Act 1993*. These also provide key inputs to DWMS & EPA's Risk Based Licencing System.
++ Required for full cost recovery.

Figure H6 – Overview of BPM Framework Planning



APPENDIX I: CHARACTERISTICS OF THE AUSTRALIAN URBAN WATER SECTOR - 2014-15

		Regional NSW[3]	Regional Victoria	Regional QLD[4]	Sydney[2]	Hunter	NSW Total	Victoria Total[9]	QLD Total[5]	South Australia	Western Australia[7]	Tasmania	ACT	Northern Territory[10]	Australian Total[1]	Regional NSW (% of NSW Total)	NSW Total (% of Australia Total)
NWI ID	**Indicator Name**	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
C1	Population receiving WS services (millions)	1.83	1.43	2.79	4.83	0.56	**7.22**	5.87	4.18	1.66	2.26	0.45	0.43	0.15	**22.2**	25%	32%
C5	Population receiving SGE services (millions)	1.74	1.28	2.51	4.72	0.54	**7.00**	5.55	3.84	1.31	2.10	0.38	0.39	0.15	**20.7**	25%	34%
C4	**Total connected properties - WS (millions)**	0.83	0.68	1.18	1.88	0.24	**2.94**	2.56	1.74	0.76	0.94	0.20	0.17	0.07	**9.39**	28%	31%
C8	Total connected properties - SGE (millions)	0.75	0.60	1.04	1.83	0.23	**2.81**	2.40	1.58	0.59	0.85	0.18	0.17	0.07	**8.63**	27%	33%
W11	**Total urban water supplied (GL)**	291	238	384	529	70	**890**	639	527	229	308	74[8]	45	47	**2,760**	33%	32%
W11.1	Total urban potable water supplied (GL)	260	192	337	464	67	**790**	593	475	219	269[7]	49	43		**2,440**	33%	32%
W11.3	Total volume of potable water produced (GL)	255	186	202	516	67	**838**	587	494	219	270[7]		47		**2,450**	30%	34%
W8.1+W9.1	Volume of potable water supplied - residential and non-residential (GL)	227	174	309	464	56	**747**	531	432	187	238[7]	49	39		**2,220**	30%	34%
W10.1	Non revenue water (NRW) (GL)	33.0	18.3	28.2	52[6]	10.6	**96**	61.8	42.9	32.3	30.3[7]		3.8		**267**	35%	36%
W26	Total recycled water supplied (GL)	39.0	43.8	35.5	43.1	4.6	**87**	80.2	44.8	31.7	15.1	4.8	4.4	1.4	**269**	45%	32%
W18	Total sewage collected (GL)	179	135	235	564	72	**815**	462	360	104	153	51[8]	33	20	**2,000**	22%	41%
W18.5	Volume of sewage treated effluent (GL)	173	121	228	547	72	**792**	450	357	98	137[7]		30		**1,860**	22%	43%
W17	Volume of sewage collected - trade waste (GL)	6.8	34.1	13.1	22.8	4.7	**34**	56.5	25.0	12.6	8.4			1.1	**138**	20%	25%
F1+F2	**Total revenue - WSS ($M)**	1,420	961	2,490	2,640	312	**4,370**	4,720	4,440	1,360	1,810	296	266	178[10]	**17,400**	32%	25%
IF11+IF12	Operating cost - WSS ($M)	735	507	1,149	1,232	145	**2,110**	3,031	1,786	466	583	166	126	73[10]	**8,300**	35%	25%
F20	Dividend ($M)	4.7	0.0	173.7	664.0	21.3	**690**	102.8	247.8	184.0	538.9	22.1	22.8	0[10]	**1,810**	1%	38%
F9+F10	Written-down value of fixed WSS assets ($M)	18,300	8,980	14,600	44,100	6,890	**69,300**	31,100	19,400	13,000	14,300	2,690	3,740	856[10]	**154,000**	26%	45%
F16	Total capital expenditure for WSS ($M)	416	269	473	628	77	**1,120**	955	751	214	396	102	49	35[10]	**3,600**	37%	31%
F25	Community Service Obligations ($M)	15.5	46.0	25.0	163.1	14.3	**193**	163.7	48.6	128.0	136.7	8.1	10.6	9[10]	**698**	8%	28%
F26+F27	Capital works grants - WSS ($M)	39.8	2.9	6.6	4.8	0.2	**45**	10.3	6.6	8.7	0.0	0.0	0.0	0.0	**70**	89%	64%
A2	Length of water mains (1,000 km)	32.2	22.5	27.8	22.3	4.9	**59**	48.2	37.8	27.1	17.3	6.2[8]	3.2	1.8	**201**	54%	30%
A5	Length of SGE mains and channels (1,000 km)	19.9	14.8	21.7	25.1	4.9	**50**	37.7	31.0	8.9	14.6	4.7[8]	3.3	1.0	**151**	40%	33%
A1	Number of water treatment plants providing full treatment (no.)	163	170	67	9	6	**178**	176	98	42	22	38[8]	2	2[10]	**558**	92%	32%
A4	Number of sewage treatment plants (no.)	299	189	118	26	19	**344**	210	145	24	22	112[8]	5	7	**869**	87%	40%

Notes

1 Based on data reported in the Part B National Performance Report 2014-15 for utilities with over 10,000 connected properties and the urban data for all of regional NSW (www.bom.gov.au). In order to provide the best estimate for the Australian totals in column 14, where practicable, performance indicators which were not reported in the Part B Report have been estimated from similar reported indicators, as shown in notes 6 to 10 below. As there remain a small number of missing values for Tasmania, ACT and the Northern Territory, the Australian totals in column 14 for those performance indicators (W11.1, W11.3, W8.1+W9.1, W10.1, W18.5, W17) slightly understate the correct values. Refer also to Notes 6 and 7 on page 70.

2 Includes Water NSW for Sydney.

3 Includes Water NSW for the Fish River Water Supply.

4 Includes Gladstone Area Water Board.

5 Includes SEQ Water, except where duplicated reporting has occured - eg. for W11 and W11.3.

6 Sydney's NRW is estimated as W11.3 - (W8.1 + W9.1).

7 As Perth did not report W10.1, W11.1 or W18.5, the reported values for W10, W11 and W18 have been used in the above tabulation. W11 was also used for W11.3, with W8 + W9 used for W8.1 + W9.1.

8 Results for Tasmania for indicators W11, W18, A2, A5, A1 and A4 are taken from the TasWater Annual Report 2014-15 (www.taswater.com.au).

9 As Melbourne Water did not report W11.3, the reported value for W11.1 has been used in the above tabulation.

10 Financial results for Northern Territory are from the 2013-14 National Performance Report. The number of water treatment works was obtained from the Power and Water website (www.powerwater.com.au).

WS Water Supply

WSS Water Supply and Sewerage

SGE Sewerage

Regional NSW vs NSW Totals

Appendix I shows that the populations receiving water supply and sewerage services in regional NSW are each 25% of the NSW totals of 7.22 million and 7.0 million respectively. The volume of urban water supplied in regional NSW is 33% of the NSW total of 890 GL and the recycled water supplied is 45% of the NSW total of 87 GL.

The water and sewerage revenue for regional NSW is 32% of the NSW total of $4.37 billion, the operating cost is 35% of the NSW total of $2.11 billion and capital expenditure is 37% of the NSW total of $1.12 billion.

Regional NSW has 54% of the 59,000 km of NSW water mains, 40% of the 50,000 km of NSW sewerage mains and channels, 92% of the 178 NSW water treatment works and 87% of the 344 NSW sewage treatment works.

NSW vs Australian Totals

Appendix I shows that the total populations receiving water supply and sewerage services in NSW are 32% and 34% respectively of the Australian totals of 22.2 million and 20.7 million. The volume of urban water supplied in NSW is 32% of the Australian total of 2,760 GL, and the recycled water supplied in NSW is 32% of the Australian total of 269 GL.

The water and sewerage revenue for NSW is 25% of the Australian total of $17.4 billion, the operating cost is 25% of the Australian total of $8.3 billion and capital expenditure is 31% of the Australian total of $3.6 billion.

NSW has 30% of the 201,000 km of Australian water mains, 33% of the 151,000 km of Australian sewerage mains and channels, 32% of the 558 Australian water treatment works and 40% of the 869 Australian sewage treatment works.

INDEX

Note:

Page numbers shown in:

- **black bold** are the main reference to each topic
- **blue bold** refer to figures comparing the performance of the **NSW utilities**
- **red bold** refer to graphs of **Interstate performance comparisons**.

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