Department of Primary Industries
Water

2015-16
NSW Water Supply and Sewerage
Benchmarking Report

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LOCAL GOVERNMENT NSW

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NSW WATER SUPPLY AND SEWERAGE

Benchmarking Report

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Department of Primary Industries

Water

Level 10 Macquarie Tower

Locked Bag 5123

Parramatta NSW 2124

T 1800 353 104

water.enquiries@dpi.nsw.gov.au

www.water.nsw.gov.au

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Compiling editors: Andrew Vaughan, Project Officer Utility Performance
Roshan Iyadurai, Manager Water Utility Performance and Reform
Michael Blackmore, Director Water and Sewerage Regulation
Frank Garofalow, Director Water Regulation

BEST PRACTICE MANAGEMENT

FOREWORD

The *NSW Performance Monitoring System* (section 3) has been conceived and implemented as a **'one stop shop'** for continuous productivity and performance improvement by the regional NSW local water utilities (LWUs). The System assures data reliability, minimises red tape and avoids duplication in reporting. It enables DPI Water to develop evidence based policies and guidelines for the local water utilities to improve productivity and performance and to annually provide the required LWU data to the Australian Bureau of Meteorology (for publication in the annual *National Performance Report for Urban Water Utilities* (www.bom.gov.au)) and the Australian Bureau of Statistics, as well as for statewide reporting such as the *NSW Performance Monitoring Report*, this *Benchmarking Report* and the reporting for *NSW 2021* and the *State of the Environment Report*.

In line with the National Water Initiative, which extends the 1994 *Strategic Framework for Water Reform* and *National Competition Policy*, the NSW government has developed the *Best-Practice Management of Water Supply and Sewerage Guidelines*[1]. These guidelines, which were updated in 2007, are the key driver for reform of planning, pricing and management and for continuing productivity and performance improvement by each utility through the *NSW Best-Practice Management (BPM) of Water Supply and Sewerage Framework* (section 4.1). The *BPM Framework* requires LWUs to undertake annual performance monitoring in accordance with the *National Water Initiative*[2], with the aim of improving productivity and the quality and efficiency of services to all NSW residents. Performance monitoring is also important for public accountability and has been strongly endorsed by both the Independent Pricing and Regulatory Tribunal[3] and the Productivity Commission[4].

This *2015-16 NSW Water Supply and Sewerage Benchmarking Report* discloses the full suite of NSW water supply and sewerage performance indicators for all NSW water utilities including Sydney and Hunter Water Corporations over the past six years, enabling each utility to monitor trends in its performance indicators and to improve its productivity and performance through benchmarking against similar utilities. Independent auditing and data validation assure data reliability of the NSW Performance Monitoring System (section 1 and Appendix H).

A summary of the key performance indicators for all NSW urban water utilities, together with the overall statewide performance of the NSW regional water utilities and comparison of that performance with interstate utilities, are provided in the companion report *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report.*

The Benchmarking Report has been prepared by DPI Water since 1986. To facilitate comparisons, the Minister for Regional Water has made both the performance monitoring report and the benchmarking report 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, a triple bottom line (TBL) accounting focus has been adopted, with performance reported on the basis of social, environmental and economic performance indicators.

NSW performance monitoring and benchmarking also provide valuable data for continuous performance improvement by disclosing the present position and facilitating development of suitable information and evidence based responses to address the future water supply and sewerage needs for regional NSW. This ensures an appropriate focus and targeting of responses and initiatives to address current and emerging issues. Section 1 provides a summary of such information and responses.

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

[2] *National Performance Framework – 2013-14 Urban Performance Reporting 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 Report No.55, August 2011 (www.pc.gov.au).

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 drinking water supply and for its contributions to Appendix E and Appendix B (sampling location and frequency). NSW Health has also provided additional water quality data (from the NSW Health Drinking Water Database) and water quality monitoring compliance data, which has been incorporated into Tables 5 and 12 and Appendices D1 and D3.

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 is contingent on full participation by all NSW local water utilities (LWUs). The continuing participation of each LWU in the performance monitoring system and each LWU's significant efforts in providing current, accurate and timely data on its performance for each of the past six years and in implementing the *NSW Best-Practice Management Framework* (section 4.1) are therefore particularly acknowledged.

ABBREVIATED CONTENTS

CONTENTS

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1 INTRODUCTION

This *NSW Water Supply and Sewerage Benchmarking Report* discloses the full suite of NSW water supply and sewerage performance indicators and benchmarking data for all NSW urban water utilities over the past six years. The data is presented in the form of 68 figures and 18 tables and provides comparative information to enable each regional NSW local water utility (LWU) to improve its productivity and performance through benchmarking its performance against that of similar LWUs.

A companion report, the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report* (available at www.water.nsw.gov.au), discloses the 36 key performance indicators for the NSW water utilities together with the overall statewide performance of the NSW regional water utilities, compares that performance with interstate utilities and explains the 2014 streamlining and simplification of the *NSW Best-Practice Management (BPM) Framework*. With the exception of Appendix A, these matters are not repeated in this *Benchmarking Report*.

The NSW component of the *National Performance Report 2015-16 for Urban Water Utilities* is shown in Appendix F of this *Benchmarking Report* while national performance comparisons are shown in Appendix A and the characteristics of the Australian urban water sector are discussed in Appendix K. Independent auditing and validation assure data reliability (Appendix H).

This *Benchmarking Report* discloses the NSW results for all of the approximately 130 NWI Performance Indicators as shown in note 15 in section 6.

In addition, the Benchmarking Report is a valuable annual **resource kit** and continuous improvement tool for NSW utilities by addressing a broad range of emerging issues and suggested responses, including:

- **Data reliability** of the NSW Performance Monitoring System (Appendix H)
- **NSW 'one stop shop'** minimises regulatory burden, avoids duplication in reporting (section 3.1)
- Statewide and national medians (Tables 1, 2 and 2A); water supply **system planning insights** from trends in statewide performance indicators (section 5.3, Table 4)
- National Certification Framework for Treatment Works Operators (section 6.2, Appendices D1 & I)
- Risk-based drinking water management system (**DWMS**), achieving **microbiological compliance**, boil water alerts, **lessons learnt**, distribution system integrity, assuring safety and integrity of a water supply distribution system (section 4.3, Appendix E)
- Water quality sampling locations and frequency (Appendix B2)
- Performance of each LWU's water and sewage treatment works (Appendices D1 and D2)
- BPM (section 4), **NSW BPM Framework** (section 4.1) and BPM implementation (Table 3)
- Cost-effective **renewals** (section 4.5), **infrastructure asset condition and performance**, asset rehabilitation, renewals expenditure (Tables 5C and 5D)
- Leakage, **non-revenue water** (NRW) in L/d/connection for tracking performance (section 4.5)
- Benefits of the strong NSW **pricing signals**, achieving efficient water use (section 4.4)
- Achieving **full cost recovery** (section 5.4)
- Greenhouse gases (section 4.5), **NSW greenhouse gas calculator** (Appendix G)
- Pollution incident response management plan (**PIRMP**) (Appendix D2), wastewater treatment operators (Appendices D2 & I)
- Triple bottom line (**TBL**) **Performance Report**, **Action Plan** (section 3.3, Appendix C)
- 'Liveability', emerging issues, financial plan update (section 5.4)
- Improving performance (section 5), NSW Performance monitoring database (Appendix B)
- Economic efficiency indicators for four sizes of LWUs (section 5.4)
- Local Government Integrated Planning and Reporting (**IPR**) Framework, 2010 (section 4.2)
- **Software, guidelines, training, tools** and assistance available from DPI Water (sections 4.2, 4.3, 4.4, 4.5, 5.4, 6.1, Appendix H4.6)
- Contents of tables 5 to 18 (section 6.4), formulae for calculation of indicators (Appendix B3)
- Characteristics of the **Australian Urban Water Sector** (section 6.3, Appendix K)
- General notes (section 6), rainwater tanks, liveability indicators (section 4.5, Appendix J)

2 NSW WATER UTILITIES

2.1 List of NSW water utilities

This report discloses performance indicators for all NSW urban water utilities, comprising the 92 regional NSW local water utilities (LWUs) together with four metropolitan utilities (Sydney Water, Hunter Water, Water NSW and Hawkesbury Council). All utilities are listed in the table below in alphabetical order. To facilitate comparisons with similar sized LWUs, tables 5 to 18 of this report appear in order of the number of connected properties served. LWUs are grouped in four size ranges: over 10,000, 4,001 to 10,000, 1,501 to 4,000, and 200 to 1,500 connected properties.

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

No.	Utility	No.	Utility	No.	Utility
11	Albury City	12	Fish River WS (BS)	63	Narrandera
111	Armidale Regional*	51	Forbes	62	Narromine
24	Ballina (R)	84	Gilgandra	83	Oberon (R)
100	Balranald (DS)	60	Glen Innes Severn	19	Orange
21	Bathurst Regional	28	Goldenfields (NO SGE)	36	Parkes
23	Bega Valley	20	Goulburn Mulwaree	7	Port Macquarie-Hastings
47	Bellingen	80	Greater Hume	119	Queanbeyan-Palerang* (R)
53	Berrigan (DS)	30	Griffith	33	Richmond Valley
72	Bland (NO WS)	44	Gunnedah	8	Riverina (NO SGE)
78	Blayney (NO WS)	81	Gwydir	4	Rous (BS) (NO SGE)
89	Bogan	30A	Hawkesbury (NO WS)	3	Shoalhaven
87	Bourke (DS)	86	Hay (DS)	35	Singleton
105	Brewarrina (DS)	116	Hilltops* (R)	120	Snowy Monaro Regional*
27	Byron (R)		Hunter Water	121	Snowy Valleys*
91	Cabonne	37	Inverell		Sydney Water
92	Carrathool	77	Junee (NO WS)	13	Tamworth Regional
112	Central Coast*	25	Kempsey	69	Temora (NO WS)
103	Central Darling (DS)	70	Kyogle	68	Tenterfield
40	Central Tablelands (NO SGE)	59	Lachlan	6	Tweed
14	Clarence Valley	48	Leeton	45	Upper Hunter
67	Cobar (R)	22	Lismore (R)	73	Upper Lachlan
66	Cobar WB (BS)	31	Lithgow	85	Uralla
10	Coffs Harbour	61	Liverpool Plains	9	Wagga Wagga (NO WS)
99	Coolamon (NO WS)	102	Lockhart (NO WS)	98	Walcha
75	Coonamble	5	MidCoast	79	Walgett (DS)
115	Cootamundra-Gundagai* (R)	32	Mid-Western Regional	96	Warren (DS)
39	Cowra	38	Moree Plains	55	Warrumbungle
122	Dubbo Regional*	117	Murray River* (DS)		Water NSW (formerly SCA)
54	Edward River*	118	Murrumbidgee*	95	Weddin (NO WS)
26	Essential Energy	41	Muswellbrook	74	Wentworth (DS)
15	Eurobodalla	34	Nambucca	16	Wingecarribee
114	Federation*	46	Narrabri	56	Yass Valley

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

* Amalgamated LWU from 12 May 2016

2.2 Council amalgamations

On 12 May 2016, 25 regional NSW LWUs were involved in amalgamations. These amalgamations resulted in a reduction in the overall number of LWUs from 105 to 92.

The amalgamations were:

Armidale Regional Council – Armidale Dumaresq Council and Guyra Shire Council.

Central Coast Council – Gosford City Council and Wyong Shire Council.

Cootamundra-Gundagai Regional Council – Cootamundra Shire Council and Gundagai Shire Council.

Dubbo Regional Council – Dubbo City Council and Wellington Council.

Edward River Council – Deniliquin Council and Conargo Shire Council.

Federation Council – Corowa Shire Council and Urana Shire Council.

Hilltops Council – Young Shire Council, Harden Shire Council and Boorowa Council.

Murray River Council – Murray Shire Council and Wakool Shire Council.

Murrumbidgee Council – Murrumbidgee Shire Council and Jerilderie Shire Council.

Queanbeyan-Palerang Regional Council – Queanbeyan City Council and Palerang Council.

Snowy Monaro Regional Council – Snowy River Shire Council, Cooma-Monaro Shire Council and Bombala Council.

Snowy Valleys Council – Tumut Shire Council and Tumbarumba Shire Council.

This report discloses performance on the basis of the 92 LWUs existing on 12 May 2016. Tables 1 to 18 also report the performance of the amalgamated LWUs by aggregating the reported data from their constituent LWUs. For clarity, Figure 1 after section 6 reports results for the amalgamated LWUs, but not those of their constituent LWUs. The basis for aggregating the results of amalgamated LWUs is shown in Appendix L.

The financial results for the amalgamated LWUs are for the period 1 July 2015 to 12 May 2016.

3 NSW PERFORMANCE MONITORING SYSTEM

3.1 Performance reporting

Performance monitoring and benchmarking are required under National Competition Policy and the National Water Initiative, are important for public accountability and have been strongly endorsed by both the Independent Pricing and Regulatory Tribunal (IPART) and the Productivity Commission.

The State Government promotes continuous productivity and performance improvement to improve the quality and efficiency of services to the NSW community. Performance benchmarking provides valuable comparative data which enables each regional NSW local water utility (LWU) to review and improve its productivity and performance by examining trends in its performance indicators and by benchmarking its performance against that of similar utilities.

The NSW Performance Monitoring System has been conceived and implemented as a **'one stop shop'**[5] for continuous productivity and performance improvement by the local water utilities (LWUs). The system assures data reliability, **minimises the regulatory burden and avoids duplication** in reporting. Water supply and sewerage non-financial data is obtained from each LWU's annual performance reports for their water and sewerage businesses. These reports are required to be lodged online by each LWU via the NSW Performance Monitoring Database by 15 September each year in order to meet this outcome required by the *Best-Practice Management of Water Supply and Sewerage Framework* (section 4.1). Financial data is obtained through the Office of Local Government from each LWU's Special Schedule Nos 3 to 7 and Notes 2 and 3 of the Special Purpose Financial Statements of their *2015-16 Annual Financial Statements* (Appendix B4). DPI Water obtains the water, sewerage and trade waste charges from each LWU's website. In addition to extensive independent auditing (Appendix H3), DPI Water validates the data in order to assure data reliability (Appendix H) and provides relevant data to other Government agencies as required (i.e. to ABS, BOM and for key statewide reports including NSW 2021 and the State of the Environment Report).

[5] Successful coordination and cooperation with Commonwealth agencies (ABS, BOM) has **avoided duplication in reporting**. The single data collection in the NSW Performance Monitoring System enables DPI Water to develop evidence based policies and guidelines for the LWUs to improve productivity and to:

- Annually provide the approximately 130 NWI performance indicators for the 28 eligible NSW LWUs to the BOM for publication in the National Performance Report (www.bom.gov.au);
- Annually provide the required data to BOM and ABS; the performance indicator set has been extended by over 45 indicators to meet BOM and ABS requirements;
- Annually provide inputs for statewide reports and submissions, including the State of the Environment Report; and
- Annually prepare:
    - The *NSW Performance Monitoring Report*, which discloses the overall statewide performance of LWUs and compares that performance with interstate utilities;
    - This *NSW Benchmarking Report*, which has been prepared by DPI Water since 1986;
    - A Triple Bottom Line (TBL) Report for each LWU (examples in Appendix C); and
    - An Action Plan template for each LWU (examples in Appendix C).

The Australian Bureau of Meteorology's Water Amendment Regulations 2012 (No. 1) for Category 7 have been aligned with the national performance reporting through 57 water resources performance indicators (page 19 of the *National Performance Framework* www.nwc.gov.au). All Australian urban water utilities with over 10,000 connected properties are required to report data for those indicators. The NSW Performance Monitoring Database has been extended to enable the 28 eligible NSW LWUs to report this data through the NSW Database.

In addition, to avoid duplication of effort by LWUs and to facilitate sound planning and preparation of integrated water cycle management (IWCM) strategies by each LWU, a 21-year water supply and sewerage planning data set of 170 performance indicators has been developed with the key results reported for each LWU in the NSW Benchmarking Report and each LWU's TBL Performance Report since 1994/95. These LWU data sets will minimise the work required for assembling and analysing the necessary water supply and sewerage historical and pricing data by each LWU and are now available to each LWU on request (urbanwater.ctw@dpi.nsw.gov.au). An example data set based on the data reported by Coffs Harbour City Council can be downloaded here.

3.2. Benchmarking

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

In addition, each LWU should undertake 'Syndicate Benchmarking' of its work processes with a group of LWUs with similar characteristics. The best-practices thus identified can then be adopted by other LWUs.

3.3 TBL performance reports and action plans

As indicated in section 3.1, DPI Water provides each LWU with an annual TBL Performance Report and a template for its Action Plan to Council for its water supply business and for its sewerage business. Each TBL report is an annual "report card" which discloses the LWU's implementation of the outcomes required by the NSW Best-Practice Framework 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 in section 5.4. Example TBL reports and action plans are provided in Appendix C.

LWUs that implement the 19 planning, pricing and management outcomes required by the *Best-Practice Management of Water Supply and Sewerage Framework* will have demonstrated appropriate, affordable, cost-effective and sustainable piped water supply and sewerage services and compliance with National Competition Policy and the National Water Initiative (section 4).

To assist each LWU to gain a quick appreciation of its performance relative to similar sized LWUs, the LWU TBL Performance Report provides a ranking of each LWU's performance for each performance indicator (second shaded column). These rankings are based on 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). In addition, rankings are provided for each LWU's performance relative to all LWUs (third shaded column).

LWUs will appreciate that **each performance indicator is a 'partial' indicator only and therefore cannot be interpreted in isolation**. In addition, the rankings are indicative only and do not take into account the wide range of factors that can impact on a LWU's performance, as discussed in section 5.2. The aim of ranking each LWU's performance is to assist the LWU in identifying any areas of underperformance in comparison with similar sized LWUs. It should also be noted that a low ranking for some performance indicators does not necessarily mean an LWU is not performing well as there are a number of factors that can impact performance as shown in section 5.2. Eg. the rankings take no account of the impact of utility characteristics (eg. whether the water supply is fully filtered, whether the utility provides a bulk storage dam and raw water transfer mains, whether the supply is nearby good quality groundwater etc.).

The second page of the TBL reports provide graphs with the LWU's performance and the statewide median over the past 10 years for 15 key indicators (Appendix C). 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. In addition to the typical residential bill, economic real rate of return, operating cost, employees, main breaks and complaints, indicators include:

- Drought water restrictions, Incidence of unplanned interruptions and average duration of interruptions
- Peak day & peak week water supplied (kL/d/property) and average annual residential water supplied
- Water usage charge (per kL) and Residential revenue from usage charges (%)
- Non-residential sewer usage charge (per kL)
- Effluent recycled (%), Biosolids reuse (%) and sewage that complied with licence (%)
- Capital expenditure (per property)
- Net greenhouse gas emissions for water and sewerage (per property)

Each LWU needs to review its performance using its annual TBL performance reports for water supply and sewerage and to prepare and implement a sound Action Plan to Council (Appendix C) which addresses any emerging issues following its review and update of its 30-year total asset management plan and 30-year financial plan or any areas of under-performance, as indicated in section 5.4.

4 BEST-PRACTICE MANAGEMENT

4.1 Regulatory framework

Through Goal 21 of the State Plan NSW 2021, the NSW Government's Country Towns Water Supply and Sewerage (CTWSS) program, the Regional Water and Waste Water Backlog (RWWWB) Program, the *Local Government Act 1993* and the *Water Management Act 2000*, the Minister for Regional Water is responsible for overseeing and monitoring the performance of regional NSW LWUs in the sustainable provision of water supply and sewerage services to the community. The aim of NSW Government policy is for regional NSW LWUs to achieve appropriate, affordable, cost-effective and sustainable water supply and sewerage services.

The State Government will continue to work with the regional NSW water utilities to ensure the community benefits from effective, sustainable and safe piped water supply and sewerage services. DPI Water oversees and monitors utility performance, provides leadership, guidance, software and training (section 4.2) to the utilities and is the primary regulator for the 92 regional LWUs. DPI Water provides guidance in best-practice planning, pricing, management, operation and maintenance for LWUs.

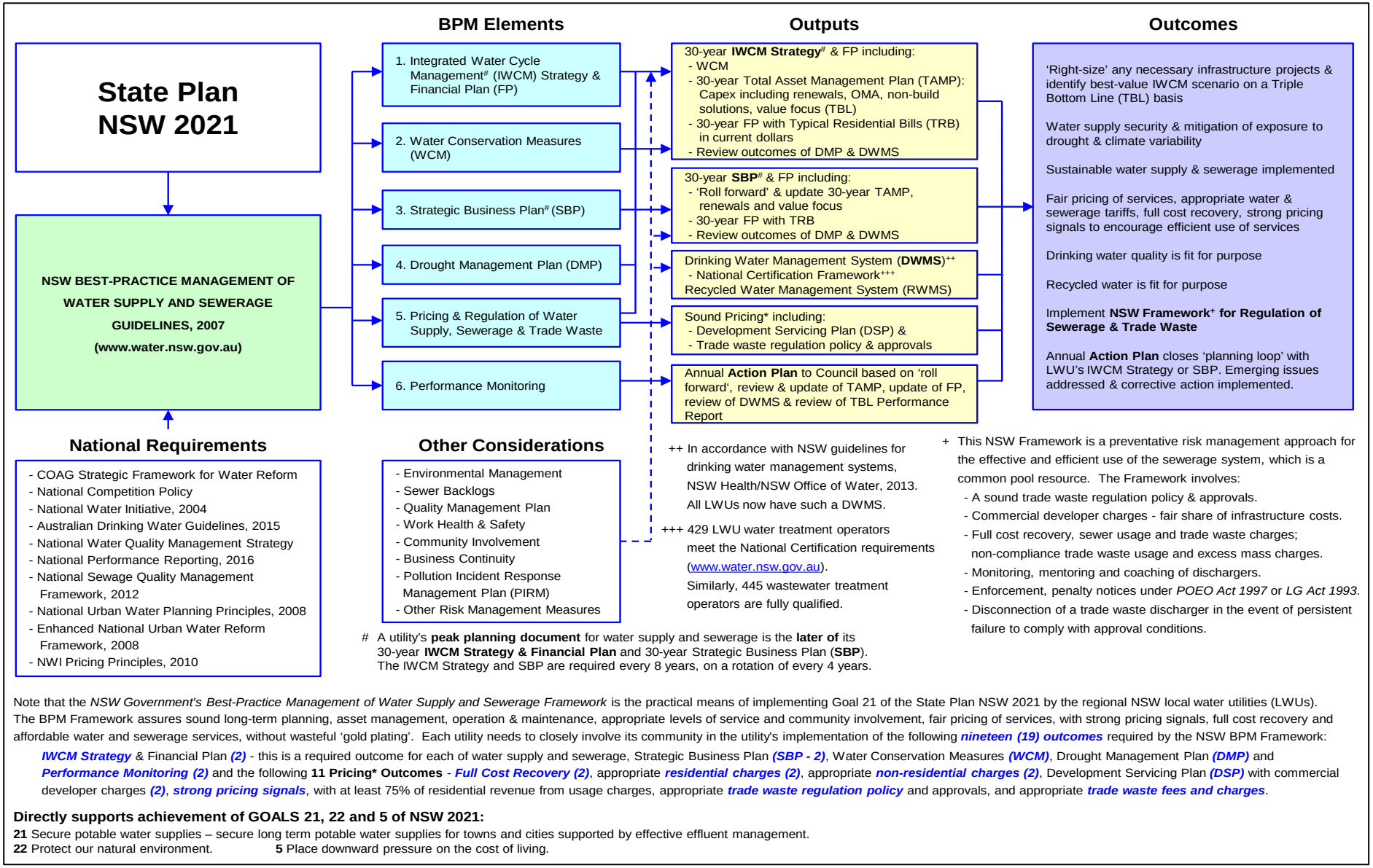
The then Minister for Energy and Utilities published the '*Best-Practice Management of Water Supply and Sewerage Guidelines'* in 2004. These guidelines consolidated a number of earlier initiatives and are the key driver for reform of planning, pricing and management and for continuing productivity and performance improvement by each utility. The guidelines involve a **locally based decision making and self-regulation regime**, with strategic oversight of LWU implementation of the 19 outcomes required by the guidelines by DPI Water. All LWUs are required to implement these outcomes (footnote 6 in section 4.2).

In addition, such implementation (Table 3) is necessary for the eligibility of LWUs for:

1. the payment of a dividend from the surplus of their water and sewerage businesses to the Council's general revenue
2. financial assistance towards the capital cost of backlog infrastructure (as at 1996) under the CTWSS program or the RWWWB program.

The then Minister for Water Utilities published revised *Best-Practice Management Guidelines* in August 2007 in order to update the Guidelines and address the requirements of the National Water Initiative. The resulting *NSW Best-Practice Management of Water Supply and Sewerage Framework* is shown in section 4.1.

Utilities which have implemented all of the 19 outcomes required by the *Best-Practice Management Framework*, including a current 30-year IWCM Strategy and financial plan, are encouraged to pay an 'efficiency dividend' from the surplus of their water supply and sewerage businesses to the Council's general revenue. Refer also to the box in section 5.4.



Note that the *NSW Government's Best-Practice Management of Water Supply and Sewerage Framework* is the practical means of implementing Goal 21 of the State Plan NSW 2021 by the regional NSW local water utilities (LWUs). The BPM Framework assures sound long-term planning, asset management, operation & maintenance, appropriate levels of service and community involvement, fair pricing of services, with strong pricing signals, full cost recovery and affordable water and sewerage services, without wasteful 'gold plating'. Each utility needs to closely involve its community in the utility's implementation of the following ***nineteen (19) outcomes*** required by the NSW BPM Framework:

IWCM Strategy & Financial Plan ***(2)*** - this is a required outcome for each of water supply and sewerage, Strategic Business Plan ***(SBP - 2)***, Water Conservation Measures ***(WCM)***, Drought Management Plan ***(DMP)*** and ***Performance Monitoring (2)*** and the following **11 Pricing* Outcomes** - ***Full Cost Recovery (2)***, appropriate ***residential charges (2)***, appropriate ***non-residential charges (2)***, Development Servicing Plan ***(DSP)*** with commercial developer charges ***(2)***, ***strong pricing signals***, with at least 75% of residential revenue from usage charges, appropriate ***trade waste regulation policy*** and approvals, and appropriate ***trade waste fees and charges***.

Directly supports achievement of GOALS 21, 22 and 5 of NSW 2021:

21 Secure potable water supplies – secure long term potable water supplies for towns and cities supported by effective effluent management.
22 Protect our natural environment. **5** Place downward pressure on the cost of living.

Chart 1 - NSW Best-Practice Management (BPM) of Water Supply and Sewerage Framework

4.2 Best-practice management framework

The *NSW Best-Practice Management of Water supply and Sewerage Framework* (section 4.1) drives reform of planning, pricing and management and continuing improvement in productivity and performance of water and sewerage services in NSW. The Framework identifies the key elements in the delivery of water supply and sewerage services to the community and is available on the DPI Water website (www.water.nsw.gov.au).

The *Best-Practice Management (BPM) Framework* shows that utilities which implement the Framework also implement the following national urban water requirements:

- *COAG Strategic Framework for Water Reform;*
- *National Competition Policy;*
- *Australian Drinking Water Guidelines, 2015;*
- *National Water Quality Management Strategy;*
- *The National Water Initiative (NWI), 2004;*
- *National Performance Reporting, 2016:*
- *National Sewage Quality Management Framework, 2012;*
- *National Urban Water Planning Principles, 2008;*
- *Enhanced National Urban Water Reform Framework, 2008;* and
- *The NWI Pricing Principles, 2010.*

In summary, the BPM Framework requires a LWU to prepare strategic business plans and financial plans setting out how it plans to manage these businesses over the next 30 years. This requires negotiation of appropriate levels of service with the community and development of the utility's 30-year total asset management plan (TAMP). This involves a cost-effective capital works program (without wasteful 'gold plating' (Appendix H4.6)) which discloses each of the growth, improved standards and renewals components, together with a sound operation plan which includes cost-effective non-build solutions, and a maintenance plan.

The strategic business plan must include both the above 30-year TAMP and a sound 30-year financial plan which identifies the resulting Typical Residential Bill (in current dollars) over this period. Each LWU needs to prepare a 30-year strategic business plan, TAMP and financial plan in accordance with the July 2014 Check List (www.water.nsw.gov.au). Ninety-three per cent of the NSW LWUs have now prepared such a sound strategic business plan, TAMP and financial plan (column 34 of Table 5). These plans cover over 99% of the connected properties in regional NSW. Annual 'roll forward', review and update of the 30-year TAMP and 30-year financial plan and preparation and implementation of an annual Action Plan to Council (Appendix C) will ensure the long term effectiveness and sustainability of these services.

All the utilities need to implement the 19 outcomes[6] required by the Framework (Table 3), which involve the following six interrelated elements:

(1) Integrated water cycle management

[6] 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 that have responsibility for water supply and sewerage infrastructure need to comply with the required outcomes and timeframes of the *NSW Government's Best-Practice Management of Water Supply and Sewerage Guidelines, 2007*. These required outcomes 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 required outcomes is available from the DPI Water website www.water.nsw.gov.au."

(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 set out in Appendix H of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au), the NSW Best-Practice Management Framework has been streamlined in order to minimise the regulatory burden and the cost to LWUs, without diminishing effectiveness or efficiency in achieving the outcomes required by the BPM Framework. This has resulted in deletion of 9 documents previously required over an 8 year cycle. However, the analysis and responses required for the deleted documents have been subsumed into the IWCM Strategy and Financial Plan and the Strategic Business Plan (SBP) and Financial Plan, which will now need to be prepared every 8 years on a rotation of every 4 years (Chart 2).

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**.

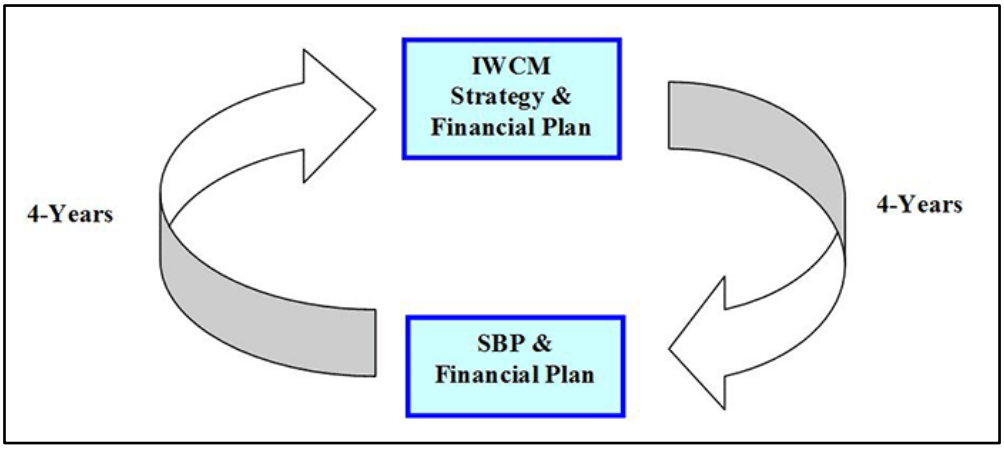


Chart 2 - Preparation timing of IWCM strategy & financial plan and SBP & financial plan

The reported LWU implementation of each outcome required by the Framework is shown in Table 3 of this report and the overall level of implementation is shown in column 33 of Table 5. A summary of LWU implementation is provided in the *2015-16 NSW Performance Monitoring Report* (section 4.3 and Figures 34, 35 and 36). Particular attention is required for strategic business planning and financial planning (column 34 of Table 5), full cost recovery (columns 29 and 30 of Table 5, section 5.4), residential water supply revenue from usage charges (column 3 of Table 5 and Figure 13), non-residential sewer usage charges (column 3a of Table 7 and Figure 44), liquid trade waste fees and charges (column 2 of Table 7C and Figure 45), trade waste regulation policy and approvals (columns 1 and 3 of Table 7C), and an IWCM Strategy and financial plan.

As noted in section 4.2 of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report*, future IWCM Strategies will need to be in accordance with the July 2014 IWCM Check List (www.water.nsw.gov.au) and to include assessment of the secure yield of the utility's water supply in accordance with new climate variability guidelines.

The *Local Government Integrated Planning and Reporting (IPR) Framework, March 2013* (footnote 6 in section 4.2) has been designed to complement and avoid duplication with the *Best-Practice Management of Water Supply and Sewerage Guidelines*. The inter-relationship of the IPR Framework with the BPM Framework is shown on pages 4, 95 and 99 of the *NSW Water and Sewerage Strategic Business Planning Guidelines, July 2011* (www.water.nsw.gov.au). Refer also to Appendix H2 and figure H4 of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au).

Software, guidelines and training

DPI Water provides comprehensive software, guidelines and check lists to assist LWUs in developing appropriate water supply and sewerage strategic business plans, financial plans, community involvement[7], pricing (section 4.2), including water supply tariffs, sewerage tariffs, liquid trade waste fees and charges, developer charges (Appendix H5), total asset management plans (TAMP - capital works plan, operation plan including non-build solutions and a maintenance plan), asset valuation[8], integrated water cycle management (IWCM) strategies (section 4.2), water conservation and demand management, drought management, assessing future urban water security[9], trade waste regulation policies (Appendix H5) and greenhouse gas calculation (Appendix G).

The NSW Government also provides **nationally certificated training** (section 6.2) 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).

4.3 Managing drinking water quality

In regional NSW, the public reticulated water supply and sewerage services are the most important factor in protecting public health.

4.3.1 Risk based drinking water management system

A safe and reliable drinking water supply is the most essential and critical public health service provided by a Local Water Utility (**LWU**) to its community. 99.9 per cent of the 21,600 regional NSW samples tested for E. coli in 2015-16 complied with the *Australian Drinking Water Guidelines 2011 (ADWG),* (column 9 of Table 5, column 71 of Table 12, Figure 17 and Appendix D1).

The risk of contamination of public water supplies due to system integrity failure remains the dominant cause. This can be seen in the table in section 4.3, which indicates that 86% of the 22 boil water alerts issued by LWUs over the period May 2006 to June 2008 were due to system integrity breaches.

Table 12 shows that all 84 LWUs providing a drinking water supply have a risk-based drinking water management system (DWMS), 2 of which have had their system externally assessed. Each DWMS needs to comply with the *NSW guidelines for drinking water management systems*, NSW Health and Office of Water, 2013. Such systems should include reference to sound standard operating procedures (SOP) in accordance with the 3rd paragraph of the box on the following page.

[7] 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).

[8] NSW Reference Rates Manual for Valuation of Water Supply, Sewerage and Stormwater Assets, 2016, DPI Water (www.water.nsw.gov.au).

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

[10] 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, 86% of recent boil water alerts in regional NSW were found to be due to avoidable system integrity breaches (section 4.3). 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 e.g. due to poor treated water quality. (http://www.health.nsw.gov.au/environment/water/Pages/nswhrp-microbiological.aspx).

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 the *NSW guidelines for drinking water management systems*, NSW Health and Office of Water, 2013 (Table 12). Annual review of your DWMS is required (section 5.4).

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

1. Complies with ADWG for microbiological quality (health related).
2. Complies with ADWG for chemical quality (health related).
3. Maintains the microbiological[6] and chemical drinking water quality through providing appropriate water supply, treatment & distribution infrastructure and carrying out necessary operation and maintenance activities in accordance with sound standard operating procedures (SOP). These include adjusting treatment processes in response to changes in raw water characteristics and regular inspections of service reservoirs 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 (section 4.3.3, Appendix E3).
4. Maintains effective disinfection and the integrity of the utility's water supply distribution systems in accordance with Circular LWU 18 of June 2014 (Appendix E). The LWU needs to provide a Summary Report to DPI Water (Appendix E) following its detailed investigation of the integrity of each of its water supply distribution systems.

Guidance on items 3 and 4 above is provided in Appendix E, which sets out a robust basis for assuring the safety of a water supply. Each LWU needs to ensure that the standard operating procedures (**SOP**) for its water supply systems **meet** the minimum monitoring **requirements in Appendix E** for ensuring effective disinfection of the source water and assuring the integrity of its distribution system in order to prevent contamination of the supply.

In view of their importance for ensuring public health protection, any failures to achieve microbiological compliance in the last 2 financial years or any 'boil water alerts' in the last 18 months, the corrective action implemented and whether it was successful must be reported in your LWU's annual Action Plan to Council (note 4 of the example water supply action plan in Appendix C1). Refer also to section 5.4.

Assistance available: urbanwater.ctw@dpi.nsw.gov.au or Manager Water and Sewerage on (02) 9842 8495 or your Regional Water and Sewerage Treatment Officer (refer to section 6.1).

4.3.2 Boil water alerts and lessons learnt

Information provided by the Water Unit of NSW Health has revealed that 22 boil water alerts were issued by LWUs between May 2006 to June 2008 (refer to the table in section 4.3). The vast majority of these alerts were due to system integrity breaches, which resulted in failure of the water utility to meet the microbiological water quality requirements of ADWG. The alerts were issued by LWUs of all sizes, with ten alerts issued by LWUs with over 10,000 connected properties, three by utilities with 3,001 to 10,000 properties and nine by utilities with under 3,000 properties. A total of 24,500 people (1.4 per cent of the 1.8 million people served) were affected by the boil water alerts.

Photos 1 to 5 on the following page show examples of failure of distribution system integrity in regional NSW.

However, it is acknowledged that 14% of the alerts were due to pumping of highly turbid raw water during flooding, which was mostly beyond the control of the LWU, unless the LWU had access to alternate water sources, or had imposed water restrictions on residents to allow it to avoid pumping during such floods.

The lessons shown here have been integrated into the guidance in Appendix E to provide a robust basis for assuring the safety of a water supply. As noted in the box above, each LWU needs to ensure that the standard operating procedures (**SOP**) for its water supply systems **meet** the minimum monitoring **requirements in Appendix E** for ensuring effective disinfection and assuring the integrity of its distribution systems in order to prevent contamination of the supply.

4.3.3 Examples of failure of integrity of distribution systems

Photo 1 shows the **hatch** of a 20m high service reservoir, which has inadvertently been **left open** for a few weeks. The result was repeat detections of E. coli in the reticulated water supply and the need to issue a boil water alert.

Photo 1 - Service reservoir hatch left open

Photos 2 and 3 are underwater photos in the above service reservoir showing evidence of contamination by birds - **bird eggs** & **dead birds**.

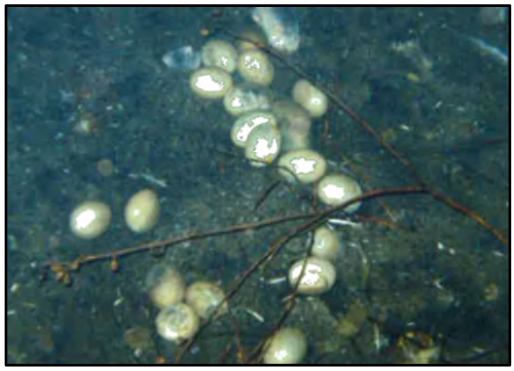


Photo 2 - Bird eggs in reservoir

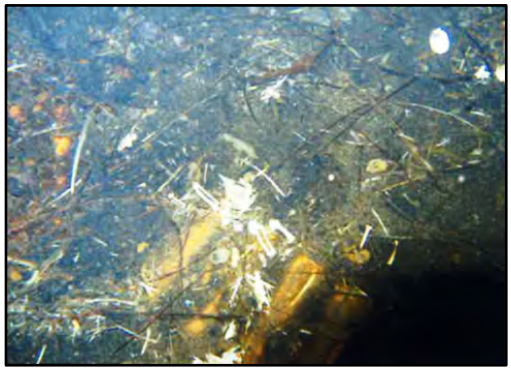


Photo 3 - Dead birds in reservoir

Photo 4 is a service reservoir where the **mesh openings** are **too large** and the roof design is deficient, allowing the entry of small birds, rainwater and windblown material to contaminate the stored water. The reservoir roof needs to be modified so that roof runoff and windblown material cannot contaminate the stored water. **Photo 5** shows mesh openings that are also too large, allowing entry of vermin, such as wasps and windblown material.

Photo 4 – Deficient reservoir roof design

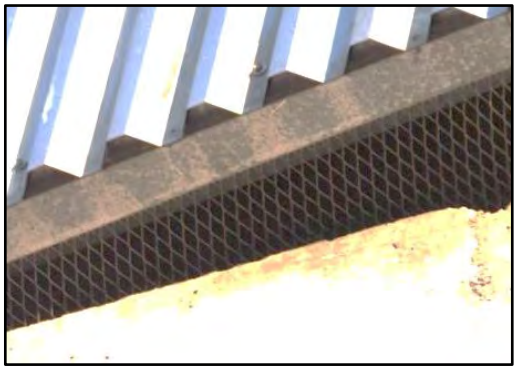


Photo 5 - Large mesh openings on reservoir

The continued detection of E. coli in reticulated water supplies and boil water alerts in 2012 and 2013 have highlighted the need for a strategic approach for assuring the integrity of the distribution system to prevent contamination of a water supply that has been effectively disinfected. The recommended approach in Appendix E was developed by DPI Water and NSW Health in consultation with the NSW Water Directorate and LWUs to provide a robust basis for assuring the safety of a water supply. As noted in the box on the previous page, each LWU needs to review its present standard operating procedures (SOP) to ensure they address the minimum requirements in Appendix E for achieving safe water supplies:

Barrier 1 – **Effective disinfection** to kill, inactivate or remove pathogens in the water supply prior to distribution.

Barrier 2 – Ensure **distribution system integrity** to prevent contamination.

Barrier 3 – **Maintain free chlorine residual** in the water in the distribution system where practicable, to help protect against minor contamination and as an indicator of a potential breach in distribution system integrity.

4.3.4 Summary of boil water alerts in regional NSW – May 2006 to June 2008

No. of alerts	Reason for alert
17	Defects in the reservoir roof, wall or bird proofing which allowed bird entry through gap in reservoir roof or windblown material to contaminate the treated water.
3	Highly turbid raw water, no filtration plant, ineffective disinfection.[11]
1	Failure to properly clean and disinfect the main after replacement of valves and fittings.
1	Backflow in the mains due to inadequate backflow prevention device.

Notes:

1. The information in the above table was provided by NSW Health's Water Unit or obtained by DPI Water from the relevant LWU.
2. Duration of boil water alerts generally ranged from two days to 25 days with a median of nine days.
3. Total population affected by the 22 boil water alerts was 24,500.

These incidents highlight that 86% of the alerts were due to breaches in distribution system integrity such as the entry of birds or windblown material through **defects in the reservoir roof, wall or bird proofing**. They also show that a number of LWUs have been using reactive measures to protect public health. Preventive management in accordance with Appendix E provides a robust basis for assuring the safety[10] of a water supply and would have avoided the need for 86% of the above boil water alerts.

A number of important lessons have been learnt from the above boil water alerts as tabulated below:

4.3.5 Lessons learnt[12] from boil water alerts

Practices	Lessons
Management	• Carry out regular preventative maintenance and calibration of chlorinators and associated equipment.
Disinfection	• **Ensure effective disinfection of the source water** prior to distribution.
	• Continuous monitoring[13] of the chlorination system to warn of any interruptions/failures of the chlorinator.
	• Carry out chlorine demand tests on a regular basis and after a change in raw water characteristics; adjust chlorine dosage as necessary.
Storage (service reservoirs/tanks)	• Ensure entry hatches to service reservoirs are secure and that hatches are not left open; particular care is required if third parties (e.g. telephone companies) have been given access to your LWU's reservoirs.
	• Regular physical inspection is essential in order to **detect** and **repair** any design deficiencies (eg. photos 4 and 5 in section 4.3) or **defects** in the **reservoir** roof, wall or bird proofing of each reservoir. Early repairs must be effected to correct any defects and **prevent contamination** of the stored water by birds, vermin or windblown material (Appendix E).
Free chlorine residual	• **Maintain a minimum free chlorine residual of about 0.2 mg/L** throughout the water supply distribution system[14] (including extremities where practicable).
Backflow prevention	• Ensure appropriate backflow prevention devices are installed and are properly maintained (including any rain water tanks used for toilet flushing).
Source monitoring	• Monitor the raw water regularly and after storm events for evidence of changes in colour or turbidity.
	• Chlorine demand tests should be carried out on a regular basis.
	• Adjust chlorine dosing as necessary.

[11] Guidance on ensuring effective disinfection and assuring the integrity of the distribution system to prevent contamination of the supply is provided in Appendix E. This guidance incorporates the above lessons.

[12] The above lessons include learnings from the investigation of several boil water alerts in 2012 and 2013. The investigations have identified instances of bird droppings on reservoir roofs contaminating the stored water through unplugged drill holes in the reservoir roof and windblown material. Each LWU should **within the next 12 months physically inspect** each reservoir roof, wall and bird proofing using lifting equipment in order to identify and repair such defects and provide a Summary Report (Appendix E) on findings and the corrective action implemented. This action is essential in order to proactively assure distribution system integrity and to prevent contamination of the water supply.

[13] Monitoring requirements must be clearly documented in each LWU's Drinking Water Management System with appropriate responsibility & authority assigned to suitably **trained officers**. Refer to Appendix E, section 5.4 and section 6.2.

[14] Maintaining such **a chlorine residual** is Barrier 3 in the recommended **multi-barrier approach** for assuring drinking water quality (Appendix E4).

4.3.6 Outcomes of reservoir and distribution system integrity inspections

Many LWUs are at various stages of implementing the outcomes required by the protocol for assuring the safety of water supply distribution systems as per Circular LWU 18.

4.4 Achieving efficient water use

Achieving efficient water use is a key responsibility for each water utility. As shown on the following page and Figure 26, the regional NSW utilities have reduced the average annual residential water supplied per property by 51 per cent over the past 25 years.

Many LWUs have reduced their average annual residential water supplied by over 51 per cent over this period through community education, water conservation, water efficient appliances and providing appropriate pricing signals to encourage efficient water use. In particular, as shown on graph 3 of Appendix A and Figure 12, the first step water usage charge has risen to 230 c/kL. This provides a strong pricing signal and is among the highest of all the other Australian utilities.

LWUs are reminded that Circular LWU 11 of March 2011 (refer also to the box in section 5.4) has removed the need for use of inclining block tariffs by LWUs. **The NSW Government encourages**[15] **LWUs to use a 2-part tariff with a uniform water usage charge per kL for all water use**. IPART has implemented such tariffs for Sydney, Hunter, Central Coast (Gosford and Wyong) and Essential Energy.

The median revenue from residential water usage charges was 73 per cent (Figure 13). However, affordability has been maintained through the $625 (Jan 2017$) water Typical Residential Bill, which has increased by only 22% in real terms over the past 21 years (graph 5 of Appendix A).

The strong pricing signals provided by the NSW LWUs have enabled them to avoid over $1B in capital expenditure over the last decade for augmenting water supply headworks and treatment capacity and the associated increases in their typical residential bills. The strategic benefits of the strong pricing signals implemented by the NSW water utilities are highlighted on the following page.

Any LWU which is not achieving the required revenue from residential water usage charges (column 3 of Table 5) should develop an appropriate tariff in order to provide the necessary pricing signals to its customers and achieve the above benefits of efficient water use in its area. LWUs also continue to need to achieve full cost recovery (box in section 5.4 and column 29 of Table 5). Assistance is available from DPI Water (Dilip.Dutta@dpi.nsw.gov.au or (02) 9842 8499).

The peak day water supplied per property is shown in Figure 8, Figure 33c in Table 4 and on each LWU's TBL Performance Report (graph 33c in Appendix C). Figure 33c in Table 4 shows a 54% reduction in the statewide median peak day water supplied per connected property over the past 16 years. This can provide major cost savings through avoiding or deferring the need to augment the capacity of water treatment works, service reservoirs, pumping stations and trunk mains (section 5.3).

[15] Refer to page 15 of the NSW Government's submission of May 2011 on the Productivity Commission Draft Report '*Australia's Urban Water Sector, April 2011*' (available at www.pc.gov.au and www.water.nsw.gov.au/urban-water/default.aspx#draft).

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 230 cents per kilolitre over the past 21 years. Although 68% of the NSW local water utilities had a 'free water allowance' in 1996-97, these were abolished by July 2007.

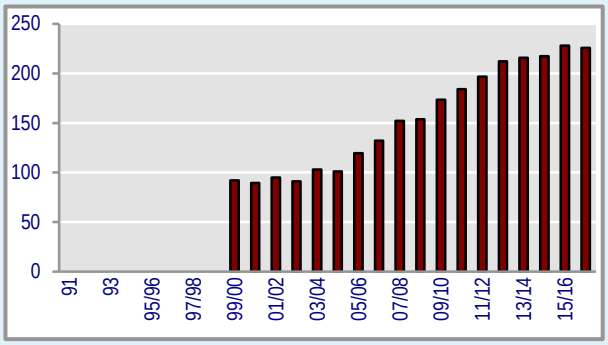


Chart 1 - Residential water usage charge (c/kL Jan 2017$)

2. The NSW LWUs have reformed their pricing through strong pricing signals, with residential revenue from usage charges increasing from 20% to 73% over the past 22 years. 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.

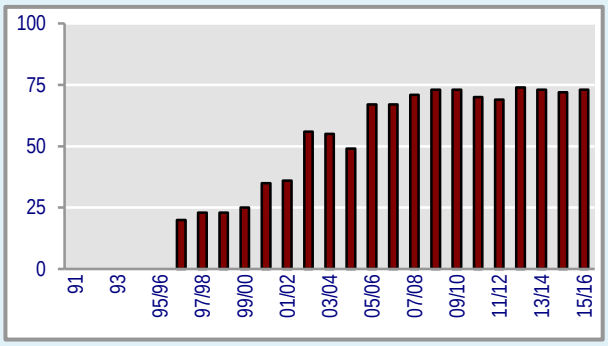


Chart 2 - Per cent of residential revenue from water usage charges

3. Increased water usage charges have sent strong pricing signals, which have assisted the NSW utilities to achieve a 51% reduction in residential water supplied per property since 1991. 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.

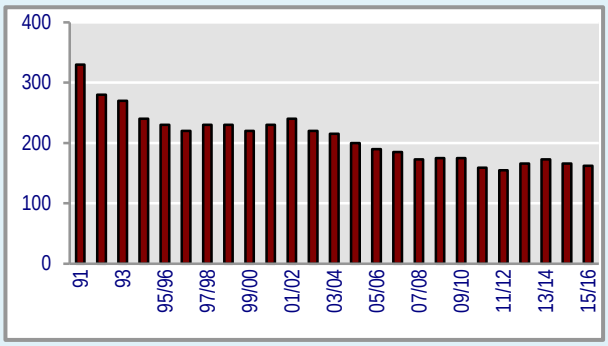


Chart 3 - Average annual residential water supplied (kL/connected property)

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 22% over the past 22 years. 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.

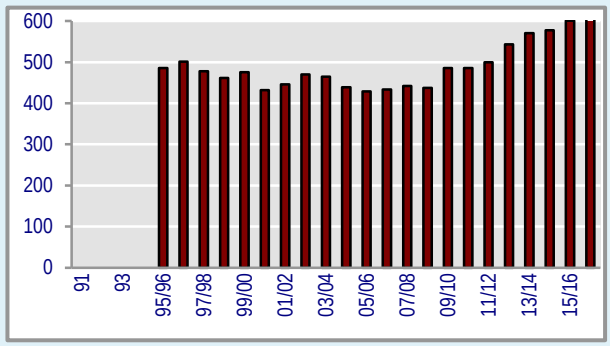


Chart 4 - Typical residential bill - water ($/property Jan 2017$)

4.5 Asset management

4.5.1 Infrastructure renewals

As noted in section 4.2, 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. 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 10 and 15 respectively, as well as Tables 5C and 5D. These are also shown on notes 9 and 10 respectively of each LWU's Water and Sewerage TBL Reports (Appendix C).

Renewals programs for LWUs vary in complexity from a reactive approach (no renewals, repairs (maintenance) undertaken as required) to development of a comprehensive total asset management plan (TAMP). A TAMP is essential as it forms the foundation for a LWU's 30-year strategic business plan. LWUs therefore need to continue to develop and annually update their TAMP and financial plan.

As noted in section 4.2, the 30-year TAMP comprises an operation plan, which includes cost-effective non-build solutions, a maintenance plan and a capital works plan (involving works for improved levels of service, works to service growth and a **30-year renewals plan**[16]).

For a water supply distribution system, for example, an operation plan would be required as part of the LWU's risk management. The operations review needs to include:

- **An economic analysis** – identifies pipelines where renewal is more economic than continuing with repairs. Takes into account the impact of pipe failure (e.g. failure of a pipeline in the CBD has more impact than failure of a pipeline on the outer edge of the system).
- **A reliability analysis** – identifies pipelines where renewal is required for reliability (to ensure performance requirements with regard to supply interruptions can be achieved).
- **A capacity review** – identifies pipelines where augmentation or replacement is required (to maintain the required pressure or flow).
- **A leakage analysis** – identifies whether leakage reduction is economically warranted.

The driver of renewals expenditure is the ability to cost-effectively meet the LWU's performance requirements, i.e. the levels of service and the associated Typical Residential Bill (TRB) negotiated with the community. Other relevant considerations are the condition and age of the assets.

For water supply and sewerage, it is misleading to measure annual renewals expenditure on the basis of a percentage (say 1 or 2 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 (e.g. 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 – capital works plan, operation plan, including non-build solutions and maintenance plan[17].

They should ensure their typical residential bill is in accordance with the projection in the later of their IWCM strategy and strategic business plan. They should also annually monitor income and expenditure and annually 'roll forward', review and update their 30-year TAMP for projects completed, modified or deferred and input the results, together with their latest annual financial statements to prepare an update of their 30-year financial plan. Any warranted corrective actions, including those from the review of the LWU's DWMS and any Section 61 Reports needs to be included in the LWU's annual Action Plan to Council (section 5.4).

[16] DPI Water will be preparing tools and guidance materials on identifying and implementing a cost-effective & robust 30-year renewals plan. Refer also to Item 7F of the July 2014 Strategic Business Planning Check List (www.water.nsw.gov.au).

[17] Refer to pages 84 and 85 of the *2010-11 NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au).

Funding in the financial plan involves an appropriate mix of the utility's annual income, accumulated cash and investments and borrowings. As noted in section 5.4, your LWU's Action Plan must report on whether the Typical Residential Bill (TRB) is consistent with the projection in the later of your LWU's 30-year strategic business plan and financial plan and 30-year IWCM Strategy and financial plan.

As shown in Figure 21 and graph 10 of Appendix A, water main breaks for NSW LWUs have remained much lower than all the other states and metro utilities, indicating good water main asset condition.

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 *2015-16 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).

Information on asset valuation and economic life can be obtained from the '*NSW Reference Rates Manual for Valuation of Water Supply, Sewerage and Stormwater Assets'*, 2016 (www.water.nsw.gov.au) and broad guidance on asset management is provided in section 10 of the *NSW Water and Sewerage Strategic Business Planning Guidelines*, NSW Office of Water, July 2011 (www.water.nsw.gov.au).

4.5.2 Leakage

Water leakage and apparent losses are often poorly defined and poorly understood and, in general, water utilities have a relatively limited awareness of the true value of these two parameters within their water supply systems. The International Water Association (IWA) has adopted the following terminology:

- **Real losses** are physical water losses from the potable water supply distribution system up to the point of customer metering. They can occur through leaks, bursts and reservoir overflows. Recent LWU results are shown in column 41e of Table 10 and Table 10A.
- **Apparent losses** reflect errors in measurement and/or the documentation process. They generally consist of customer use which is not recorded due to metering error (mostly under-registration of worn customer meters), incorrect assumptions of unmeasured use or unauthorised consumption (illegal use). (Refer to columns 4 to 6 of Table 8A).
- **Water losses** = Real Losses (mostly leakage) + Apparent Losses (meter errors, illegal use).
- **Non-revenue water (NRW)** consists of Water Losses plus unbilled authorised consumption (column 41f of Table 10, column 9 of Table 8 and Figure 29. Unbilled authorised consumption (column 8b of Table 8 and column 9 of Table 8A) may or may not be metered and may include firefighting and mains flushing. Any watering of parks and gardens (column 6 of Table 8) should be metered and billed by each LWU.

Leakage management is an essential element of asset management. Leakage cannot be totally avoided due to the large number of service connections in a water supply network (column 18a of Table 9). Small 'weeps' in connections result in unavoidable losses and these losses increase with higher system pressure.

Leakage and water losses have historically been reported as a percentage of water supplied. Although this identifies the significance of these parameters in relation to the total water supplied, it is not helpful in monitoring the effectiveness of a utility's performance in reducing losses and is perversely affected by reductions in water consumption and water restrictions due to drought. In addition, these indicators do not measure the efficient management of leakage in a distribution system because they take no account of multiple properties, density of service connections (Indicator WB30 in Appendix B1), length of mains, customer meter location in relation to the property boundary or the operating pressure. Water loss in L/d per connection is recommended by IWA as the best traditional basic technical indicator for real losses, although it does not account for other factors such as length of main or operating pressure. In particular, reductions in operating pressure have been shown to greatly reduce system leakage.

The Infrastructure Leakage Index (ILI) has been proposed as an indicator which measures how effectively real losses are being managed at the current operating pressure while accounting for other influential factors such as length of mains, number of service connections and customer meter location. The ILI is calculated from the ratio of the Current Annual Real Losses (CARL) to the Un-Avoidable Real Losses (UARL). CARL is the annual real losses divided by the number of service connections and percent of time the system is under pressure. UARL is a function of length of mains, number of service connections and average system pressure.

An ILI of 1.0 indicates that only unavoidable losses are occurring and that optimum leakage management is in place. There is of course a significant cost associated with operating a system with an ILI of 1.0 and this

may not be warranted. An ILI of less than 1.0 is meaningless. When interpreting ILI data it should be noted that many of the inputs are imprecise. While an ILI of 2.2 appears to be better than one of 2.5, in practice it is likely both represent similarly well managed systems.

The ILI is recommended by the International Water Association for international comparisons of water utilities. The National Performance Framework (www.nwc.gov.au) has adopted the ILI as a measure of leakage (NWI Indicator A9) and DPI Water has reported the ILI for each LWU since 2005-06 (column 41b of Table 10). DPI Water will also continue to report **leakage as L/d per connection** (the relevant measure for utilities with over 20 connections/km, which is the vast majority of NSW LWUs) (column 41 of Table 10, Figure 28), which is the best measure **for tracking a LWU's leakage performance over time**. This indicator (A10) is also preferred in the National Performance Framework. Similarly, as indicated in note 9 of section 6, **Non-Revenue Water** (**NRW** in L/connection/d) should be used for tracking a utility's performance over time. Refer also to column 41f of Table 10 and Figure 29.

Analysis by the International Water Association has demonstrated that the Australian urban water utilities (based on results reported in the National Performance Report 2007-08 for urban water utilities) are by far[18] the best performing urban water utilities in the world for minimising leakage and real losses.

The statewide median real water loss is 70 L/connection/d, which is lower than the national Median of 76 L/connection/d (Table 5, Figure 28 and graph 12 of Appendix A). As shown in Table 10, 59 LWUs have recently carried out water loss management, including leakage testing, analysis and leakage reduction. The Regional NSW Water Loss Management Program (Table 10A) 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. Real water losses 'before' and 'after' the Regional NSW Water Loss Management Program are shown in columns 8 to 13 of Table 10A for each of the 68 LWUs.

4.5.3 Greenhouse gases

The National Water Initiative requires LWUs to report both direct and some indirect greenhouse gas (GHG) emission estimates (columns 35a to 35d of Table 5B, figure 7 of Table 4 and Appendix C). The **NSW greenhouse gas calculator** has been developed by DPI Water to assist LWUs. The calculator has been provided to all LWUs, as well as to interstate utilities, and is included in **Appendix G**. Direct emissions are produced from sources within the boundary of an organisation and as a result of that organisation's activities. Direct emissions mainly arise from the following activities:

- Generation of energy, heat, steam and electricity.
- Manufacturing processes.
- Transportation of materials, products, waste and people.
- Fugitive emissions (eg. Intentional or unintentional emissions from natural gas leaks, joints and seals).
- On-site waste management such as emissions from landfill sites.

Eg. LWUs with a car fleet should report emissions – petrol used in those vehicles as direct emissions.

Emission factors for calculating direct emissions are generally expressed in the form of mass of GHG emitted per unit of energy (kg CO_2/GJ). Factors are used to calculate GHG emissions by multiplying the factor (e.g. kg CO_2/GJ energy in petrol) with activity data (eg. kL x energy density of petrol used).

Indirect emissions are emissions generated in the wider economy as a consequence of the LWU's activities, but which are physically produced by the activities of another organisation (eg. off-site waste disposal).

Emission factors and examples of the calculation of GHG emissions are provided by the Department of Climate Change and Energy Efficiency – National Greenhouse Accounts (NGA) Factors (http://www.climatechange.gov.au/publications/greenhouse-acctg/national-greenhouse-factors.aspx).

[18] Alan Lambert "The Future of Leakage Indicators" presentation to the National Performance Report 2008-09 Definitions Review and Planning Workshop, 11 February 2010.

It is noted that many opportunities for reducing greenhouse gas emissions are often missed because their financial attractiveness is masked by not considering their full costs and benefits.

4.5.4 Rainwater tanks and water sensitive urban design

Appendix J shows a total of 42,600 residential rainwater tanks reported by 26 LWUs. The typical rainwater tank volume is 4 to 5 kL. The nine LWUs which reported at least 1,000 rainwater tanks were Armidale Regional (2,115), Bega Valley (1,800), Central Coast (20,396), Coffs Harbour (2,160), Forbes (1,007), Gwydir (1,500), Mid-Western Regional (1,721), Singleton (2,187) and Tweed (2,135).

In 2015-16, 12 LWUs released a total of 1,800 water sensitive urban design (WSUD) residential lots, compared to a total of 2,200 in 2014-15.

In addition, Appendix J shows the 20 LWUs which have a Regional Development Control Plan which requires ‘liveable towns and cities’ development or WSUD for new developments. Appendix J also shows that 236 km of stormwater channels are managed under WSUD principles.

5 IMPROVING PERFORMANCE

5.1 Performance review

A utility's **overall aim** for its water supply and sewerage businesses should be to provide value for money for its community by delivering the levels of service negotiated with the community at the lowest sustainable Typical Residential Bill (TRB). This is done through sound planning, pricing and efficient operation, setting cost-reflective developer charges, non-residential charges and liquid trade waste fees and charges and then minimising its TRB in current dollars on a sustainable basis. As noted in sections 4.1 and 5.4, utilities which have implemented the *Best-Practice Management Framework (BPMF)* are encouraged to pay an 'efficiency dividend' to the Council's general revenue and should also include the dividend amount.

In practice this means reviewing whether your performance indicators under 'Social', 'Environmental' and 'Economic' are satisfactory. If they are not, you need to develop options to raise your levels of service and consult the community to establish the option which provides the best value for money.

After undertaking a review of indicators and trends in performance, each LWU should include any warranted corrective actions in its annual Action Plan to Council using the Action Plan template provided by DPI Water (section 5.4, Appendix C).

The typical residential bill is the principal indicator of the overall cost of a water supply or sewerage system (columns 4, 5 and 6 of Table 5, Figure 1, column 8 of Table 6, Figure 10, column 8 of Table 7, Figure 42) and is the annual bill paid by a residential customer using the utility's average annual residential water supplied (column 17 of Table 5, Figure 26). A critical element in minimising the typical residential bill and providing value for money for the community is to ensure each utility's operating cost (OMA – operation, maintenance and administration) (columns 31 and 32 of Table 5, column 67 of Table 11, Figures 33, 34 and 35) is efficient.

LWUs should take note of section 5.2, which identifies the many factors that may contribute to apparent under-performance.

5.2 Factors impacting on performance

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

For example, in the case of water supply, a utility which 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 which has a nearby good quality groundwater supply. Each utility can improve its performance by taking account of such factors and comparing its performance with utilities having similar characteristics (section 5.2).

Other factors include the extent of the services provided by each utility, geography, climate etc. An understanding of these factors is vital for valid interpretation of performance data.

The most meaningful performance indicators are the trends over time for each utility. This involves identifying any trends in the indicators on page 2 of your TBL Performance Report (Appendix C) and comparing your results with the statewide and national median values and the top 20%. For the indicators on page 1 of your TBL Report, particular note should be taken of indicators that appear to be less than satisfactory, i.e. with a ranking of 4 or 5. However, even with such analysis, care needs to be exercised due to changes in the factors over time. For comparison between utilities, each utility should benchmark its performance with utilities having similar characteristics.

Some of the factors which can affect the performance of a water supply system are outlined below.

5.2.1 Utility characteristics

(1) **Climate** – the variability of rainfall is a key driver of water supply costs in relation to water demand and drought security. This will affect both capital and operation and maintenance costs. For example, the average annual residential water supplied in inland NSW is 60% higher than coastal NSW.

(2) **Geography** – Geology, geography and topography can significantly affect water transportation costs.

(3) **Asset life cycle** – Recently constructed systems have much lower maintenance costs compared to older systems. In addition, as noted in section 5.4.1, renewal costs are typically nil until the asset is approaching the end of its useful life. They also have higher Typical Residential Bills and loan payments (section 4.5).

(4) **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 (e.g. the number of properties served per km of main has a Statewide median of 33, but has a range of 3 to nearly 70 (column 26 of Table 9, Figure 6)). A further key factor is the number of small discrete urban water supply systems operated by the utility which tend to greatly increase both the capital cost[19] and the operating cost per property.

(5) **Water resources availability and proximity** – can incur significant capital and operating costs. Such costs would not apply for utilities relying on groundwater or those receiving a regulated supply from a State Water dam (note 12 of section 6).

(6) **Size of LWU** – there are significant economies of scale for large utilities, particularly the capital cost of infrastructure and the operation and maintenance costs of water treatment works (section 5.4 and Figure 37). Refer also to footnote 19 below.

5.2.2 Social – levels of service

(7) **Service standards** – Increasingly stringent standards for water quality and environmental health may result in additional capital and operation and maintenance costs to the utility. Similarly, requirements for minimum pressures or rates of flow can also affect costs.

(8) **Filtered supply** – will incur both a high capital cost and a high treatment cost per property for small water supply systems (utilities without 'unfiltered' or 'groundwater' after their name in Tables 3, 5 and 6 have water treatment involving at least filtration and disinfection for over 50 per cent of their water supply) (note 13 of section 6).

5.2.3 Environmental

(9) **High average annual residential water supplied per property** (column 17 of Table 5, column 56a of Table 10, Figure 26, Figure 33 of Table 4) – such utilities should examine opportunities for reducing the water supplied through water conservation and implementation of best-practice water pricing. Achieving efficient water use is a key responsibility for a water utility. As shown in section 4.4, the regional NSW utilities have reduced the average annual residential water supplied per property by 51 per cent over the past 25 years. Many utilities with 4,000 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 in this regard (section 4.4). Refer also to section 5.3.

5.2.4 Economic

(10) **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. As most water and sewerage assets are long-lived (eg. water mains have an economic life of 80 years), **twenty-year loan terms are strongly recommended** in order to minimise the required Typical Residential Bill (TRB), which avoids unfairly burdening existing customers and facilitates **inter-generational equity**. Refer also to section 5.4.

(11) **High pumping cost** (columns 94 to 99 of Table 13, Figure 38) – is influenced mainly by topography and geography. As noted in section 5.4, the LWU may be able to achieve significant savings in energy cost.

[19] 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 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*.

Similar considerations to those listed in this section 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.

5.3 Trends in statewide performance indicators for regional NSW

The trends in **statewide performance** indicators for regional NSW and comparisons with the national median for the 79 utilities reporting in the National Performance Report are shown in Table 4. This data provides valuable contextual information to inform your LWU's future water supply and sewerage system planning and the annual review of your LWU's TBL Performance Reports (example Reports in Appendix C). Strategic considerations arising from these results are discussed below.

Interstate performance comparisons for the 2015-16 financial year are provided in section 3 of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au) and are not repeated here.

5.3.1 Peak day water supplied

Figures 33c and 33 in Table 4 show that over the past 16 years, the statewide median peak day water supplied per connected property has **declined by 54**% to 1,400 L/property/d, whilst the average annual residential water supplied has reduced by 26%. Although these results have been affected by drought water restrictions during the Millennium Drought of 2001 to 2010 and the very wet years in 2010-11 and 2011-12, they nevertheless point to large reductions in water use, which will enable **avoiding or deferring** the need to augment water treatment and water supply distribution system capacity.

The TBL Performance Report for each LWU (Appendix C) shows graphs of the above 2 performance indicators (peak day water supplied (Figure 33c) and average annual residential water supplied (Figure 33)), as well as the peak week water supplied for each of the last 10 years (Figure 33c). **Utility planning for the design peak day water treatment capacity should be informed by the volumes of your unrestricted peak day and peak week water supplied during hot weather (Figure 33c), rather than now irrelevant former design values such as 4,000 L/d per tenement**. Refer also to the 21-year planning data set which is now available to each LWU from DPI Water for use in preparing each LWU's IWCM Strategy or Strategic Business Plan (final paragraph of footnote 5 in section 3.1). Figure 33c of Table 4 shows that the statewide median peak day water supplied over the last 6 years has ranged from 1,600 to 1,200 kL/d/connected property.

Further guidance is available in the second set of graphs in Figure 8, which shows that for inland utilities such as Dubbo, Tamworth and Orange, the ratio of peak day water supplied to average water supplied is about 200%. For coastal utilities such as Central Coast, MidCoast and Port Macquarie-Hastings, the ratio is about 150%. Note also that the ratio is higher for coastal utilities with a very high influx of summer holiday population such as Shoalhaven, Eurobodalla and Tweed.

5.3.2 Pricing signals

The above also highlights the importance of providing **appropriate pricing signals** to your community including meeting the 75% required outcome for residential revenue from water usage charges (column 3 of Table 5, **Figure 16** of Table 4), and achieving full cost recovery (column 29 of Table 5). The 75% required outcome applies to LWUs with 4,000 or more connected properties, with a 50% outcome required for smaller LWUs. As noted on page 87 of the *NSW Strategic Business Planning Guidelines* (www.water.nsw.gov.au), your long term financial plan needs to take account of your projected capital expenditure over the next 30 years, which is typically well in advance of the need for the new capital investment.

In most cases such strong pricing signals (e.g. the median NSW water usage charge of 230 c/kL – **Figure 12** of Table 4) will provide the necessary evidence to confirm significant reductions in the required design peak day demand, with a corresponding avoidance or deferral of the need to augment system capacity and reducing the required future capital expenditure and borrowings. Such avoidance or deferral of system augmentation will be of strategic benefit to your community through reduced future Typical Residential Bills (Figure 14 of Table 4). Refer also to the preceding 4 paragraphs and to section 4.5.

5.4 Action plan

5.4.1 Preparation of an action plan

Each LWU is required to prepare and implement a sound annual Action Plan to Council, based on its review of the LWU's TBL Performance Report for its water supply business and for its sewerage business. The Action Plan should address any emerging issues or areas of under-performance and should also document any target dates for remedial actions. It should also report results for the financial year for the key actions set out in the utility's Strategic Business Plan.

The **steps** each LWU should follow **in reviewing its performance and preparing** its **Action Plan** to Council are shown in the box on the following page. In addition to reviewing its TBL Performance Reports to identify any warranted remedial actions, the LWU needs to annually 'roll forward', review and update its 30-year total asset management plan for projects completed, modified or deferred and input the results, together with its latest annual financial statements to prepare and update its 30-year financial plan. The LWU's Action Plan also needs to include actions from the review of its DWMS (section 4.3), any Section 61 Reports from DPI Water, as well as actions for addressing any 'emerging issues', such as 'liveability', water security and climate variability in its IWCM strategy.

A key role for the Action Plan is to **'close the planning loop'** with the later of the utility's 30-year strategic business plan and 30-year IWCM Strategy and 30-year financial plan. The utility's TRB must therefore be compared with the above projection and any necessary corrective action included in the Action Plan (note 3 of the example action plan in Appendix C).

In order to assist LWUs, DPI Water will continue to provide a template for each LWU's Action Plan (examples are provided in Appendix C) together with the annual TBL reports for each LWU. The template shows your LWU's results, comments and drivers for each indicator and your LWU's ranking relative to similar sized LWUs followed by the ranking relative to all LWUs. Space is provided for you to document your proposed actions (the right hand column of the example action plan in Appendix C).

In order to prepare and implement a sound annual Action Plan to Council, it will be necessary for each LWU to review its performance. In practice this means reviewing whether the performance indicators under 'Health', 'Levels of Service', 'Environmental' and 'Economic' are satisfactory, taking into account factors that may affect performance outlined below. If the indicators are unsatisfactory, the LWU will need to develop suitable options to improve performance.

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 which addresses the Council's obligations to provide appropriate, affordable, cost-effective and sustainable water supply and sewerage services. 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.

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 (sections 4.1 and 5.4) 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 in Appendix C). 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 (section 4.3) and document any required corrective action.
- **Section 61 reports** – 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 5.2).

(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 (section 4.2 and Appendix H2 and Figure H1). 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 in Appendix C. 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 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?
- Has your IWCM strategy addressed 'liveability'?

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 1 to 68 showing performance trends for four utility size ranges over the past six years. 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.

5.4.2 Implementation of best-practice management framework

Implementation of each of the key outcomes (Table 3) required by the BPM Framework is shown on the TBL Report (Appendix C) and the overall level of implementation is shown in column 33 of Table 5. LWUs should address any areas not yet implemented, which are shown on the Action Plan template (Appendix C). For each instance of non-implementation, the Action Plan should briefly outline the strategy and target date for achieving implementation. LWUs that achieve the outcomes required by the Framework will have appropriate, affordable, cost-effective and sustainable piped water supply and sewerage services and will comply with the National Water Initiative. As noted in section 4.1, implementation of the 19 outcomes required by the Framework is also a prerequisite for payment of a dividend from the surplus of the LWU's water supply or sewerage business and for financial assistance towards the capital cost of backlog infrastructure (as at 1996) under the *NSW Government's Country Towns Water Supply and Sewerage Program* (www.water.nsw.gov.au) or the Regional Water and Waste Water Backlog Program (www.water.nsw.gov.au). Refer also to footnote 6 in section 4.2.

Achieving full cost recovery for water supply

Some NSW utilities have been using a long-term financial model where they input 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, 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 model such as the NSW Financial Planning Model (FINMOD) – refer to Appendix G of the *2010-11 NSW Performance Monitoring Report* 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. Assistance is available from DPI Water (urbanwater.ctw@dpi.nsw.gov.au or (02) 9842 8508).

Each LWU which meets all the outcomes required by the *NSW Best-Practice Management Framework* (section 4.1), including a current 30-year 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 which 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:

- section 4.4, 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 and highlights the strategic benefits of the strong NSW pricing signals; and
- note 3 of the example action plan in Appendix C, which indicates 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 & increase your access and/or usage charges in order to do so.

5.4.3 Performance based on triple bottom line

LWUs should review the Performance indicators shown in the TBL Report (example in Appendix C) and investigate those indicators where performance is below the median. In particular, for those indicators with a ranking of 4 or 5, LWUs should investigate the reasons for the ranking and if appropriate, develop a strategy for improvement. It should be noted that a low ranking does not necessarily imply poor performance as there are a number of factors that can impact performance as shown in section 5.2.

Eg., the rankings take no account of the impact of utility characteristics (e.g. whether the water supply is fully filtered or whether it is a nearby good quality groundwater, whether the LWU provides a bulk storage dam and raw water transfer mains and channels etc.). The Action Plan should take account of these characteristics.

As noted above, the rankings are based on statewide medians. While all LWUs should strive to raise their performance to at least the statewide 80th percentile (Tables 1, 2 and 2A), it is also useful to compare your LWU's performance with LWUs of a similar size. To assist LWUs in such comparisons, the medians for the relevant indicators have been shown in Tables 5 to 18 for each LWU size grouping. In addition, LWUs may benchmark their performance against LWUs with similar characteristics (section 3.3).

Further factors that may assist LWUs in their assessment of performance are listed below.

Utility characteristics

(1) **Renewals** – LWUs should ensure that their TRB in current dollars (i.e. adjusted for inflation) is consistent with the projection in its 30-year financial plan in order to ensure it is raising sufficient revenue for the required infrastructure. LWUs should also examine their asset management plan and ensure that the necessary funds are directed to maintenance and renewals (section 4.5).

(2) **Employees** – the number of employees per 1,000 properties is a good indicator of operating and management costs (column 32 of Table 9, Figure 10, column 14 of Table 14, Figure 41). If the number of employees per 1,000 properties is significantly higher than the median shown in the tables in section 5.4 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 needed for **small** non-contiguous **water supply systems** and for **small water or sewage treatment works** (refer to the tables in section 5.4).

(3) **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 in sections 4.2 and 6.2. LWUs should provide an average of at least 2 days/a of appropriate training for each employee. Refer to Tables 9 and 14 for the training currently provided by each LWU.

(4) **Properties served per km** – the density of urban development has a large effect on the infrastructure cost. For LWUs with >10,000 properties the median is 33 properties per km (range 6 to 64), while for LWUs with 200 to 1,500 properties the median is 19 (range 3 to 34) (column 26 of Table 9, Figure 6, column 9 of Table 14, Figure 40).

Table 2 - Median economic efficiency indicators for four sizes of LWUs - Water Supply 2015-16

Size of LWU	Over 10,000 connected properties	4,001 to 10,000 connected properties	1,501 to 4,000 connected properties	200 to 1,500 connected properties	Statewide median (App C)
Performance indicator	**(26 LWUs)**	**(23 LWUs)**	**(20 LWUs)**	**(15 LWUs)**	**(84 LWUs)**
Operating cost/property ($)	388	539	511	593	440
Operating cost (c/kL)	122	108	88	79	120
Operating cost/100 km ($'000)	1,122	1,117	1,079	1,118	1,120
Management cost/property ($)	143	202	147	93	148
Treatment cost[1]/property ($)	41	103	184	125	59
Pumping cost/property ($)	22	32	47	104	28
Energy cost[2]/property ($)	15	22	39	51	17
Water Main cost/property ($)	61	74	91	68	71
No. of employees/1,000 properties	1.4	1.7	1.7	2.3	1.5
Economic Real Rate of Return	2.3	2.3	1.6	0.6	2.3
Capital expenditure[3] ($ per property)	235	151	182	234	212
Properties served/km of main	38	28	24	24	33

Notes:

1. Only LWUs with a water treatment works with at least filtration and disinfection for over 50 per cent of supply have been considered.
2. A component of pumping cost.
3. As a LWU's capital expenditure in any particular year will depend on its overall capital works programming, it is not possible to draw conclusions by comparing your LWU's 2015-16 capital expenditure with the medians in these tables.

Table 3 - Median economic efficiency indicators for four sizes of LWUs - Sewerage 2015-16

Size of LWU	Over 10,000 connected properties	4,001 to 10,000 connected properties	1,501 to 4,000 connected properties	200 to 1,500 connected properties	Statewide median (App C)
Performance indicator	**(23 LWUs)**	**(16 LWUs)**	**(29 LWUs)**	**(18 LWUs)**	**(86 LWUs)**
Operating cost/property ($)	478	440	436	365	470
Operating cost (c/kL)	199	213	168	191	208
Operating cost/100 km ($'000)	1,699	1,430	1,314	1,077	1,700
Management cost/property ($)	168	129	144	76	164
Treatment cost/property ($)	156	152	128	118	159
Pumping cost/property ($)	60	45	55	68	59
Energy cost[1]/property ($)	34	28	25	24	34
Sewer main cost/property ($)	46	68	49	46	51
No. of employees/1,000 properties	1.5	1.7	1.5	2.3	1.7
Economic Real Rate of Return	2.8	1.7	1.2	0.3	2.5
Capital expenditure[2] ($ per property)	201	238	228	66	186
Properties served/km of main	42	34	33	33	38

Notes:

1. A component of pumping and treatment costs.
2. As a LWU's capital expenditure in any particular year will depend on its overall capital works programming, it is not possible to draw conclusions by comparing your LWU's 2015-16 capital expenditure with the medians in these tables.

Social factors

(5) **Typical residential bill (TRB)** – as noted in section 5.1, this is the principal indicator of the overall cost of a water supply or sewerage system (it is the annual bill paid by a residential customer using the utility's average annual residential water supplied). A critical element of the TRB is the operating cost (OMA – operation, maintenance and administration) (columns 31 and 32 of Table 5, column 67 of Table 11, and Figures 33, 34 and 35) as noted in section 5.4 under Economic Factors – Efficiency. As noted at the start of section 5.4, your LWU's Action Plan must report on whether the TRB is consistent with the projection in the later of your LWU's 30-year strategic business plan and 30-year IWCM Strategy and financial plan and on any warranted corrective action. A TRB which meets these required outcomes will also ensure you are achieving **full cost recovery**.

(6) **Residential revenue from usage charges (per cent)** – The *Best-Practice Management Framework* (section 4.1) requires LWUs with 4,000 or more properties to have at least 75 per cent of residential revenue generated through usage charges, while LWUs with fewer properties, including LWUs with a dual supply must have at least 50 per cent of residential revenue generated through usage charges. This is a key demand management measure to ensure customers receive a sufficiently **high pricing signal** to encourage careful water use (column 3 of Table 5, column 13 of Table 6, Figure 13). As noted in Section 4.4, the statewide median residential revenue from water usage charges was 73 per cent. Refer also to item 9 in section 5.2 and the residential water usage charge below.

(7) **Residential water usage charge (c/kL)** – Higher usage charges have been ranked '1' because they provide a strong pricing signal, while lower charges have been ranked '5'. However, this indicator should be viewed in conjunction with the TRB and whether the LWU is achieving full cost recovery, in which case a lower water usage charge may be a good result. The **strategic benefits of the strong NSW pricing signals** and the resulting efficient water use are highlighted in section 4.5. Refer also to Figure 12, Figure 12 of Table 4 and column 5b of Table 6.

Health

(8) **Microbiological water quality compliance** – This is the most important public health indicator, achievement of microbiological compliance is a high priority for each LWU and must be reported in the annual Action Plan to Council. As shown in Figure 17, all the LWUs complied with the microbiological water quality requirements in 2015-16 (also refer to columns 9 and 10 of Table 5). LWUs with less than 98 per cent of samples containing no E. coli do not comply with the *Australian Drinking Water Guidelines, 2011*. Microbiological non-compliance, boil water alerts, the remedial action implemented and whether it was successful must be reported in your LWU's annual Action Plan to Council (refer to section 4.3, note 4 of the example action plan in Appendix C, and Appendix E). Assistance is available from your DPI Water Regional Water and Sewerage Treatment Officer (refer to section 6.1 for the contact details of each officer).

As indicated in section 4.3, each LWU has prepared a risk-based drinking water management system (DWMS) and now needs to review the effectiveness of its DWMS and the LWU's implementation of the DWMS, at least annually, to ensure that it maintains currency with the drinking water supply. A record of this review should be kept and any required corrective action documented. Assistance is available from DPI Water (urbanwater.ctw@dpi.nsw.gov.au or (02) 9842 8508).

(9) **Public health incidents** – Where this indicator is significantly higher than the statewide median, your LWU's Action Plan should provide a brief explanation and the proposed remedial action if appropriate.

(10) **Capital investment on improving public health** – If a LWU reported zero for this indicator, investigate to ensure that this indicator is not under reported.

(11) **Sewerage coverage** – Figure 46 – percentage of the urban population (residential zoned land) with a reticulated sewerage service. Refer also to Indicator 16 of the example sewerage TBL Report in Appendix C.

Customer service

(12) **Water quality complaints** – LWUs with a high number of complaints (in the bottom 20 per cent of LWUs) should investigate the reasons for the complaints, including past performance and trends indicated in page two of the TBL Report. Provide a brief explanation together with proposed remedial action in your LWU's Action Plan. Note that the result for this indicator will be influenced by the type of business (e.g. Unfiltered supply, groundwater etc) (column 13 of Table 5, Figure 19).

(13) **Odour complaints** – This is a critical indicator for providing appropriate sewerage levels of service. LWUs with a high number of complaints (in the bottom 20 per cent of LWUs) should investigate the reasons for the complaints; including past performance and trends indicated in page two of the TBL Report. Provide a brief explanation together with proposed remedial action in your LWU's Action Plan (column 61 of Table 17, Figure 49).

(14) **Number of main breaks** – LWUs should annually monitor their breaks/100km of main, paying close attention to any sections of main with a high incidence of breaks (say treble the statewide median of 9 breaks per 100 km). LWUs with a high incidence of breaks should investigate the likely reasons for the breaks, including the past performance and trends indicated in page two of the TBL Report. Provide a brief explanation together with proposed remedial action in your LWU's Action Plan (column 15 of Table 5, Figure 21). Refer also to section 4.5.

(15) **Average duration of unplanned interruptions (water)** – where this indicator is significantly higher than the statewide median, your LWU's Action Plan should provide a brief explanation together with proposed remedial action if appropriate (column 14 of Table 5).

(16) **Average interruption (sewerage)** – where this indicator is significantly higher than the statewide median of 108 minutes, your LWU's Action Plan should provide a brief explanation together with proposed remedial action if appropriate (column 65 of Table 17).

Environmental factors

(17) **Average annual residential water supplied** – This indicator is heavily influenced by the location and type of LWU (e.g. an inland LWU would expect to have high residential water supplied while a LWU with a dual supply would expect to have a very high value) and any applied water restrictions. Inland LWUs have significantly higher residential water supplied due to their hotter and drier climate and the use of evaporative coolers. Note that the median residential water supplied for inland LWUs in 2015-16 was 248 kL/property compared to 155 kL/property for coastal LWUs (column 17 of Table 5, column 14 of Table 6, Figure 26). Refer also to Item 9 of section 5.2.

(18) **Total urban water supplied** – Figure 9 and column 2 of Table 5.

(19) **Real Losses** – LWUs should monitor their Real Losses (column 18 of Table 5, column 41 of Table 10, Figure 28) in L/d/connection. These should be minimised if the LWU is facing drought water restrictions or the need for augmenting the capacity of its water supply headworks system or its water treatment works. Such timely reduction of Real Losses will provide major economic benefits through deferral of the need for capital investment for upgrading of infrastructure. As noted in section 4.5, for almost all LWUs, monitoring your leakage in "L/d per connection" is the relevant measure for tracking your LWU's leakage performance. As also noted in section 4.5, **non-revenue water** (**NRW**) should also be monitored in L/d/connection (column 41f of Table 10, Figure 29).

(20) **Water Losses (ILI)** – The real losses above are the principal indicators of leakage performance. The ILI may provide some additional information and is recommended for international comparisons (section 4.5; refer also to footnote 18 in section 4.5). ILI values of less than about 1.5 indicate excellent management of real losses, while an ILI close to 1.0 means that the real losses are close to the unavoidable or technical minimum losses. An ILI of less than 1.0 is meaningless and may indicate errors in the input data. An ILI greater than three may indicate old or poor infrastructure or a relatively relaxed active leakage control policy (column 41b of Table 10).

(21) **Recycled water** – The volume of recycled water use includes effluent reuse for town water and agricultural uses. The volume reported for town water should equal the recycled volume shown in the water supply report. In 2015-16, 16 per cent of LWUs reused over 50 per cent of their effluent (columns 13 to 14b of Table 8 and Figure 57). As shown in columns 21 and 22 of Table 5, the highest volume recycled by a utility was 5,700 ML and a further five utilities each recycled over 2,000 ML. Refer also to figures 33d, 27 and 26a of Table 4 and figure 27 in Appendix C.

(22) **Compliance with BOD in licence** – where compliance is low (e.g. below 90 per cent), provide a brief explanation together with proposed remedial action in the Action Plan (column 55 of Table 17, Figure 50).

(23) **Compliance with SS in licence** – where compliance is low (e.g. in the bottom 20 per cent of LWUs), provide a brief explanation together with proposed remedial action in the Action Plan if appropriate (column 57 of Table 17, Figure 51).

(24) **Percent of sewage treated that was compliant** – Figure 54 and column 19 of Table 5. Refer also to figure 18 of Table 4 and figure 18 in Appendix C.

(25) **Sewer main breaks and chokes** – sections of sewer main with a high incidence of breaks and chokes (say treble the statewide median of 38 per 1,000 connected properties) warrant close attention. Provide a brief explanation together with proposed remedial action in the Action Plan (column 20 of Table 5, column 59 of Table 17, Figure 55). Refer also to figure 36 of Table 4 and figure 36 in Appendix C.

(26) **Sewer overflows to the environment** – where this indicator is significantly higher than the statewide median, provide a brief explanation together with proposed remedial action in the Action Plan (column 60 of Table 17, Figure 56).

(27) **Environmental incidents** – where this indicator is significantly higher than the statewide median, provide a brief explanation together with proposed remedial action in the Action Plan.

Economic factors

Financial

(28) **Economic real rate of return (ERRR)** – this reflects the rate of return generated from operating activities (i.e. excluding interest income, grants for acquisition of assets and gain/loss on disposal of assets). Water and sewerage charges should be sufficiently high to ensure continuing financial viability and provide for asset renewals and a positive rate of return, but not so high that they generate excessive monopoly profits. The ERRR is a good indicator of the financial health of a business (columns 27 and 28 of Table 5, column 12 of Table 6, Figure 32, column 11 of Table 7, Figure 61). LWUs should achieve **full cost recovery** by setting each year's tariff to raise the required revenue on the basis of its careful estimate of the water to be supplied in the next financial year as indicated in the box in section 5.4, which will result in a satisfactory Typical Residential Bill (TRB – section 5.4). This is particularly important during drought periods. Refer also to Figures 27 and 28 of the *2015-16 NSW Performance Monitoring Report* and Appendix G of the *2010-11 NSW Performance Monitoring Report.*

(29) **Return on assets** – this ratio is similar to the ERRR. It indicates the earnings generated before interest and tax (EBIT) for the assets controlled by the business. It is calculated as the operating profit before dividends divided by the difference between total assets and total liabilities. All LWUs should aim to achieve a positive value for ERRR or for return on assets (column 11 of Table 6, column 9 of Table 7, column 24c of Table 5A). Refer also to note 3 of the example action plan in Appendix C.

(30) **Net Debt to equity**[20] – net debt is the sum of long and short term borrowings less cash and investments. Equity is the total assets less total liabilities. In 2015-16 the NSW median net debt to equity for water supply and sewerage was -3% (column 19a of Table 5). LWUs facing significant capital investment are encouraged to make greater use of borrowings to reduce their required TRB. **Twenty year loan terms are strongly recommended** in order to avoid an unfair financial burden on existing customers and to facilitate **inter-generational equity**. Refer also to Item 10 of section 5.2.

(31) **Loan payment ($/property)** – this indicator shows the component of the TRB applied to meet debt payments. A 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 (column 66a of Table 11 and column 51a of Table 16). The median loan payment in 2015-16 for water supply was $11 per connected property (Table 1).

(32) **Interest cover** – this ratio is an indicator of the LWU's ability to meet interest commitments. It is calculated as the earnings before interest and tax (EBIT) divided by net interest (interest expense less interest income). The interest cover is nil for a loss making business (column 27 of Table 5A). As a general guide, an interest cover >2 is a good interest cover position. For 2015-16, the median interest cover for water supply and sewerage was 34 (Table 2A).

[20] It is important to note that most NSW LWUs have relatively little borrowings at present. In **2015-16** the statewide median net debt to equity for LWU water and sewerage was -3% (range -37% to 26%). The **2015-16** net debt to equity for major Australian utilities include 103% for Sydney Water, 116% for ICON Water, 154% for Melbourne Water, 140% for Yarra Valley Water, 62% for Queensland Urban Utilities, 53% for Water Corporation (WA), 116% for SA Water and 91% for Hunter Water (National Performance Report 2015-16 for Urban Water Utilities). Refer also to graph 24 of Appendix A. Providing your utility has a soundly based asset management plan and financial plan (including sensitivity analysis), 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.

Efficiency

The operating cost (OMA – operation, maintenance and administration) per property is a prime indicator of the performance of an LWU and should be reviewed carefully by each LWU to ensure it has an efficient operating cost (columns 31 and 32 of Table 5, column 67 of Table 11, Figure 33). The components of operating cost (shown in section 5.4, Table 4 and Appendix C) are:

(33) **Management cost** – this includes administration, engineering and supervision and is typically almost 40 per cent of the total operating cost (column 68a of Table 11, Figure 36). The number of employees per 1,000 properties can be a good indicator of the operating and management costs and hence the efficiency of an LWU. However, LWUs with a number of non-contiguous (i.e. separate) water supply systems and those with small water treatment works or small sewage treatment works will need a higher level of employees/1000 properties in order to effectively manage their systems (refer also to 'employees' in section 5.4). Similarly, LWUs with a low development density, under about 20 properties served / km of water main (column 26 of Table 9) will need a higher level of employees.

(34) **Treatment cost (water)** – (columns 104 to 107 of Table 13, Figure 37) this is dependent on the type and quality of the water source and the extent of treatment provided. In addition, as shown in the Table in section 5.4, there are great economies of scale for the operation of water treatment works (i.e. facilities involving at least filtration and disinfection).

(35) **Treatment cost (sewage)** – (columns 89 to 92 of Table 18, Figure 66) this is dependent on the type of treatment and the discharge requirements. Where the discharge licence conditions are stringent, involving for example a low level of phosphorus, treatment costs will be high.

(36) **Pumping cost (water)** – (columns 94 to 98 of Table 13, Figure 38) this is dependent on topography and, for water supply, the location of the water source. For example, Essential Energy has a high pumping cost due to the distance required to pump from the water source, while Fish River is almost a fully gravitational supply, with negligible pumping costs. For water supply, there are significant economies of scale in pumping cost per property.

(37) **Energy cost** – (column 98 of Table 13) this is mainly a consequence of pumping requirements and is a component of pumping cost for water supply. Energy cost may be reduced by maximising pumping in off peak periods or by obtaining a competitive energy rate from the energy supplier (e.g. 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 (column 83 of Table 18). Significant cost savings may be available by optimising energy use in the treatment process (e.g. such optimising of energy use has provided annual savings of over $100,000 for a number of large sewage treatment works).

(38) **Water and Sewerage mains cost** – (column 84 of Table 13, Figure 39, column 70 of Table 18, Figure 68) this is dependent on the age and condition of the mains, the ground conditions and the number of connected properties per km of main.

6 GENERAL NOTES

This *2015-16 NSW Water Supply and Sewerage Benchmarking Report* provides the full suite of performance indicators and benchmarking data to enable each LWU to improve its productivity and performance through benchmarking its performance against that of similar LWUs. The benchmarking report is available on the DPI Water website (www.water.nsw.gov.au).

(1) **Triple bottom line (TBL) focus** – to provide a balanced view of the long-term sustainability of NSW LWUs, a triple bottom line accounting focus has been adopted, with performance reported on the basis of **social, environmental** and **economic** performance indicators.

(2) **Data validation** – independent auditing and data validation (Appendix H) assure data reliability for the NSW Performance Monitoring System. The data validation procedures include matters such as:

- Aggregated businesses (section H4.1)
- Assessments (section H4.2)
- Connected properties (section H4.2)
- Charges, bills and cost recovery (section H4.3)
- Urban water supplied (section H4.4)
- Operating cost and management cost (section H4.5)
- Drinking water quality compliance (section H4.6)
- Sewage treatment works compliance (section H4.7)
- Implementation of Best-Practice Management Framework (section H5)

(3) **Figures and tables** – Most of the figures in this report show performance indicators for each of the last six years to enable review of trends and to facilitate benchmarking and 'yardstick' comparisons. The figures show ranked results for LWUs grouped into four size ranges in order to enable each LWU to compare its performance against similar sized LWUs. The better performing LWUs are shown at the left of each group.

Table 5 and Tables 6 to 18 show water supply and sewerage performance indicators for each of the 96 NSW water utilities (92 LWUs plus Sydney Water Corporation and Hunter Water Corporation, Water NSW and Hawkesbury Council).

As noted in section 2, these tables are sorted in order of the number of connected properties served in order to facilitate comparisons with similar sized LWUs. To facilitate comparisons, the tables are also grouped into the same four size ranges as for the figures. Also, the median for many of the indicators are shown for each size grouping.

(4) **Statewide medians** – This report refers to statewide medians which are calculated on a 'percentage of connected properties' basis rather than a 'percentage of LWUs' basis. This is a weighted median on the basis of connected properties, which best reveals 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 (e.g. for comparison of LWUs in the 'Ranking' columns of the two page TBL Performance Report for each utility (example in Appendix C). Statewide medians and percentiles are shown in Tables 1, 2 and 2A. Table 4 shows trends in statewide performance indicators for regional NSW and comparisons with the national median for the 79 utilities reported in the *National Performance Report 2015-16 for Urban Water Utilities*. This data provides valuable contextual information to inform each LWU's future water supply and sewerage planning and to supplement the water planning information reported by each LWU (final paragraph of footnote 5 in section 5.1).

(5) **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 section 5.1.

Calculation of TRB – The 2016-17 typical residential bill is based on a customer of the LWU's principal water supply or sewerage system using the LWU's 2015-16 average annual residential water supplied (see Tables 6 and 7). The typical residential bill for 2015-16 and previous years is

based on the reported average annual residential water supplied for that year (the 2015-16 residential water supplied is shown in column 17 of Table 5). Refer also to section H4.3.

(6) **Total urban water supplied** – Total urban water supplied comprises the sum of the potable water supplied plus the non-potable water supplied (column 2 of Table 5 and Figure 9). Recycled water is a component of the non-potable supply which also includes raw water.

(7) **Average annual residential water supplied** – The average annual residential water supplied per connected property (col 17 of Table 5) includes both potable and non-potable water supplied. Where an LWU has not separately reported its residential water supplied, it has been estimated using the statewide average of 58 per cent of the LWU's total potable water supplied. The potable residential water supplied per property is shown in column 14a of Table 6. The potable water supplied and the total water supplied (potable + non-potable) have been separately reported for the 10 LWUs with a dual water supply (see note 8 below).

(8) **Dual supplies** – Ten LWUs had a dual water supply to over 50 per cent of their residential customers in June 2016 (i.e. with a potable supply for indoor use and a non-potable supply for outdoor use).

The total annual residential water supplied (i.e. potable + non-potable) 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 1,038 (304), Berrigan 461 (272), Bourke 1,157 (281), Brewarrina 1,629 (658), Central Darling 638 (181), Hay 527 (139), Murray River 338 (152), Walgett 522 (302), Warren 630 (302) and Wentworth 669 (180).

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

(9) **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 (firefighting and mains flushing) is not a water loss but is a component of non-revenue water (NRW) (below and note 10). Real losses and NRW apply to the potable water supply only.

As noted in section 4.5, NWI Indicator A10 (real losses in L/connection/d) is the relevant measure for **tracking a LWU's leakage performance over time** for most LWUs. Each LWU's real losses (L/connection/d) are shown in column 18 of Table 5, column 41 of Table 10 and Figure 28. Refer also to figure 34 of Table 4.

Due to perverse impacts shown in section 4.5, 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 column 41f of Table 10 and Figure 29.

In addition, the 2015-16 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.

(10) **Minimum real loss and NRW** – Further to note 9 above, the NSW Performance Monitoring System determines minimum values for each LWU's real loss and NRW as shown below.

Leakage studies for 59 NSW LWUs indicate an average leakage from potable water supply distribution systems of 3% to 15% of total potable water supplied, as shown in column 41e of Table 10. 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 9 of these utilities had a real loss of under 6%. In addition, Table 10A discloses the real losses for 68 LWUs 'before' and 'after' leakage reduction under the Regional NSW Water Loss Management Program[21]. For these LWUs, Table 10A indicates average real losses of 10% of the potable water supplied after leakage reduction.

[21] Refer to Table 10A. In addition, results from the Regional NSW Water Loss Management Program (WLMP) are available at http://www.lgsa.org.au/policy/water/water-loss-management-program.

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 the total potable urban water supplied (W11.1) and are shown in italics bold in column 8 of Table 8. Refer also to the final paragraph below on NRW and to section 4.5.

Similarly, statewide analysis of **NRW** (*Real Losses*, *Apparent Losses* and *Unbilled Water* supplied (refer to note 9 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 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.

(11) **Sydney Water, Hunter Water and Water NSW** – The performance indicators for Sydney Water Corporation, Hunter Water Corporation and Water NSW were obtained from the *National Performance Report 2015-16 for Urban Water Utilities*.

(12) **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 5 in section 5.2). The following 43 regional utilities provided such bulk storage: Armidale, Ballina, Bathurst, Bega Valley, Bourke, Brewarrina, Byron (Mullumbimby), Cabonne, Central Coast, Central Tablelands, Clarence Valley, Cobar, Coffs Harbour, Essential Energy, Eurobodalla, Fish River, Glen Innes-Severn, Goulburn Mulwaree, Inverell, Kempsey, Kyogle, Lachlan, Leeton, Lithgow, MidCoast, Mid-Western Regional, Moree Plains, Orange, Queanbeyan-Palerang, Parkes, Port Macquarie-Hastings, Richmond Valley, Rous, Shoalhaven, Tamworth, Tenterfield, Tweed, Upper Hunter, Upper Lachlan, Uralla, Warrumbungle, Wingecarribee, Yass Valley. Refer also to column 37 of Table 5B.

(13) **Unfiltered** – A utility with over 50 per cent of its supply comprising an unfiltered surface water supply i.e. the utility does not have a water treatment works providing filtration and disinfection for >50 per cent of its supply.

Groundwater – A utility with >50 per cent of its supply comprising good quality unfiltered groundwater.

Reticulator – A utility which purchases >70 per cent of its source water from a bulk supplier and reticulates water to householders in its area.

Bulk supplier – A utility which 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 per cent of its residential customers (refer to note 8 of section 6).

(14) **National Water Initiative (NWI) Indicators** – There are 31 NSW water utilities with >10,000 connected properties including three metropolitan utilities and 28 regional utilities. These utilities have reported their performance in the *National Performance Report 2015-16* (www.bom.gov.au) based on a nationally agreed framework of indicator definitions. The reported NWI performance indicators (including key financial performance indicators) have been independently audited. The results that have met the rigorous NWI auditing requirements have been published in the National Performance Report 2015-16 and are shown in Appendix F. Appendix F discloses the NSW results for all the approximately 130 NWI performance indicators. Some of the reported non-financial performance indicators failed to meet the NWI auditing requirements. These results have been excluded from both the *National Performance Report 2015-16* and Appendix F. However they have been included in the Figures and in Tables 5 to 18 of this report.

In addition, the reported values for the 30 NWI financial performance indicators have been independently audited for all the NSW local water utilities (footnote 48 in Appendix H3).

(15) **Reported NWI Indicators** – This report discloses the performance of each of the 92 NSW Local Water Utilities (LWUs) for each of the approximately 130 NWI performance indicators on the following basis:

Table 5 reports the results for NWI indicators C4, W11, F4, P3, P6, P8, H3, H4 (expressed as % population), C9, C15, A8, C13, W12, A10, E4, A14, W27, W26, F1+F2, F22, F28+F29, F16, F17, F18, F11 and F12.

Table 5A reports the results for NWI indicators F13, F7, F3, the sum of F28 and F29, F19, F22, F23, F20, F21, F25, F8, F24 and F30.

Table 5B reports the results for NWI indicators C12, C14, E9, E10, E11 and E12.

Table 5C reports indicators F9, F14, F11, F22, F17, A8, C17, A10, C9, C10, H3 and P3.

Table 5D reports indicators F10, F15 F12, F22, F18, A14, C11, E4 and P6.

Table 6 reports indicators P1, P1.2. P1.12, P1.3, P1.4, P3, F17, F4, W12 and C4.

Table 7 reports indicators P4.1, P4.2, P6, F18 and C8.

Table 8 reports the results for NWI indicators W8.1, W9.1, W10.1, W11.1, W20, the sum of W21 and W25, W11.2, W8.2, the sum of W9.2 and W10.2, W14, the sum of W22, W23 and W24, W26, W1, W2, W4, W5 and W7.

Table 8D reports the results for NWI indicators W9.1, W9.2, W9, W11.3, W21 & W28.4.

Table 9 reports the results for NWI indicators C4, C2, C1, A2, A3, A1, F28, F14 & F26.

Table 10 reports the results for NWI indicators A10, A11, A9, A8, C17, W11 and W12.

Table 10A reports the results for NWI indicators A9, W11.1 and A10.

Table 11 reports the results for NWI indicators F1, F5, F4, F9, F22, F17 and F11.

Table 12 reports the results for NWI indicators H5, H4, H3, C9, C10, C18, C19, C17 and C15.

Table 14 reports the results for NWI indicators C8, C6, C5, A5, A6, A4, F15 and F27.

Table 15 reports the results for NWI indicators A14, E13, W18, W17, E4, E1, E2, E3, W19, E8, W26 and W27.

Table 16 reports the results for NWI indicators F2, F6, F10, F22, F18 and F12.

Table 17 reports the results for NWI indicators E4, C11, C13 and C16.

The results for NWI indicators P8; F3 and F16; F19; C13; A3 and A2; W11; P3; P1.3; F4; C9; C10; A8; W12; A10; F17; F11; C11; E4; A6 and A5; P6; A14; E13; W27; F18 and F12 are shown on Figures 1, 2, 3, 6, 8, 9, 11, 12, 13, 19, 20, 21, 26, 27, 28, 32, 33, 40, 42, 48, 54, 55, 56, 57, 61 and 62 respectively.

The following NWI indicators have not been shown in the tables but can be determined as follows: W16 from (W18–W17), C3 from (C4–C2), C7 from (C8–C6). Indicator H1 refers to the 2011 ADWG for all LWUs.

6.1 Regional water and sewerage treatment officers - DPI Water

Area	Name	Mobile	Email
Albury	Patrick Freeman	0429 308 954	Patrick.Freeman@dpi.nsw.gov.au
Alstonville	Terry Call	0412 283 768	Terry.Call@dpi.nsw.gov.au
Cootamundra	Bernie Barnes	0429 604 409	Bernie.Barnes@dpi.nsw.gov.au
Dubbo	Bruce Lamont	0458 268 453	Bruce.Lamont@dpi.nsw.gov.au
Newcastle	Graham Campbell	0419 620 990	Graham.Campbell@dpi.nsw.gov.au
Orange	Chris Carlon	0419 624 526	Chris.Carlon@dpi.nsw.gov.au
Tamworth	Trent Betts	0417 458 247	Trent.Betts@dpi.nsw.gov.au
Wollongong	Geoff Parish	0427 248 007	Geoff.Parish@dpi.nsw.gov.au

As noted in sections 4.3 and 5.4, assistance is available from your DPI Water Regional Water and Sewerage Treatment Officer for achieving microbiological water quality compliance and for addressing other water and sewage treatment issues.

6.2 National certification framework for water treatment operators

Appendix I discloses that **each** of the **81 NSW LWUs** responsible for providing water treatment[#] has at least one **fully qualified water treatment operator*** to operate the 164 LWU water treatment works and 78 chlorinators and aerators[+].

The LWUs have a **total** of **429** fully qualified operators, who meet the requirements of the National Certification Framework for Water Treatment Operators. Continuing professional development of operators is required, such as attending a DPI Water Treatment Update Seminar at least every 3 years.

In addition, 445 LWU operators are fully qualified Wastewater Treatment Operators, with a Certificate III in Water Operations (Wastewater Treatment) or equivalent and are employed as the operator of a LWU sewage treatment works. Such operators meet the NSW Certification requirements.

[#] Excludes the 8 LWUs responsible for sewerage only (section 2), reticulators Cootamundra-Gundagai, Hilltops and Queanbeyan-Palerang, 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 or a chlorinator/aerator (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*).

6.3 The Australian urban water sector

Appendix K discusses the **characteristics of the Australian urban water sector**.

NSW vs Australian Totals – Appendix K shows that the total populations receiving water supply and sewerage services in NSW are 33% and 34% respectively of the Australian totals of 22.6 million and 21.0 million. The volume of urban water supplied in NSW is 33% of the Australian total of 2,790 GL, and the recycled water supplied in NSW is 33% of the Australian total of 253 GL.

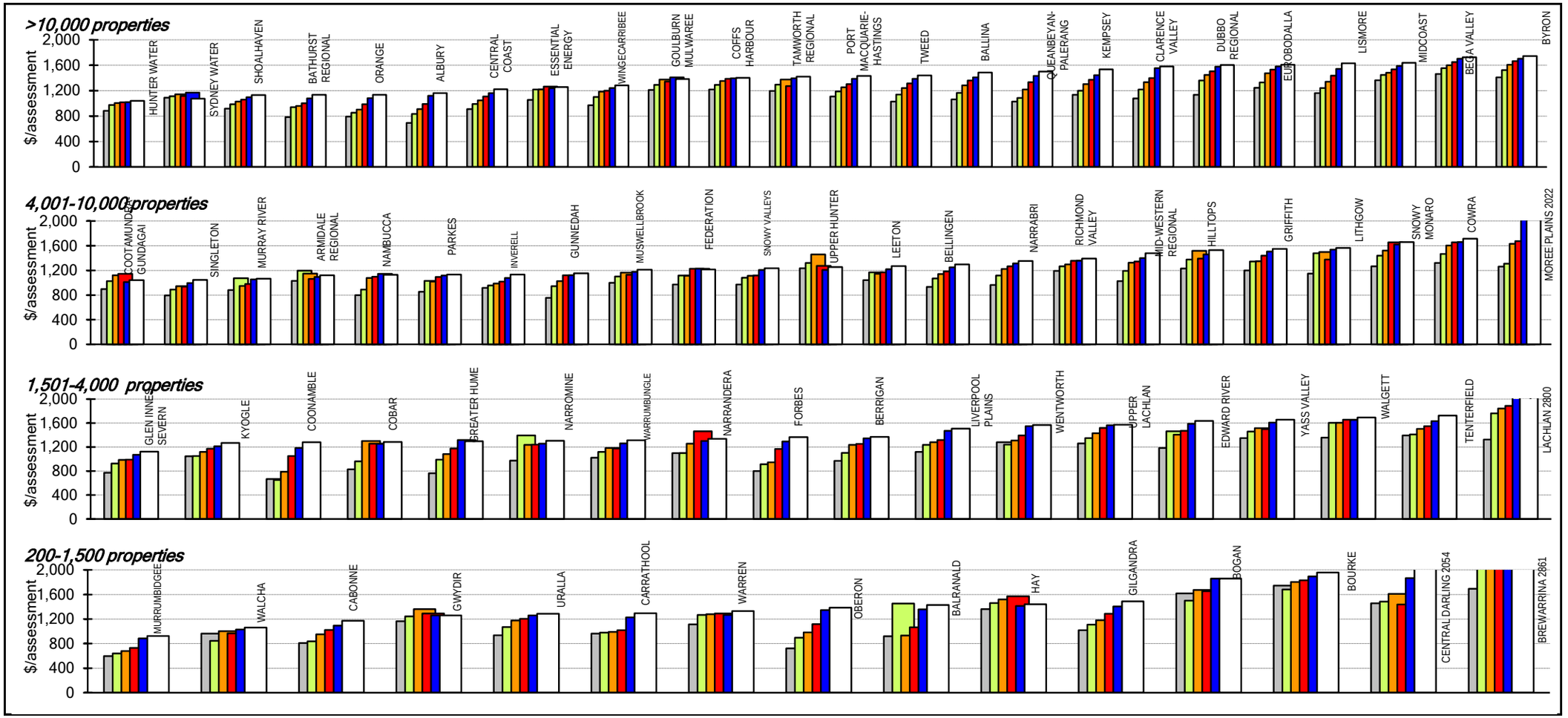
The water and sewerage revenue for NSW is 25% of the Australian total of $18.4 billion, the operating cost is 24% of the Australian total of $8.7 billion and capital expenditure is 31% of the Australian total of $3.8 billion.

NSW has 29% of the 201,000 km of Australian water mains, 33% of the 153,000 km of Australian sewerage mains and channels, 32% of the 565 Australian water treatment works and 39% of the 878 Australian sewage treatment works.

6.4 Contents of tables 5 to 18

7. WATER SUPPLY AND SEWERAGE FIGURES

Figure 1: Typical residential bill – water supply and sewerage - P8

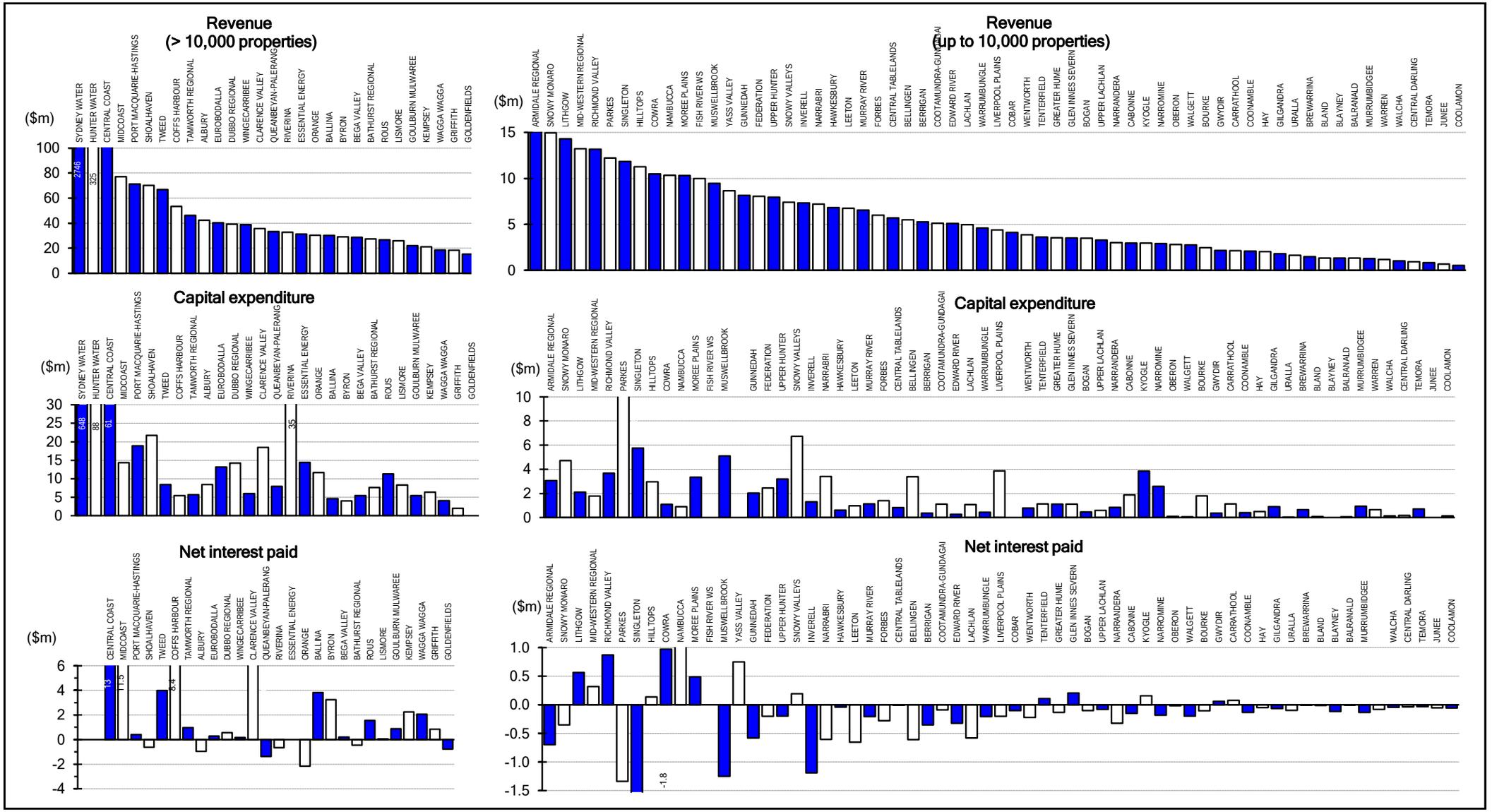


Parameter: (2015-16 Average Residential Water Supplied x 2016-17 Water Usage Charge) + 2016-17 Water and Sewerage Access Charges

Notes:

1. This figure shows ranked values of the 2016-17 typical residential water bill 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, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2016-17 typical residential water bill for water supply and sewerage for the 23 LWUs shown ranges from $1044 to $2020. Results for the previous 5 years are also shown in Jan 2017$.
2. The 2016-17 Statewide median typical residential bill for water supply and sewerage is $1,343 per assessment [National Median is $1390 for 2015-16]. Refer also to Table 5, graph 7 of Appendix A and figure 2a of Table 4.
3. Refer also to section 2.2 and figure 1 of the *NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au).
4. For general notes see section 6.

Figure 2: Revenue (F1 + F2), capital expenditure (F16), net interest paid - water supply and sewerage

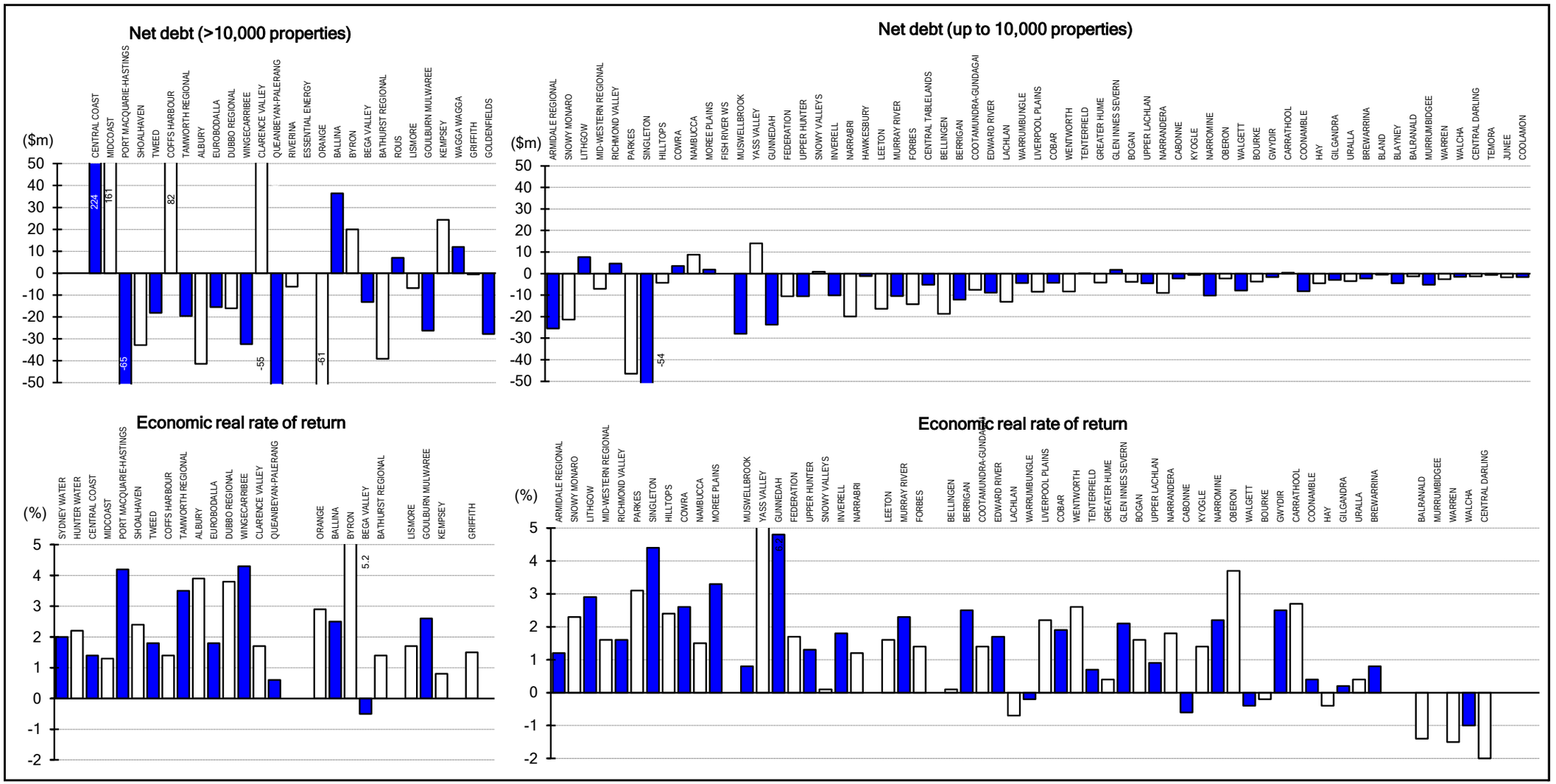


Parameter: [Total revenue (W_13 +S_14) - grants for acquisition of assets (W_11a + S_12a)] ÷ 1,000,000
Parameter: Acquisition of fixed assets (W_16 + S_17)
Parameter: Interest expense (W_4a + S_4a) - interest income (W_9 + S_10)

Notes:

1. Utilities are ranked on the basis of revenue (see the top graph). Revenue for Sydney Water was $2,745M and Hunter Water's revenue was $325M.
2. Refer also to Table 3, Table 5 and graphs 27 and 28 of Appendix A.
3. For general notes see section 6.

Figure 3: Net debt, economic real rate of return (F19) - water supply and sewerage



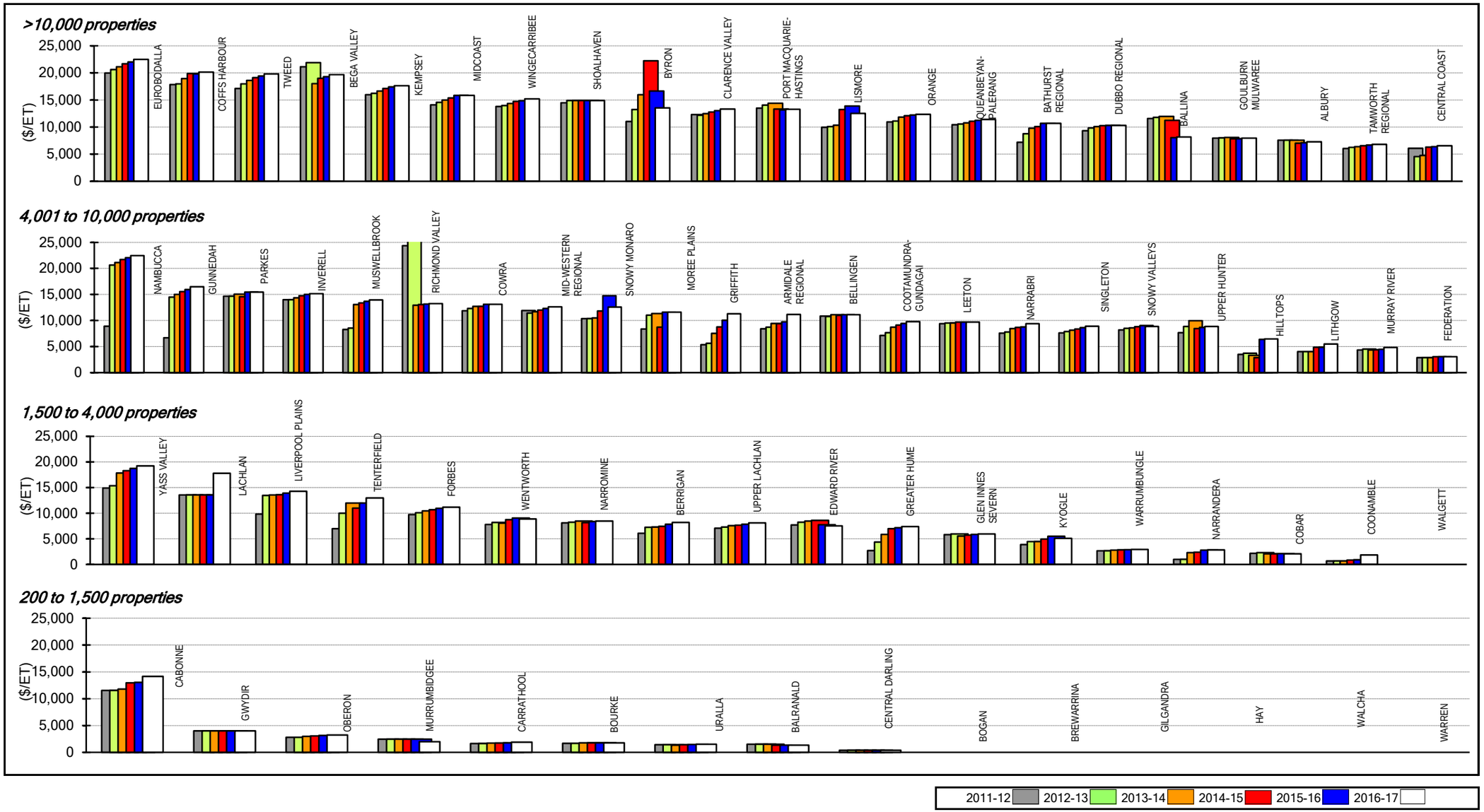
Parameter: Borrowings (W_32 + S_33) - cash and investments (W_25 + S_26)

Parameter: $$\frac{\text{[Revenue from operations (W\_13 + S\_14) - OMA \& current cost depreciation (W\_1 + W\_2 + W\_3 + S\_1 + S\_2 + S\_3) - interest income (W\_9 + S\_10) - grants for acquisition of assets (W\_11a + S\_12a)]}}{\text{Written down replacement cost of system assets, plant \& equipment (W\_41 + W\_28b + S\_42 + S\_29b)}}$$

Notes:

1. Utilities are ranked on the basis of revenue (see the top graph). Revenue for Sydney Water was $2,745M and Hunter Water's revenue was $325M.
2. Refer also to Table 5, Table 5A, graphs 21 and 24 of Appendix A and figure 13 of Table 4.
3. For general notes see section 6.

Figure 4: Typical developer charge - water supply and sewerage

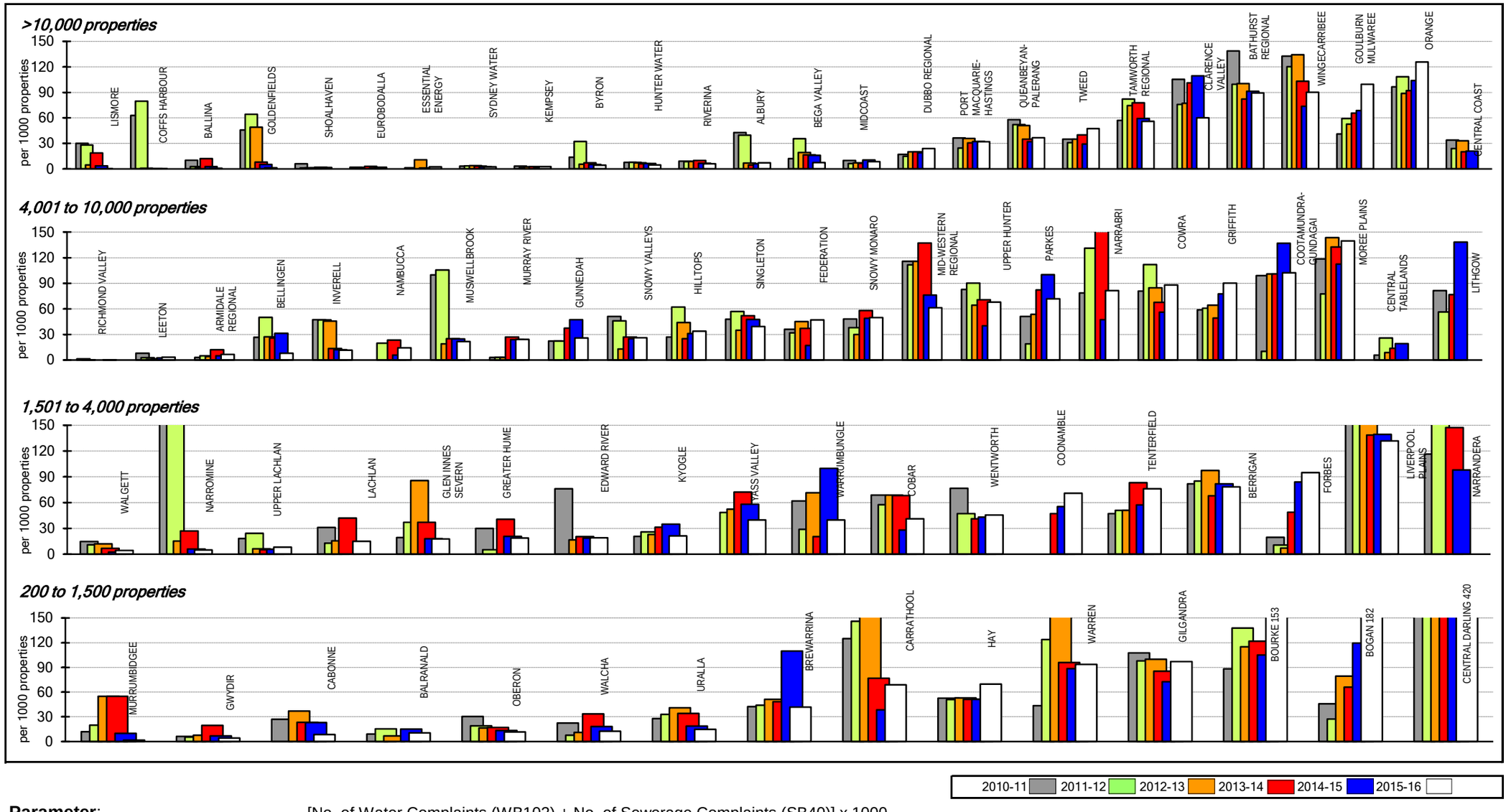


Parameter: Typical Water Supply Developer Charge (WB136) + Typical Sewerage Developer Charge (SB62)

Notes:

1. This figure shows ranked values of the 2016-17 typical developer charge 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, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the typical developer charge for water supply and sewerage for the 23 LWUs shown ranges from $22440 to $3000. Results for the previous 5 years are also shown in Jan 2017$.
2. The 2016-17 Statewide median typical developer charge for water supply and sewerage is $10300 per Equivalent Tenement (ET). Refer also to Table 5.
3. For general notes see section 6.

Figure 5: Total complaints - water supply and sewerage - C13



Parameter:

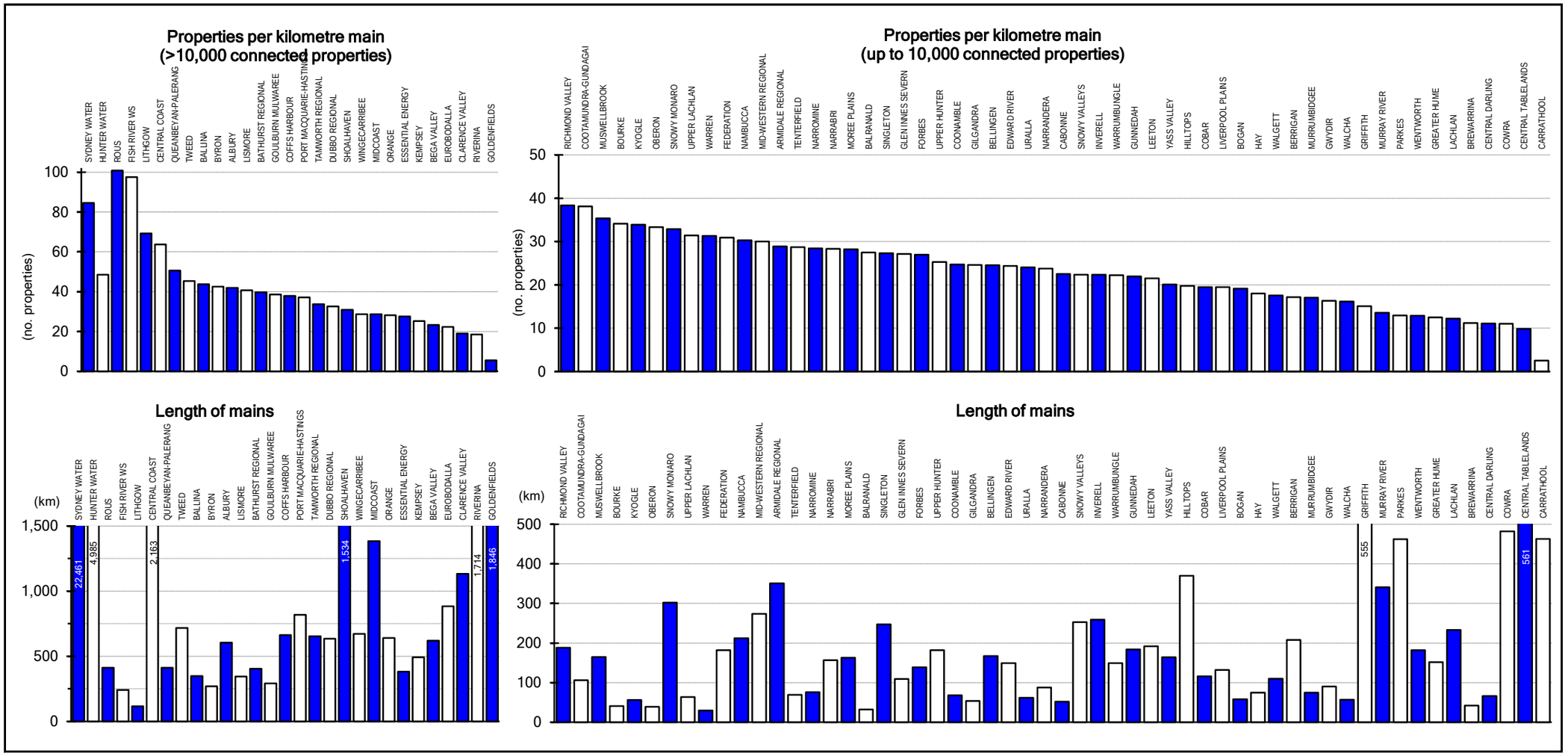
$$\frac{\text{[No. of Water Complaints (WB102) + No. of Sewerage Complaints (SB40)]} \times 1000}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)]} \times \text{No. of Connected Properties per Assessment}}$$

Notes:

1. This figure shows ranked values of the 2015-16 total number of water supply and sewerage complaints per 1000 connected properties for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the total water supply and sewerage complaints for the 24 LWUs shown ranges from nil to 140 per 1,000 connected properties.
2. The Statewide median total number of water and sewerage complaints is 26 per 1,000 properties [National Median is 5 per 1,000 properties]. Refer also to figure 5 of Table 4 and Tables 12 and 17.
3. For general notes see section 6.

8. WATER SUPPLY FIGURES

Figure 6: Properties served per km of main, length of mains - water supply - A3



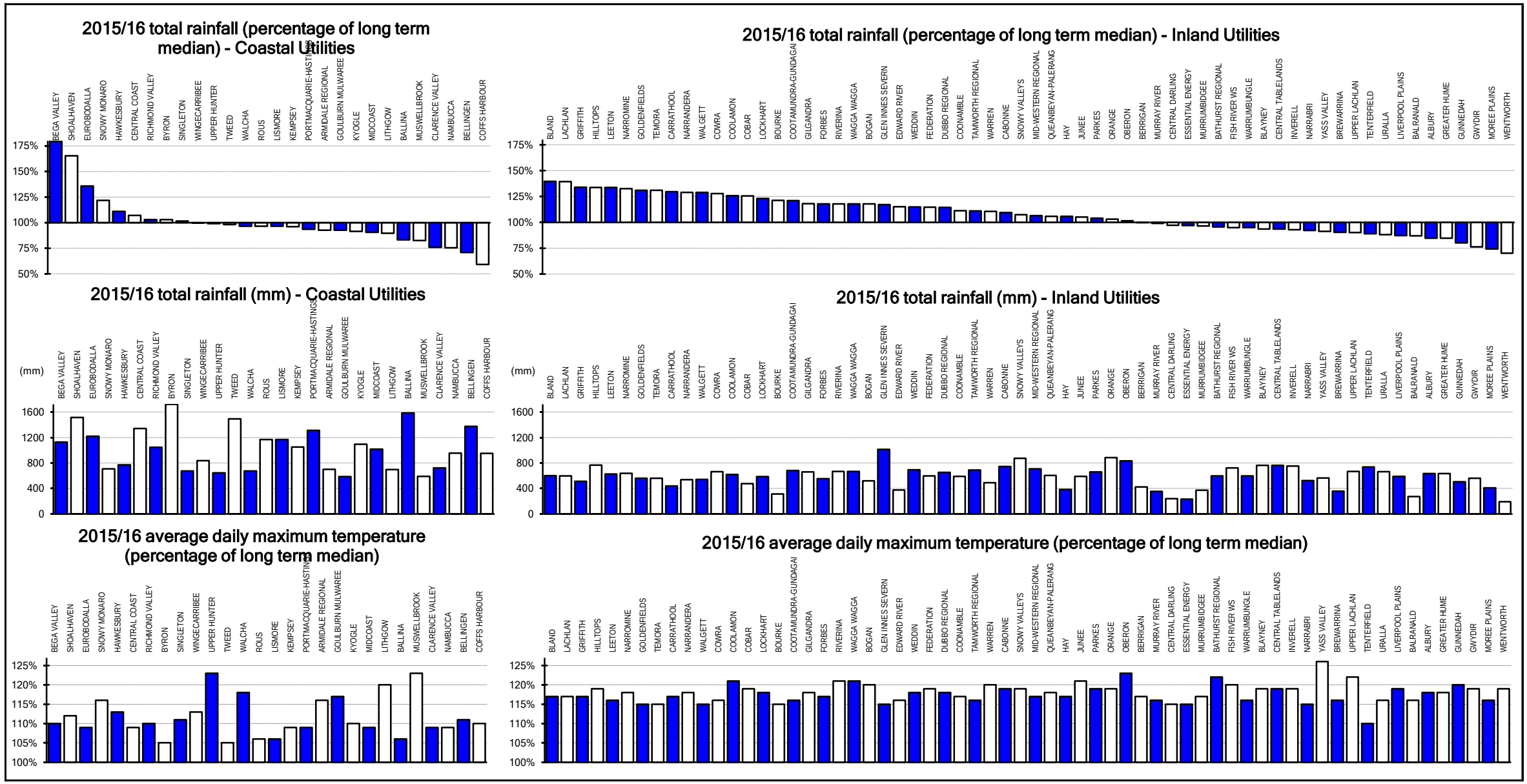
Parameter: $$\frac{\text{No. of residential assessments (WB32) + No. of non-residential assessments (WB33) x No. of connected properties per assessment}}{\text{Length of headworks transfer mains (WB20a) + length of trunk mains (WB20) + length of reticulation mains (WB21)}}$$

Parameter: Length of headworks transfer mains (WB20a) + length of trunk mains (WB20) + length of reticulation mains (WB21)

Notes:

1. The top graph shows the ranked values of number of connected properties per km of water main for each Local Water Utility (LWU). Each bar represents one LWU. The bottom graph of this figure shows the total length of mains for the corresponding LWUs.
2. The Statewide median water supply connected properties per km of main is 33 [National Median is 34 per km of main]. Refer also to Table 9 and graph 1 of Appendix A.
3. For general notes see section 6.

Figure 7: Rainfall, temperature - water supply



Parameter: [2015/16 total rainfall x 100] ÷ Long term median annual rainfall
Parameter: 2015/16 total rainfall (mm)
Parameter: [2015/16 average daily maximum temperature x 100] ÷ Long term median of daily maximum temperature
Notes:

1. Rainfall, temperature and medians are sourced from the Bureau of Meteorology. Long term medians are not available for some localities.
2. The total rainfall for the 2015/16 financial year and the average daily maximum temperature are only shown if weather stations returned complete records.
3. Weather stations are selected on the basis of proximity to a utility's major population centre and the length and reliability of records.
4. The statewide median annual rainfall was 104% of the long term median. However, the top graphs above show that the weighted medians for the coastal and inland utilities were 102% and 107% respectively.
5. For general notes see section 6.

Figure 8: Total water supplied - water supply - W11

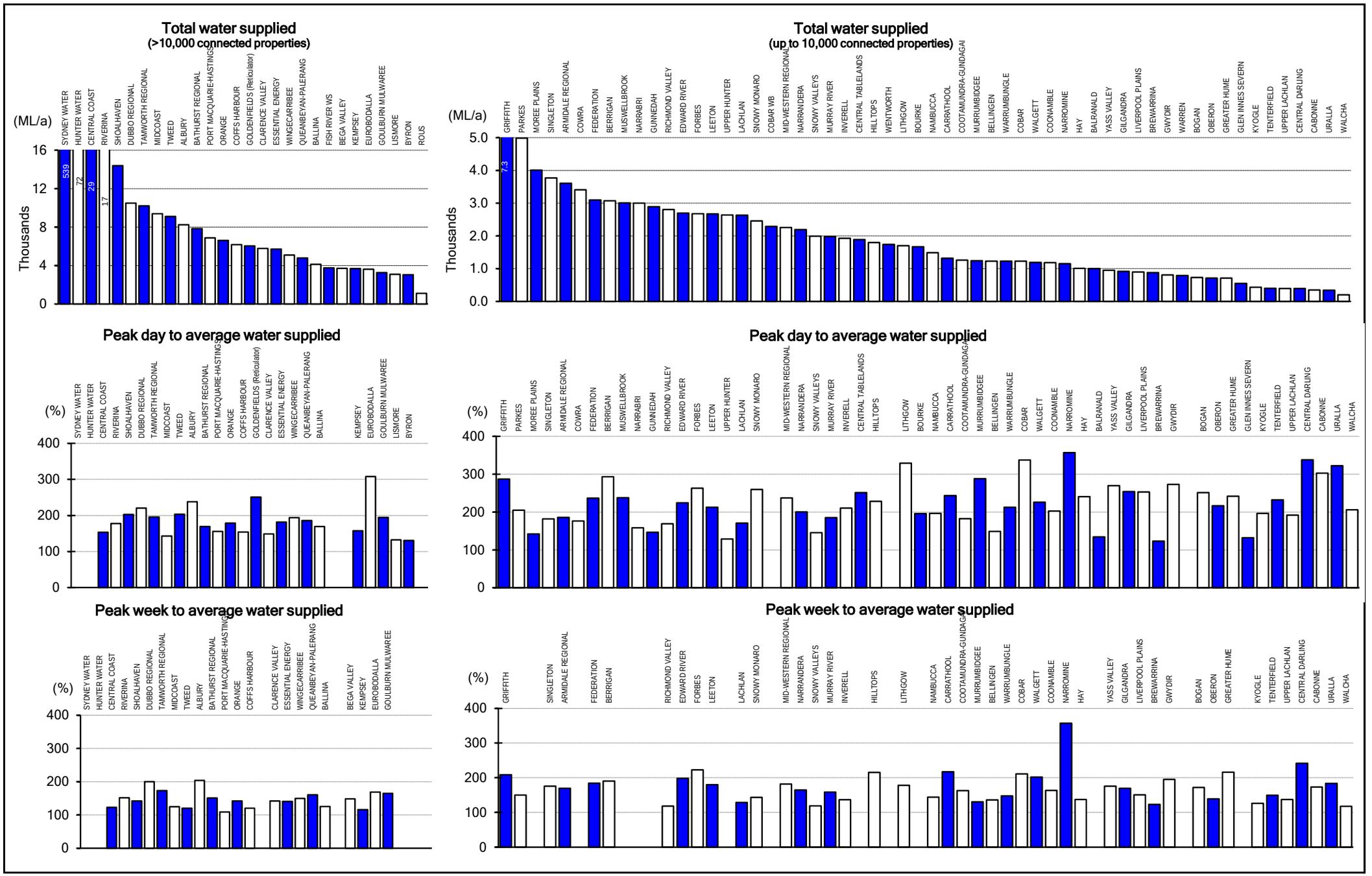
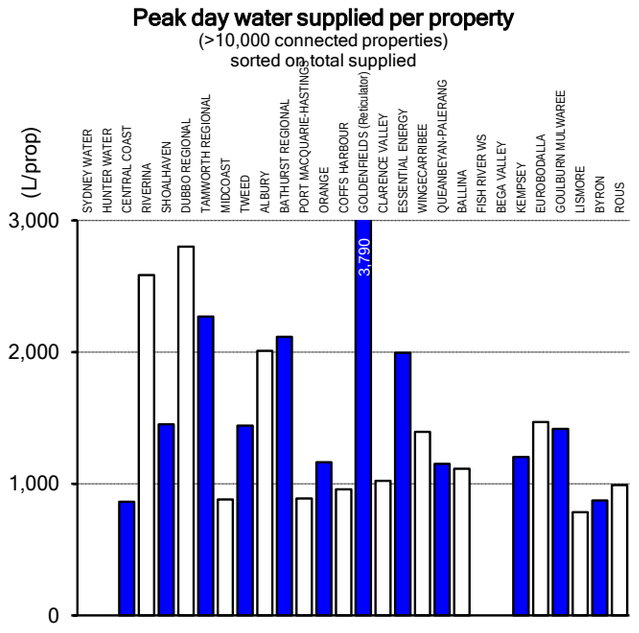
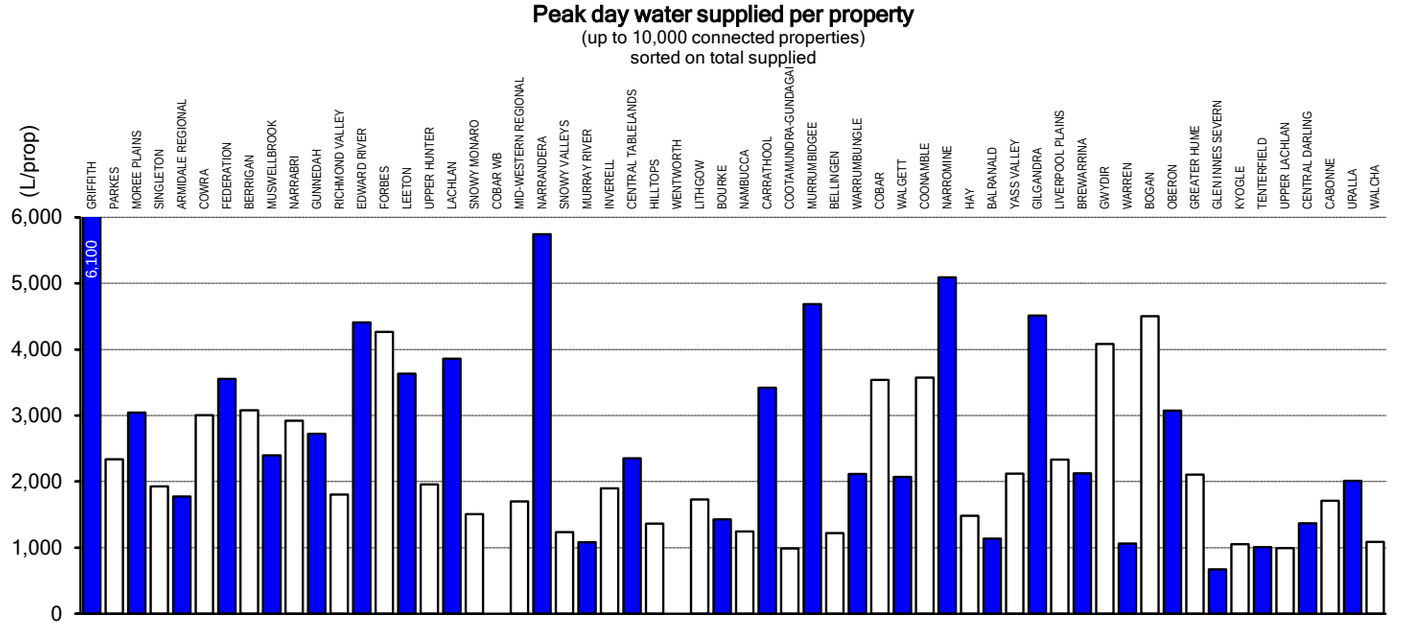


Figure 8: Total water supplied - water supply (continued)





Parameter: Total Potable Water Supplied (WB62) + Non-Potable Water Supplied (WB64) + Recycled Water (WB158)

Parameter:
$$\frac{\text{Peak Day Water Supplied (WB82)} \times 365 \times 10}{\text{Total Potable Water Supplied (WB62)}}$$

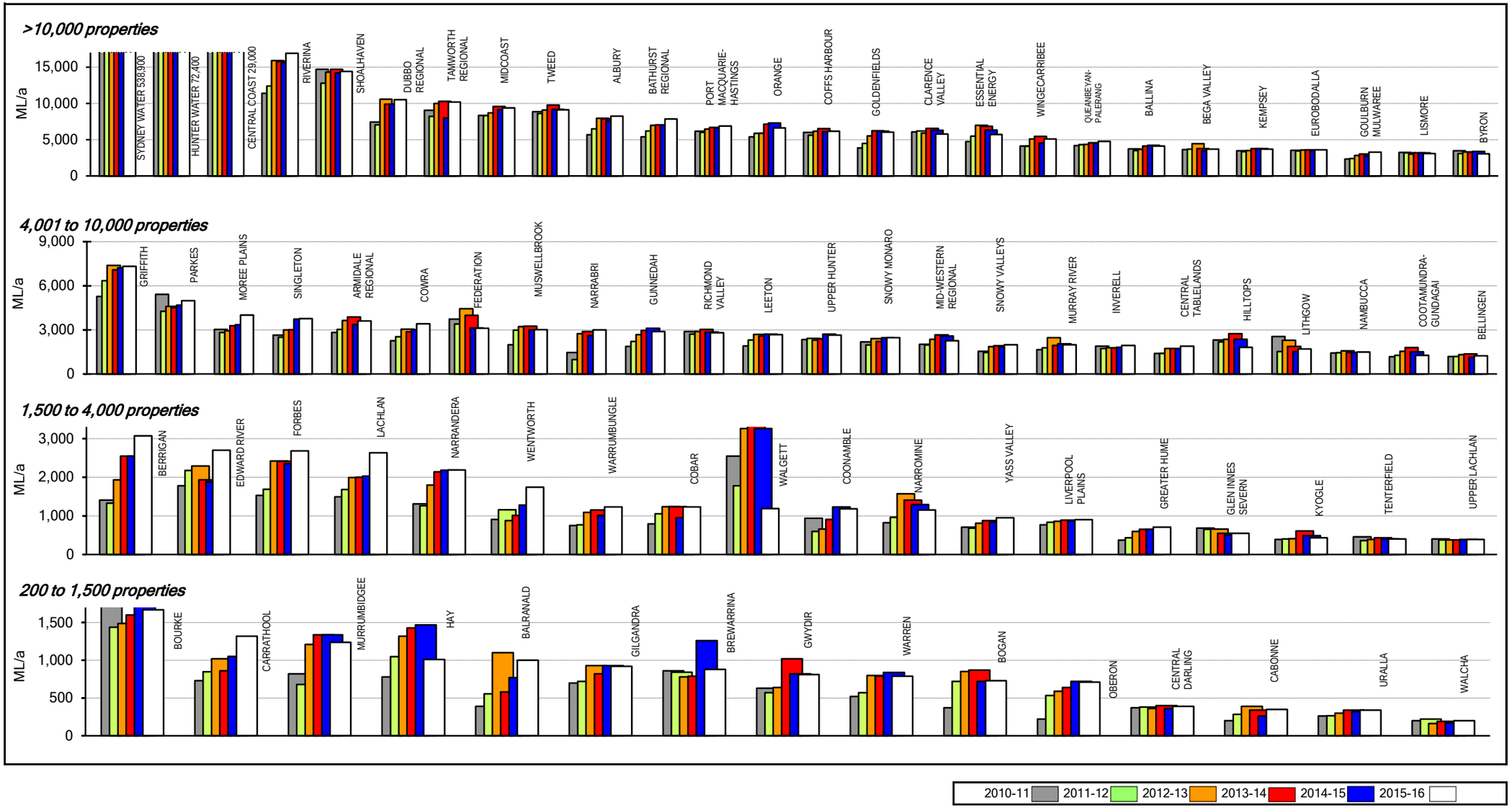
Parameter:
$$\frac{\text{Peak Week Water Supplied (WB83)} \times 365 \times 10}{\text{Total Potable Water Supplied (WB62)}}$$

Parameter:
$$\frac{\text{Peak Day Water Supplied (WB82)}}{[\text{No. of Residential Assessments (WB32)} + \text{No. of Non-Residential Assessments (WB33)}] \times \text{No. of Connected Properties per Assessment}}$$

Notes:

1. The top graphs show the total town water supplied (potable and non-potable). The second graphs show the percentage of peak to day average potable water supplied for each Local Water Utility (LWU). Each bar represents one LWU. The third graphs show the percentage peak week to average potable water supplied. The fourth graphs show the peak day water supplied per connected property.
2. Refer also to Table 8, Figure 9 and figures 33, 33c and 33d of Table 4.
3. For general notes see section 6.

Figure 9: Total urban water supplied - water supply - W11

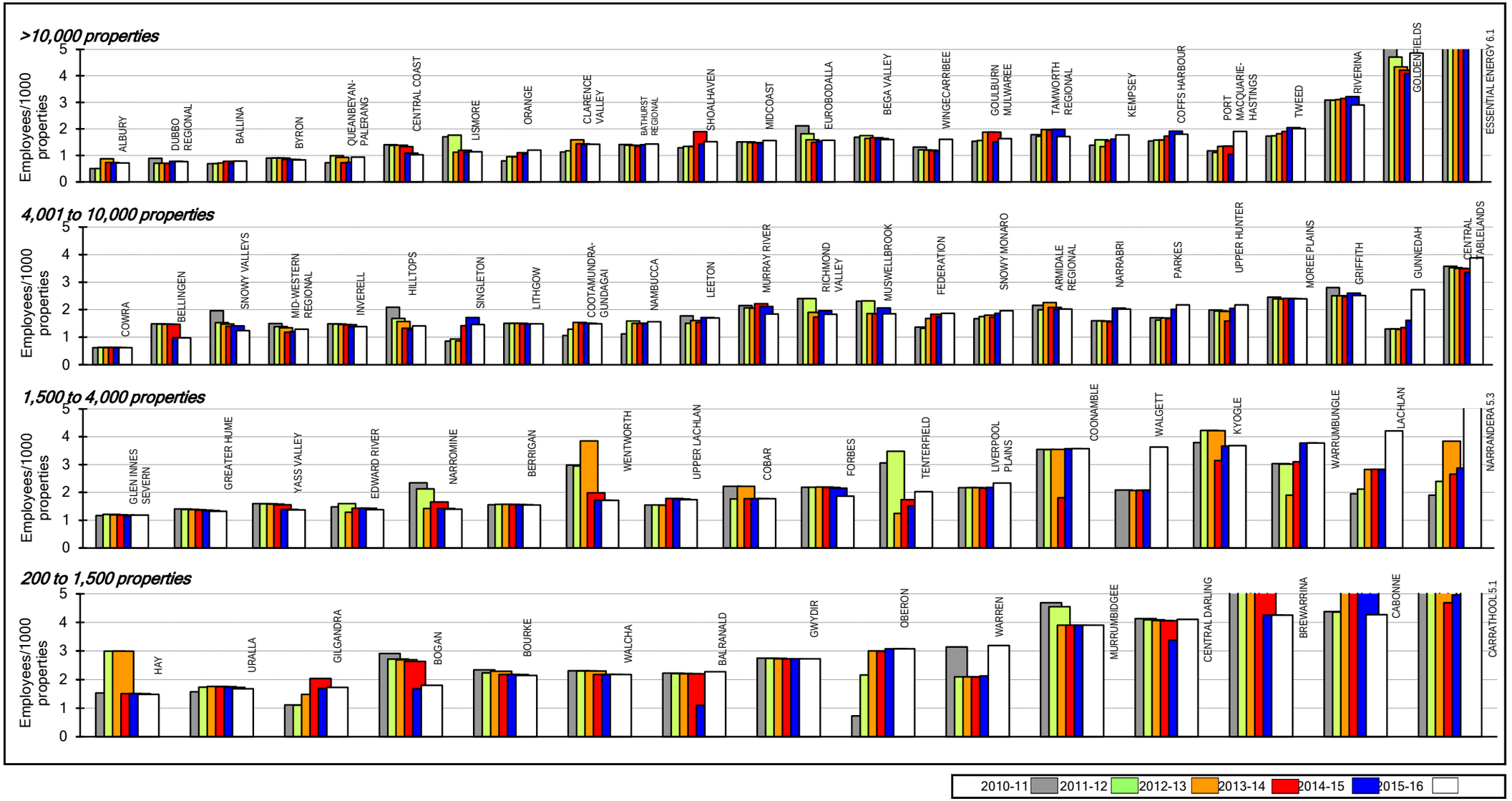


Parameter: Total Potable Water Supplied (WB62) + Non-Potable Water Supplied (WB64) + Recycled Water (WB158)

Notes:

1. This figure shows ranked values of the 2015-16 total urban water supplied for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the total urban water supplied for the 28 LWUs shown ranges from 7,320 to 1,980 ML/a. Results for the previous 5 years are also shown.
2. The Statewide median total urban water supplied is 6900 ML/a [National Median is 9770 ML/a]. Refer also to Table 5 and Table 10.
3. For general notes see section 6.

Figure 10: Employees per 1,000 properties - water supply



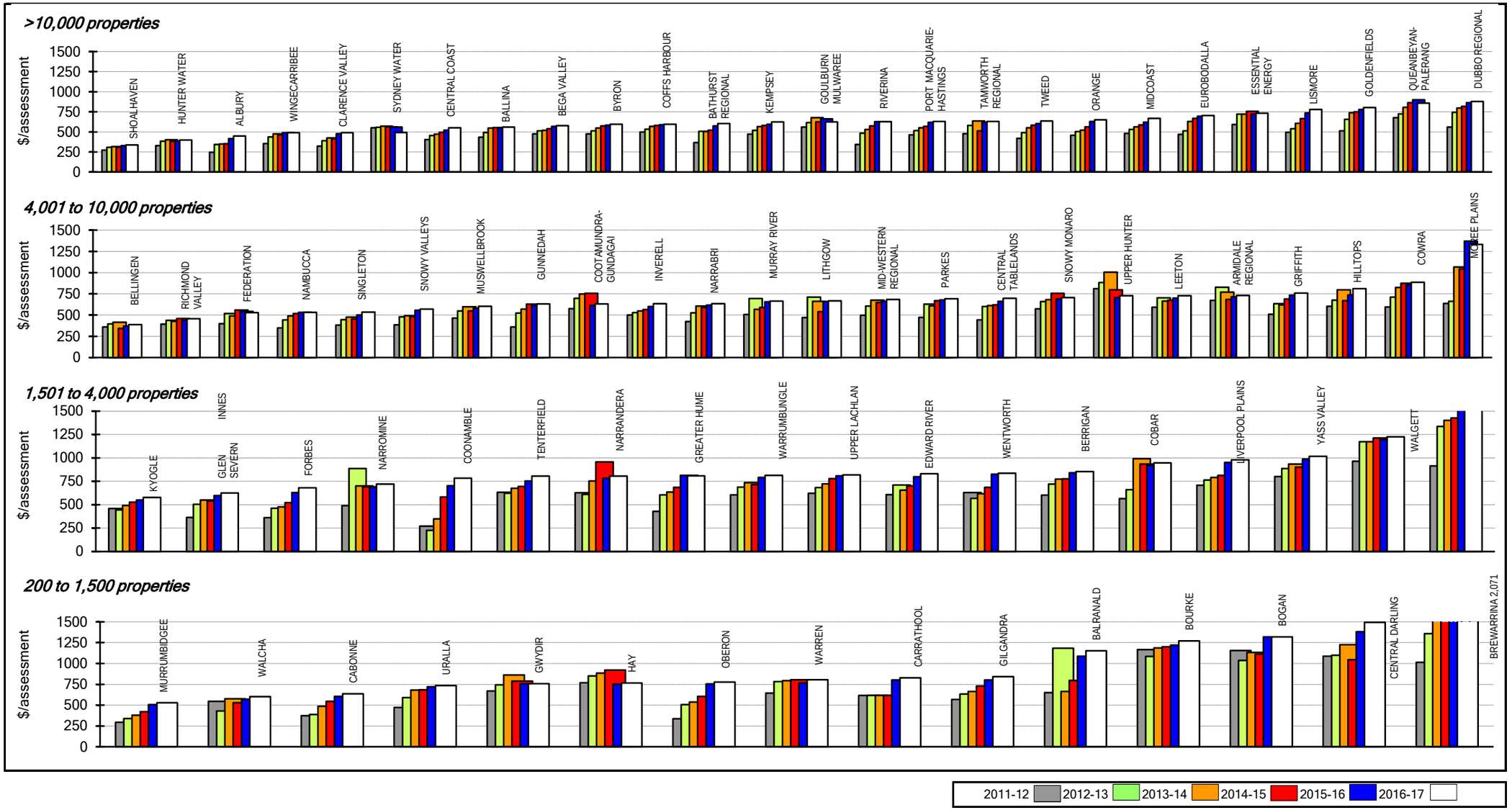
Parameter:

$$\frac{\text{Equivalent Full-time Employees (WB120)} \times 1000}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)]} \times \text{No. of Connected Properties per Assessment}}$$

Notes:

1. This figure shows ranked values of the 2015-16 number of water supply employees per 1000 properties for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the water supply employees per 1000 connected properties for the 24 LWUs shown ranges from 0.6 to 3.9. Results for the previous 5 years are also shown.
2. The Statewide median number of water supply employees is 1.5 per 1000 connected properties. Refer also to note 2 of section 5.4.3 and Table 9.
3. For general notes see section 6.

Figure 11: Typical residential bill – water supply

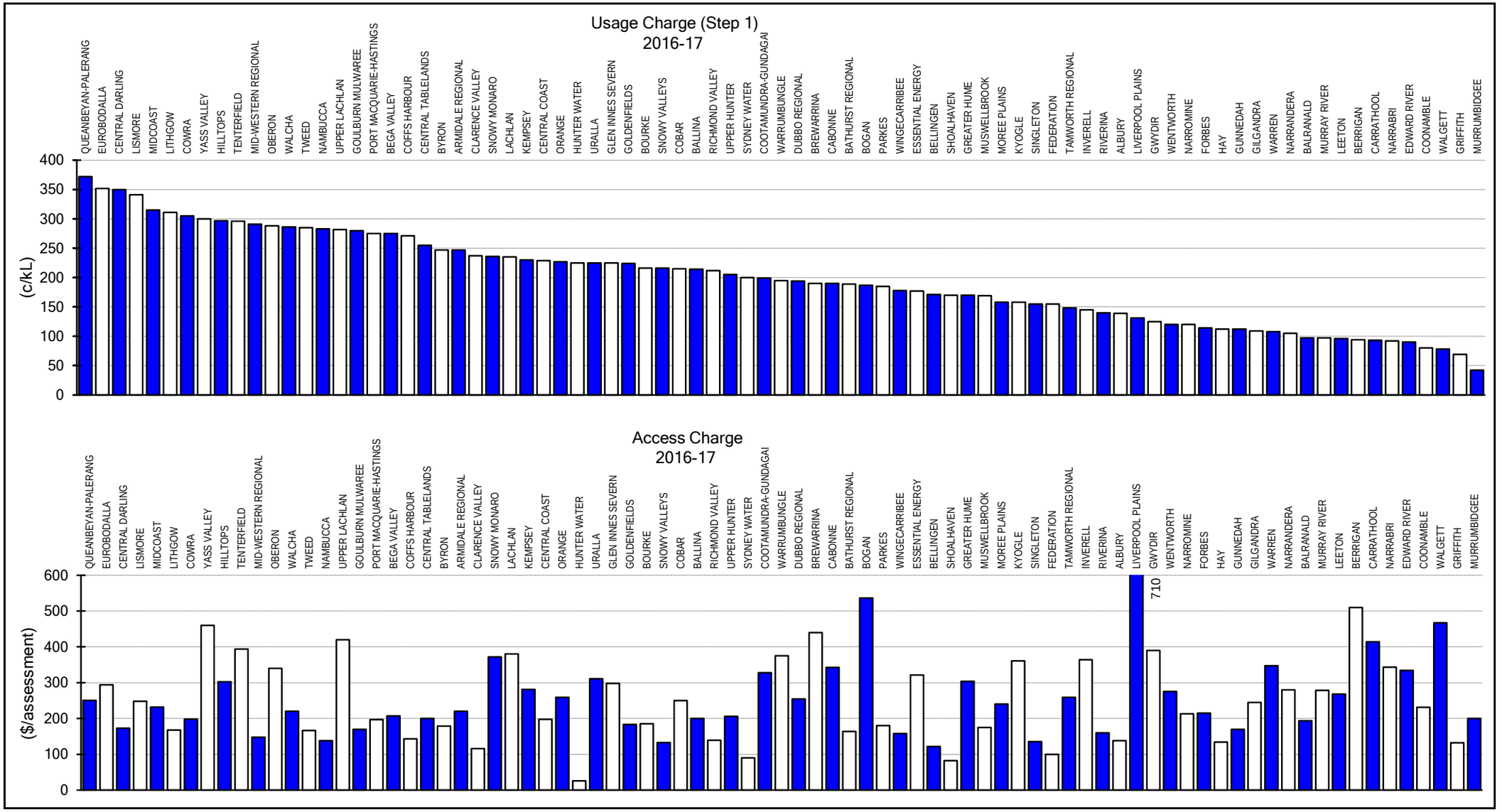


Parameter: (2015-16 Average Residential Water Supplied x 2016-17 Water Usage Charges) + 2016-17 Access Charge

Notes:

1. This figure shows ranked values of the 2016-17 typical residential bill for water supply for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the typical residential bill in 2016-17 for the 1 LWUs shown ranges from $390 to $1330 per assessment. Results for the previous 5 years are also shown in Jan 2017$.
2. The 2016-17 Statewide median typical residential bill for water supply is $625 per assessment [National Median is $623 for 2015-16]. Refer also to Table 6, graph 5 of Appendix A and figure 14 of Table 4.
3. For general notes see section 6.

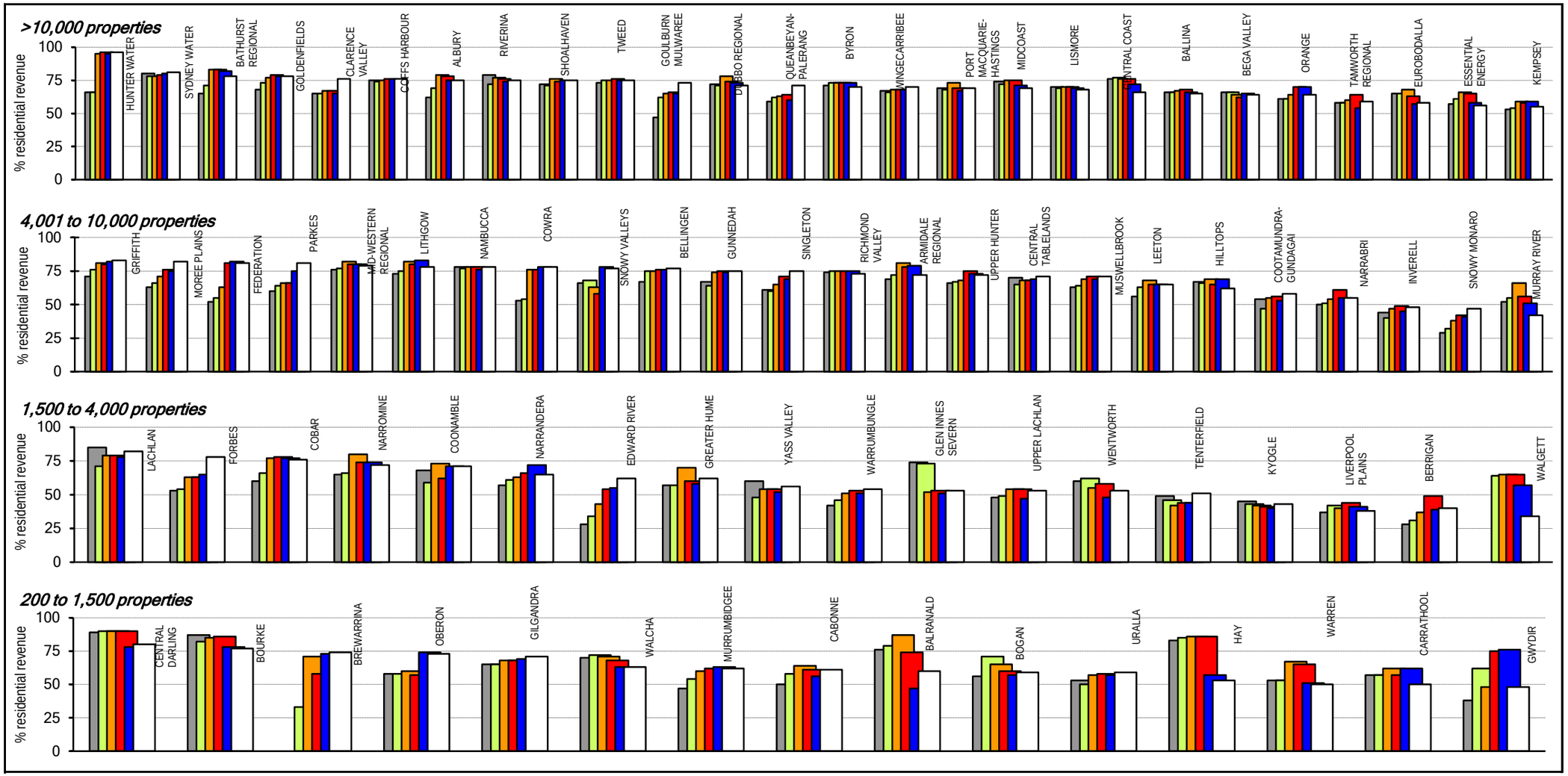
Figure 12: Residential usage charge [P1.3] and access charge [P1.2] - water supply



Notes:

1. ALL LWUs abolished their free water allowance for potable water supply by 2007. All LWUs now have domestic water metering.
2. The first step residential water usage charge is shown above. Further information on water supply tariff structures is shown in Tables 6, 6A and 6B. Refer also to Table 6 and graph 3 of Appendix A.
3. The Statewide median water usage charge for the first step was 230 c/kL [National Median is 190 c/kL for 2015-16]. 20% of LWUs had a usage charge greater than 285 c/kL. 80% of LWUs had a usage charge greater than 170 c/kL. Refer also to figure 12 on page 111.
4. For general notes see section 6. Refer also to page 13.

Figure 13: Residential revenue from usage charges - water supply - F4



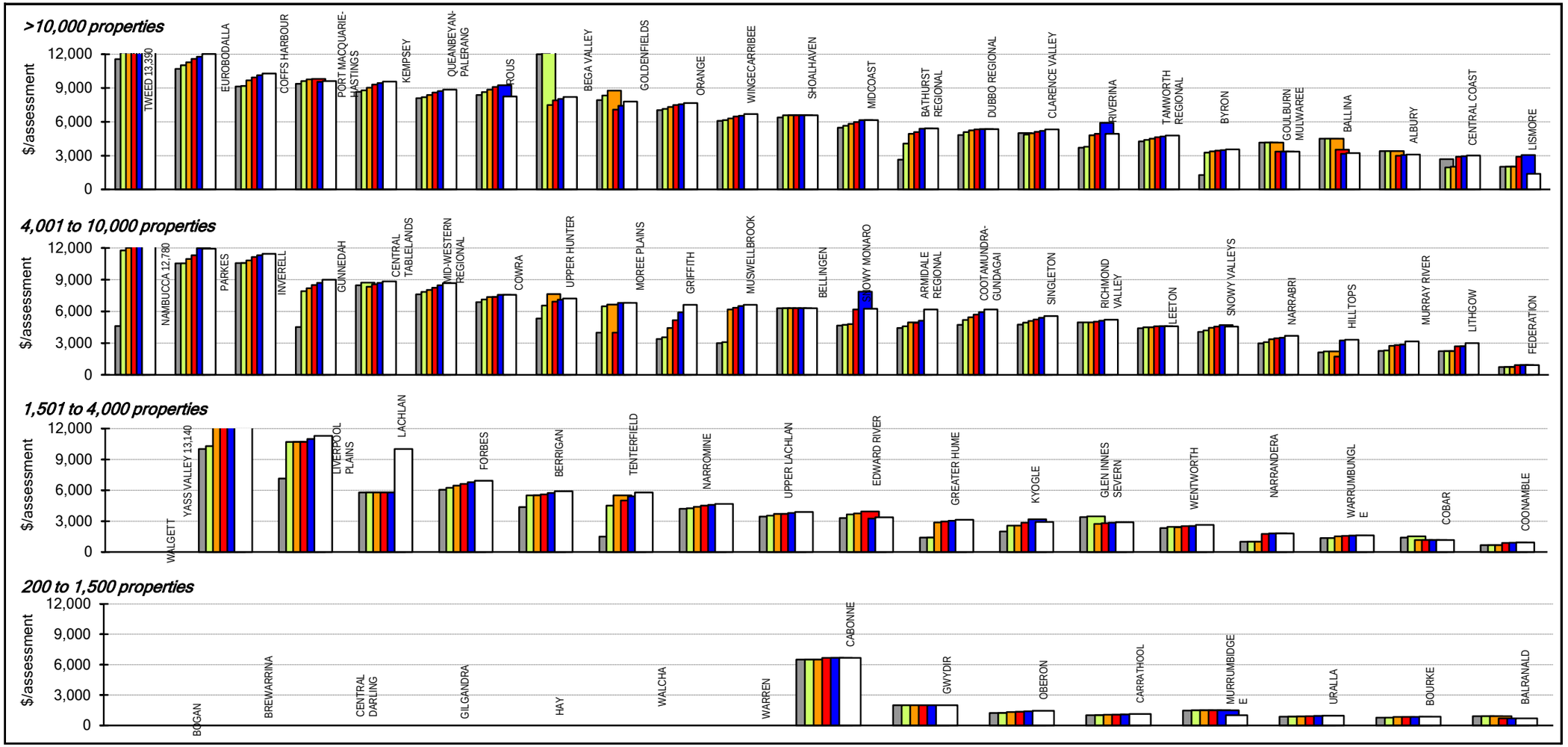
Parameter:

$$\frac{\text{Revenue from residential user charges (W\_6b)} \times 100}{\text{Revenue from residential access charges (W\_6a)} + \text{Revenue from residential user charges (W\_6b)}}$$

Notes:

1. This figure shows ranked values of the 2015-16 residential revenue from usage charges for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the residential revenue from usage charges for the 24 LWUs shown ranges from 78 to 42 percent. Results for the previous 5 years are also shown.
2. The Statewide median residential revenue from water usage charges was 73%, which provides a strong pricing signal [National Median is 66%]. Refer also to section 5.4.3, Table 5, Table 6, Table 3, graph 4 of Appendix A and figure 16 of Table 4. 0
3. For general notes see section 6.

Figure 14: Typical developer charge – water supply

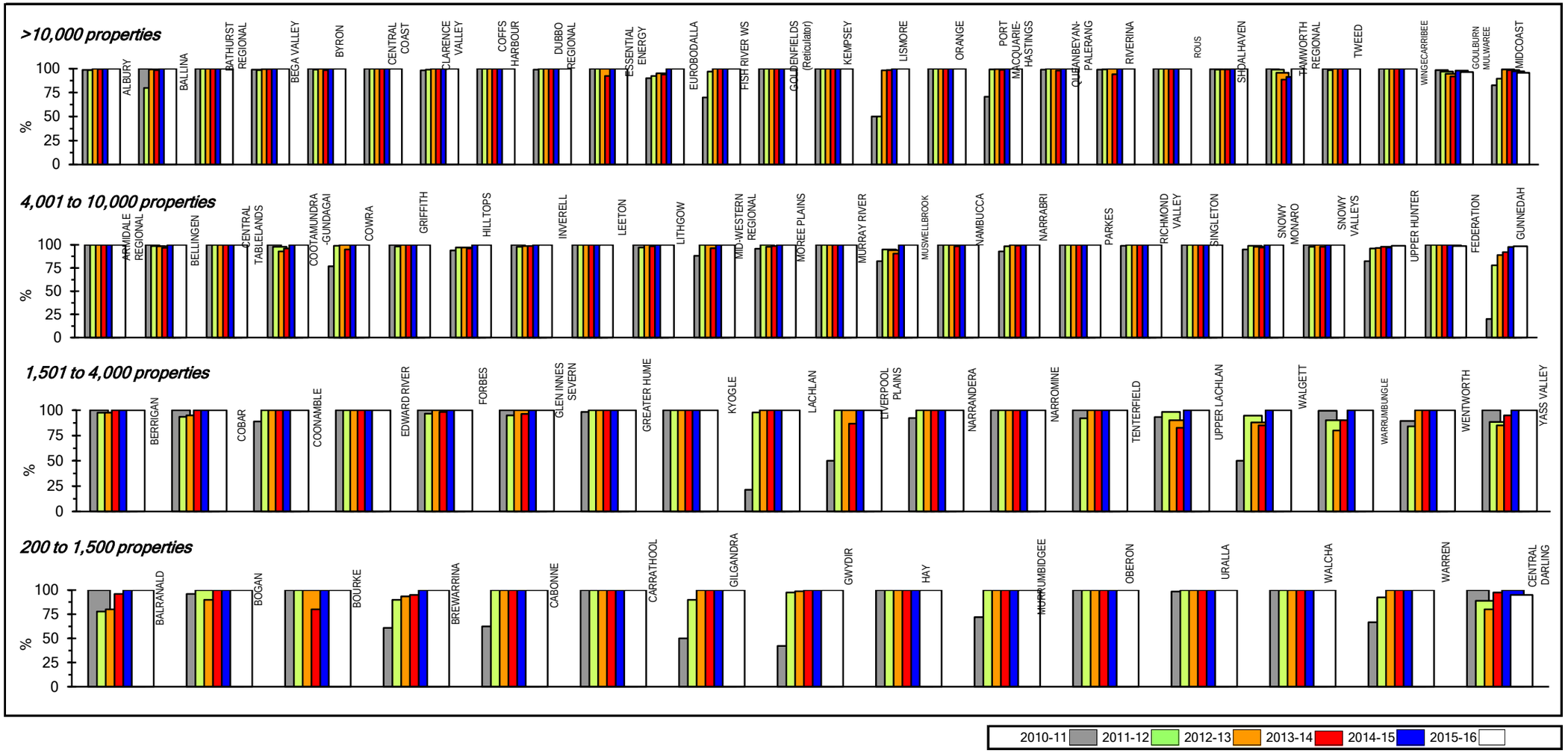


Parameter: Typical Water Supply Developer Charge (WB136)

Notes:

1. This figure shows ranked values of the 2016-17 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, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the typical developer charge for water supply for the 24 LWUs shown ranges from $12800 to $900. Results for the previous 5 years are also shown in Jan 2017$.
2. The 2016-17 Statewide median typical developer charge for water supply is $5,600 per equivalent tenement (ET), which is 32% of the median current replacement cost of water supply system assets of $17,400 per assessment. Refer also to Table 6.
3. 73 LWUs levied water supply developer charges.
4. 85% of LWUs have an appropriate water supply Development Servicing Plan (DSP) with commercial developer charges. This includes the following 11 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, Bourke, Brewarrina, Central Darling, Coonamble, Essential Energy, Gilgandra, Hay, Kyogle, Tumbarumba and Warren.
5. For general notes see section 6.

Figure 15: Physical water quality compliance - water supply

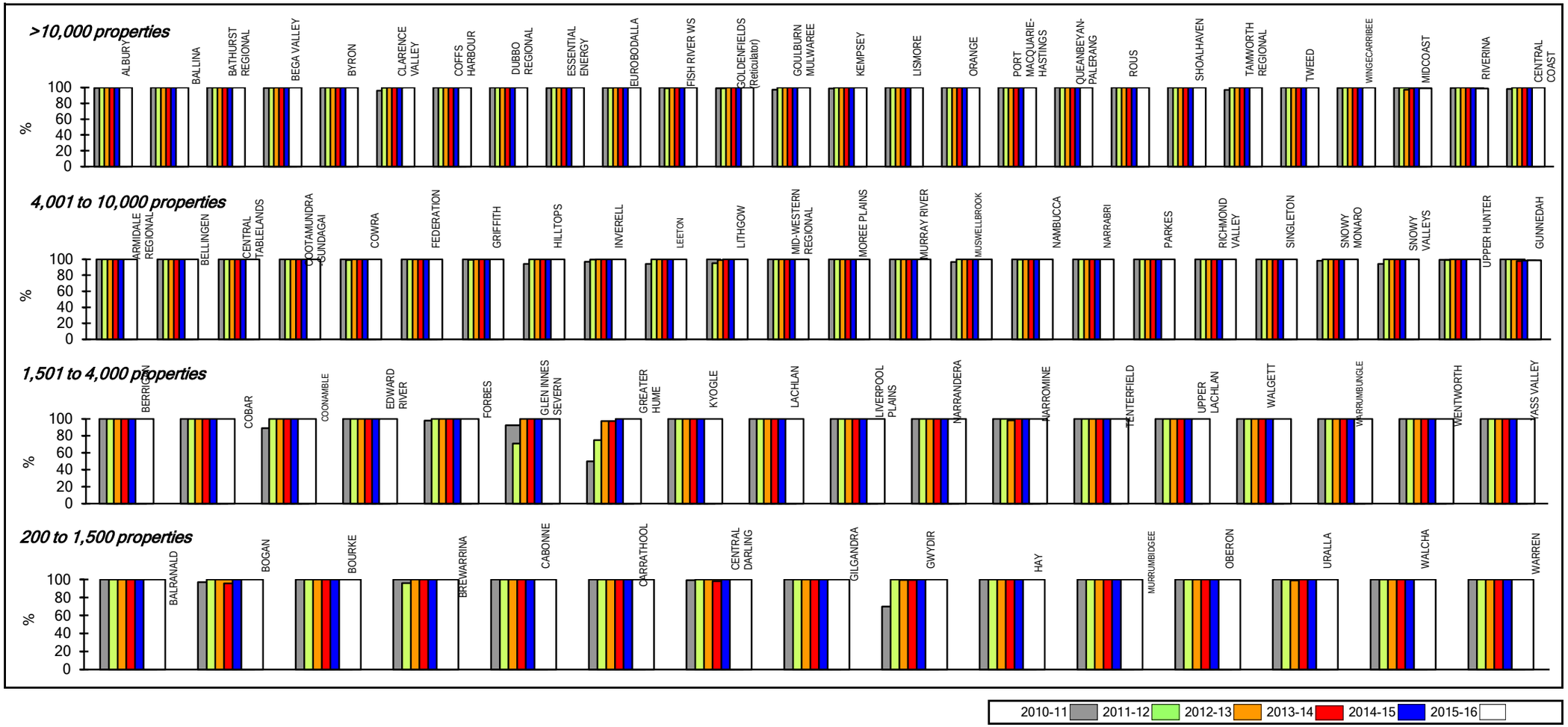


Parameter: Percentage of distribution system water samples complying with physical criteria of the NHMRC/NRMMC Australian Drinking Water Guidelines 2011.

Notes:

1. This figure shows ranked values of the 2015-16 distribution system compliance with the NHRMC/NRMMC Australian Drinking Water Guidelines 2011 for physical water quality for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the physical water quality compliance for the 24 LWUs shown are all 100%. Results for the previous 5 years are also shown.
2. For an LWU to comply with the 2011 Australian Drinking Water Guidelines for physical water quality (aesthetic), the required number of samples must be tested (refer to page 235) and the mean of results must not exceed the guideline value for each characteristic. The result for such an LWU is shown as '100%' in this figure. Non-potable water supplies are excluded.
3. 99% of the 3,700 samples tested in 2015-16 achieved 100% compliance with these guidelines. 100% of LWUs complied with the guidelines in 2015-16.
4. For LWUs with more than one water treatment works, the reported compliance has been pro-rated on the basis of the number of samples tested at each treatment works. Appendix D1 provides the 2015-16 results for each treatment works.
5. The Statewide median physical water quality compliance is 100%. Refer also to Table 12.
6. For general notes see section 6.

Figure 16: Chemical water quality compliance - water supply

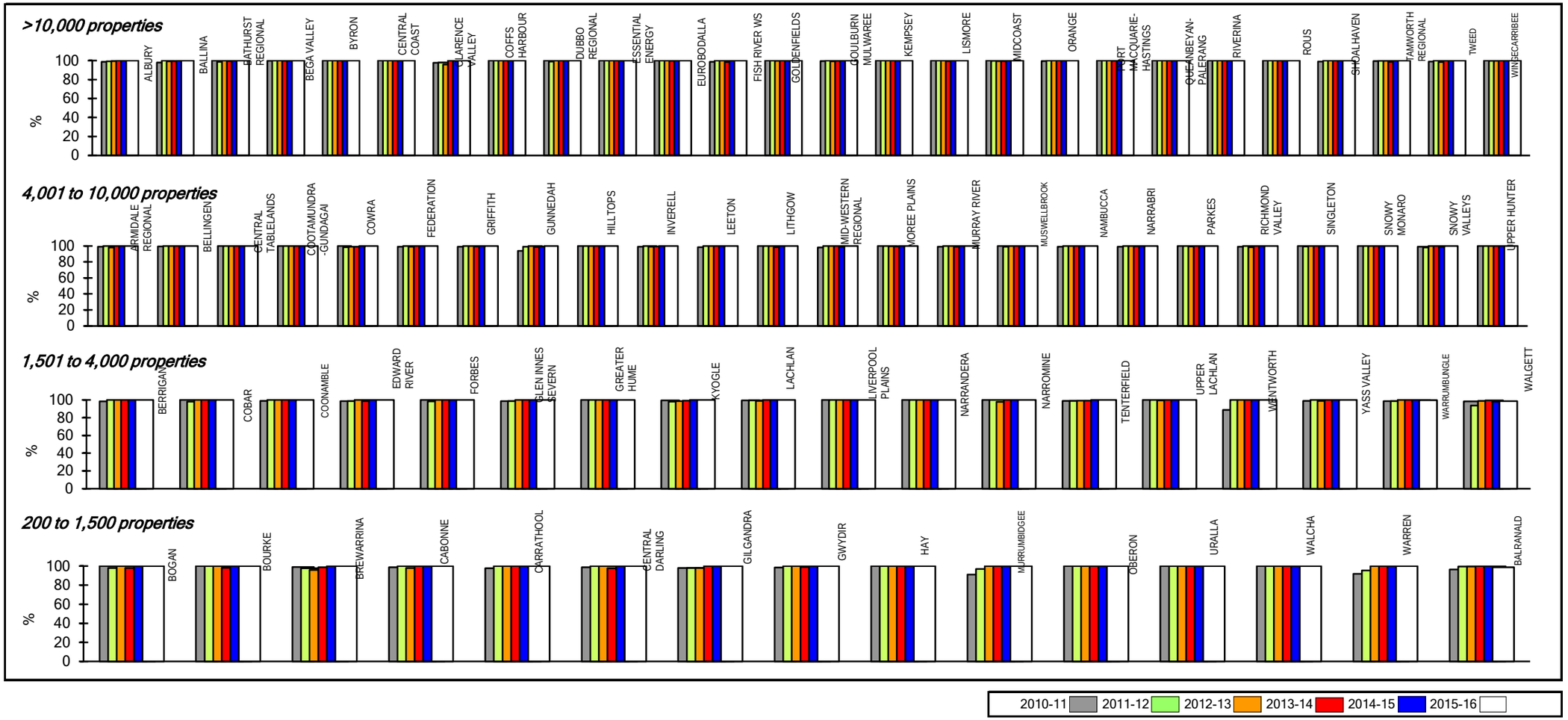


Parameter: Percentage of distribution system water samples complying with chemical criteria of the 2011 NHMRC/NRMMC Australian Drinking Water Guidelines.

Notes:

1. This figure shows ranked values of the 2015-16 distribution system compliance with the 2011 NHRMC/NRMMC Australian Drinking Water Guidelines for chemical water quality for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the chemical water quality compliance for the 24 LWUs shown are all 100%. Results for the previous 5 years are also shown.
2. 99.8% of the 3,100 samples tested in 2015-16 complied with the 2011 Guidelines. 100% of the LWUs complied with the Guidelines in 2015-16.
3. For a LWU to comply with the 2011 Australian Drinking Water Guidelines for chemical water quality (health related), the required number of samples must be tested (refer to Appendix B2) and at least the 95th percentile of results must not exceed the guideline value for each chemical. The result for such a LWU is shown as '100%' in this figure. Non-potable water supplies are excluded. For LWUs with more than one water treatment works, the reported compliance has been pro-rated on the basis of the number of samples tested at each treatment works. Appendix D1 provides the 2015-16 results for each treatment works. Refer also to Table 5 and Table 12.
4. The Statewide median chemical water quality compliance is 100%.
5. In 2015-16, the public drinking water supply for 99.2% of the urban population in regional NSW complied with 2011 ADWG for health related chemical water quality.
6. For general notes see section 6.

Figure 17: Microbiological water quality compliance - water supply

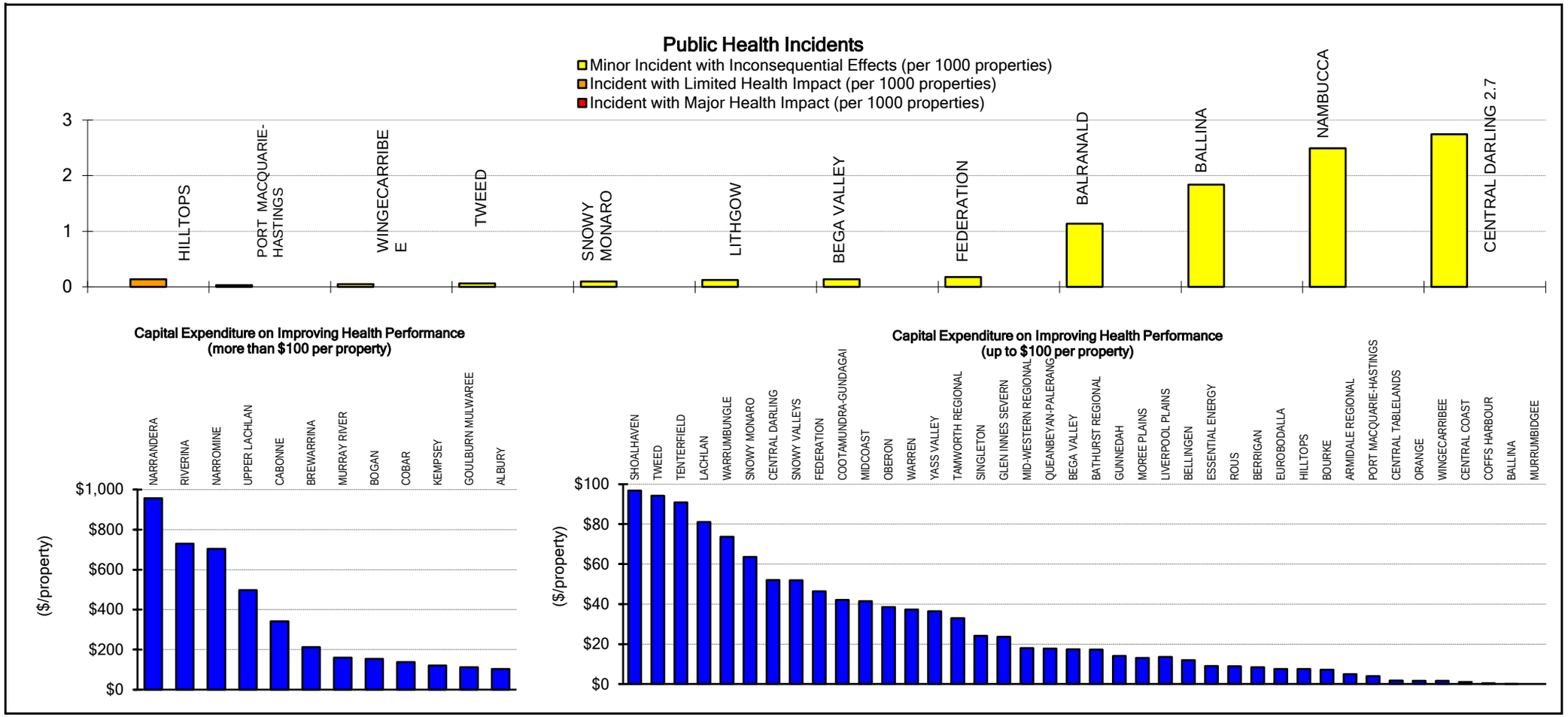


Parameter: Percentage of distribution system water samples complying with E. coli criteria of the 2011 NHMRC/NRMMC Australian Drinking Water Guidelines

Notes:

1. This figure shows ranked values of the 2015-16 distribution system compliance with the 2011 NHRMC/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, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the microbiological water quality compliance for the 24 LWUs shown are all 100%. Results for the previous 5 years are also shown.
2. For a LWU to comply with the 2011 Australian Drinking Water Guidelines for microbiological water quality, the required number of samples must be tested (refer to Appendix B2) and at least 98% of the samples must contain no E.coli. The result for such a LWU is shown as '100%' in this figure. Non-potable water supplies are excluded. 99.9% of the 21,600 samples tested in 2015-16 contained no E. coli. 100% of the LWUs complied with the 2011 Guidelines for E. coli in 2015-16.
3. For LWUs with more than one water treatment works, the reported compliance has been pro-rated on the basis of the number of samples tested at each treatment works. Appendix D1 provides the 2015-16 results for each treatment works.
4. The Statewide median microbiological water quality compliance is 100%. Refer also to Table 5, Table 12 and graph 8 of Appendix A.
5. In 2015-16, the public drinking water supply for 99.8% of the urban population in regional NSW complied with 2011 ADWG for microbiological water quality.
6. For general notes see section 6.

Figure 18: Public health incidents, capital investment - water supply



Parameter:

$$\frac{\text{Total No. of Minor Incidents with Inconsequential Effects (WB115)}}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment}}$$

Parameter:

$$\frac{\text{Total No. of Minor Incidents with Limited Health Impacts (WB116)}}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment}}$$

Parameter:

$$\frac{\text{Total No. of Major Incidents with Major Health Impacts (WB117)}}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment}}$$

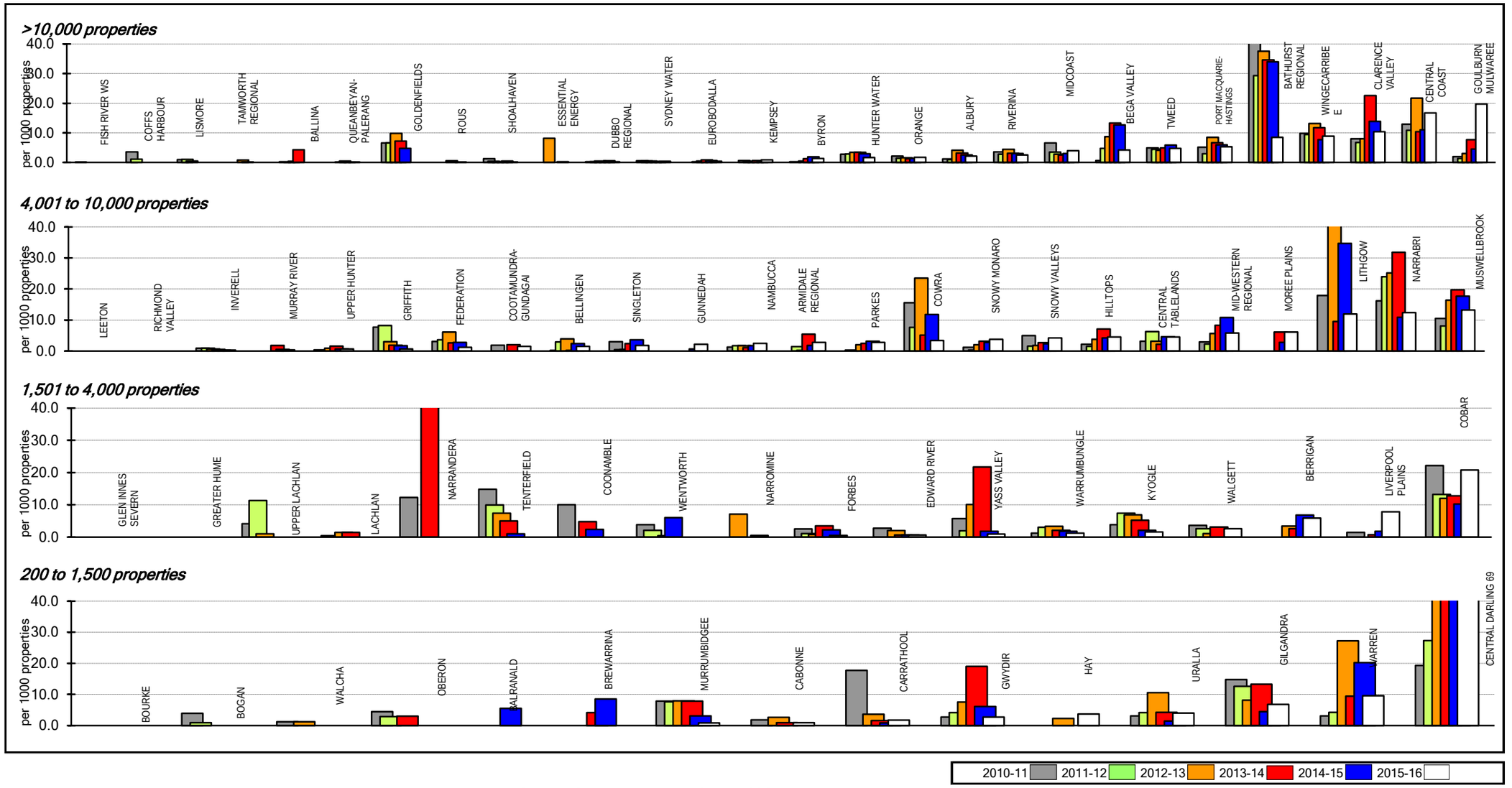
Parameter:

$$\frac{\text{Capital Expenditure on Improving Health Performance (\$) x (WB119)}}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment}}$$

Note:

1. 12 Utilities are shown in the figure above, while 70 utilities reported zero public health incidents.
2. For general notes see section 6.

Figure 19: Water quality complaints - water supply - C9



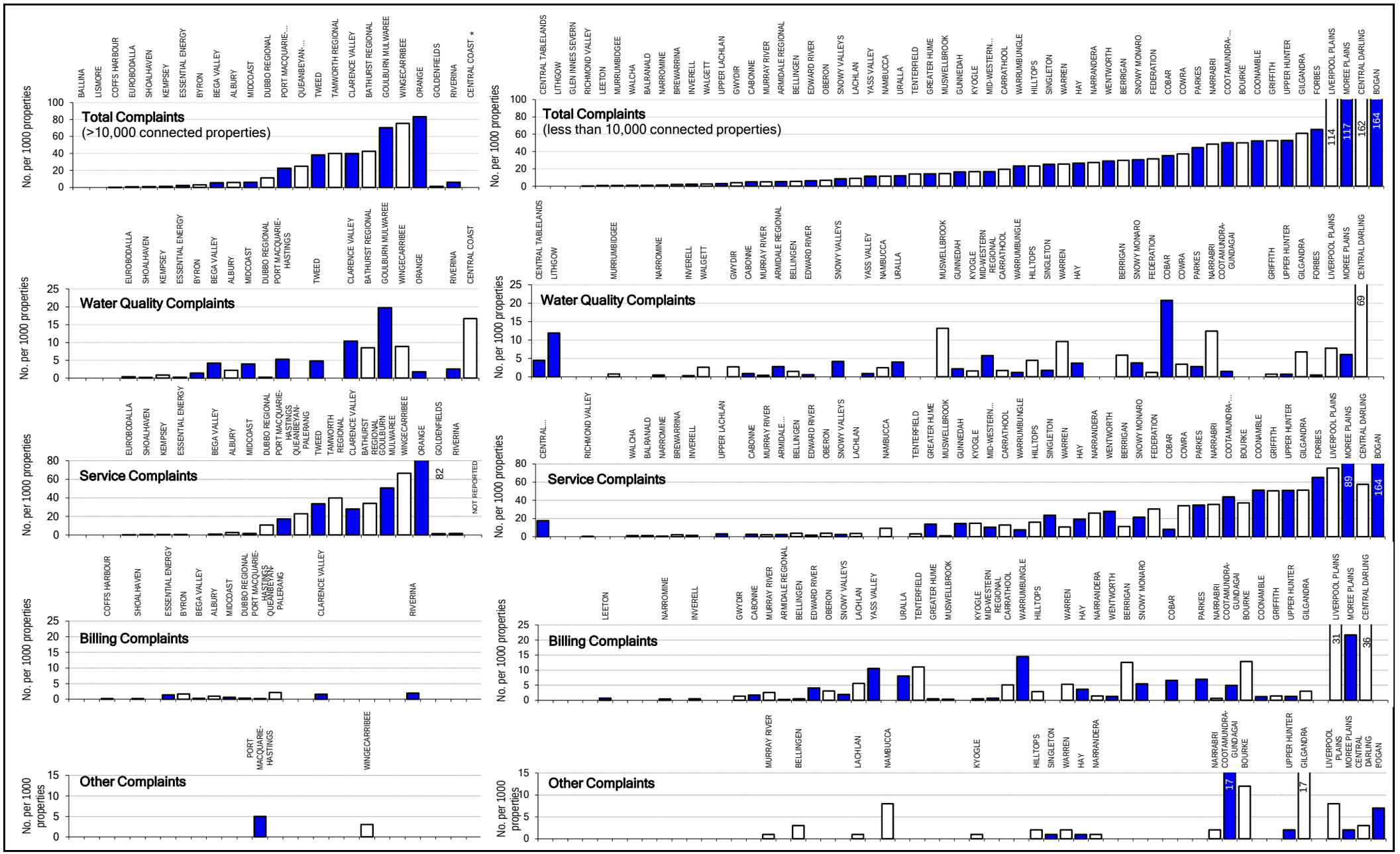
Parameter:

$$\frac{\text{No. of Water Quality Complaints (WB101) x 1000}}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment}}$$

Notes:

1. This figure shows ranked values of the 2015-16 number of water quality complaints per 1000 connected properties for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the water quality complaints for the 24 LWUs shown ranges from nil to 13 per 1000 connected properties.
2. The Statewide median number of water quality complaints is 3 per 1000 properties [National Median is 2 per 1,000 properties]. Refer also to Table 5, graph 9 of Appendix A and figure 25 of Table 4.
3. For general notes see section 6.

Figure 20: Complaints (per 1,000 properties) - water supply - C9, C10



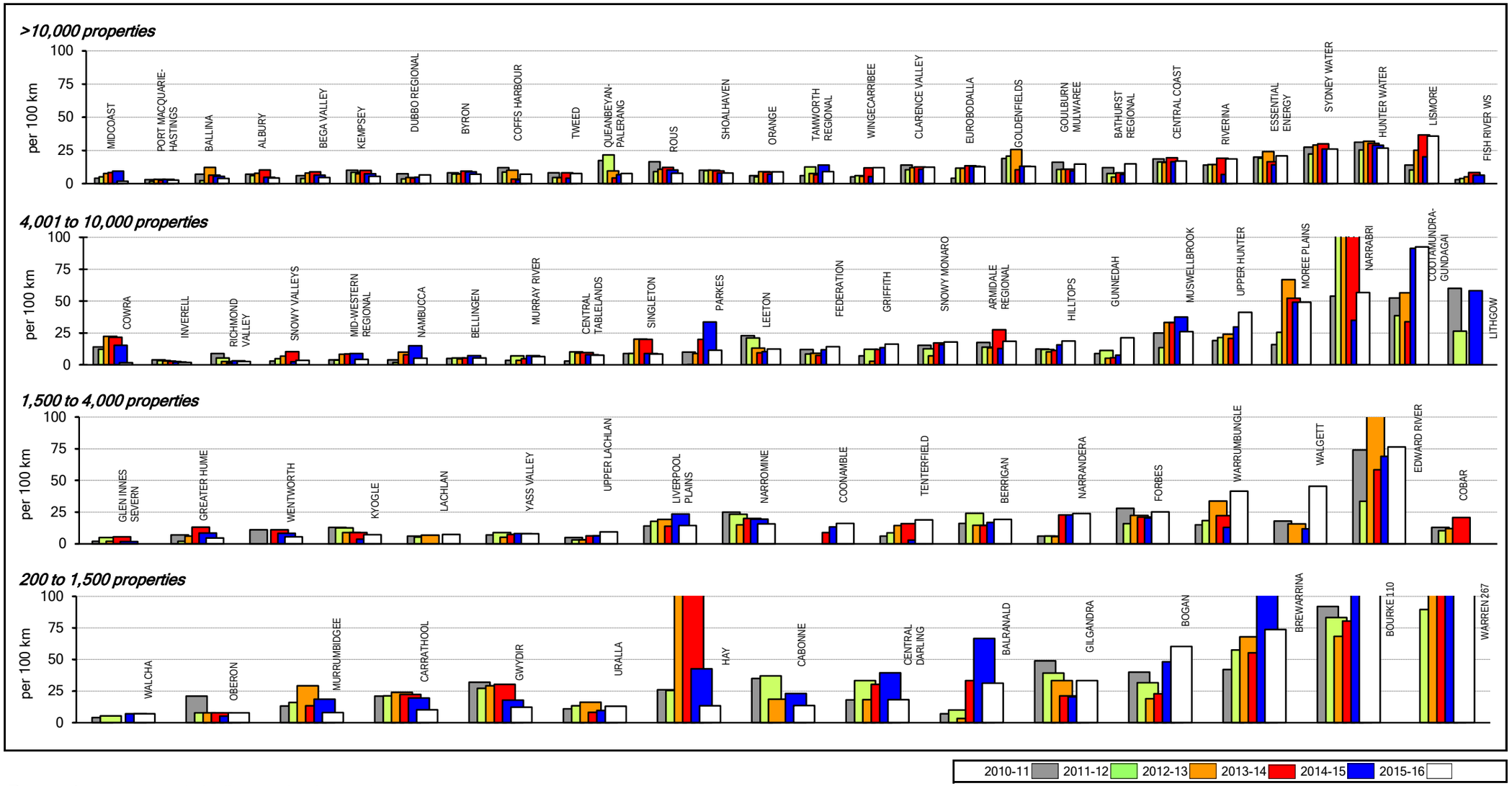
Parameter:

$$\frac{\text{Total No. of Complaints [(WB96)+(WB99)+(WB100)+(WB101)] x 1000}}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment}}$$

Note:

1. For general notes see section 6. Refer also to Table 5, Table 12, and figures 5, 25 and 26 of Table 4.

Figure 21: Number of water main breaks - water supply - A8

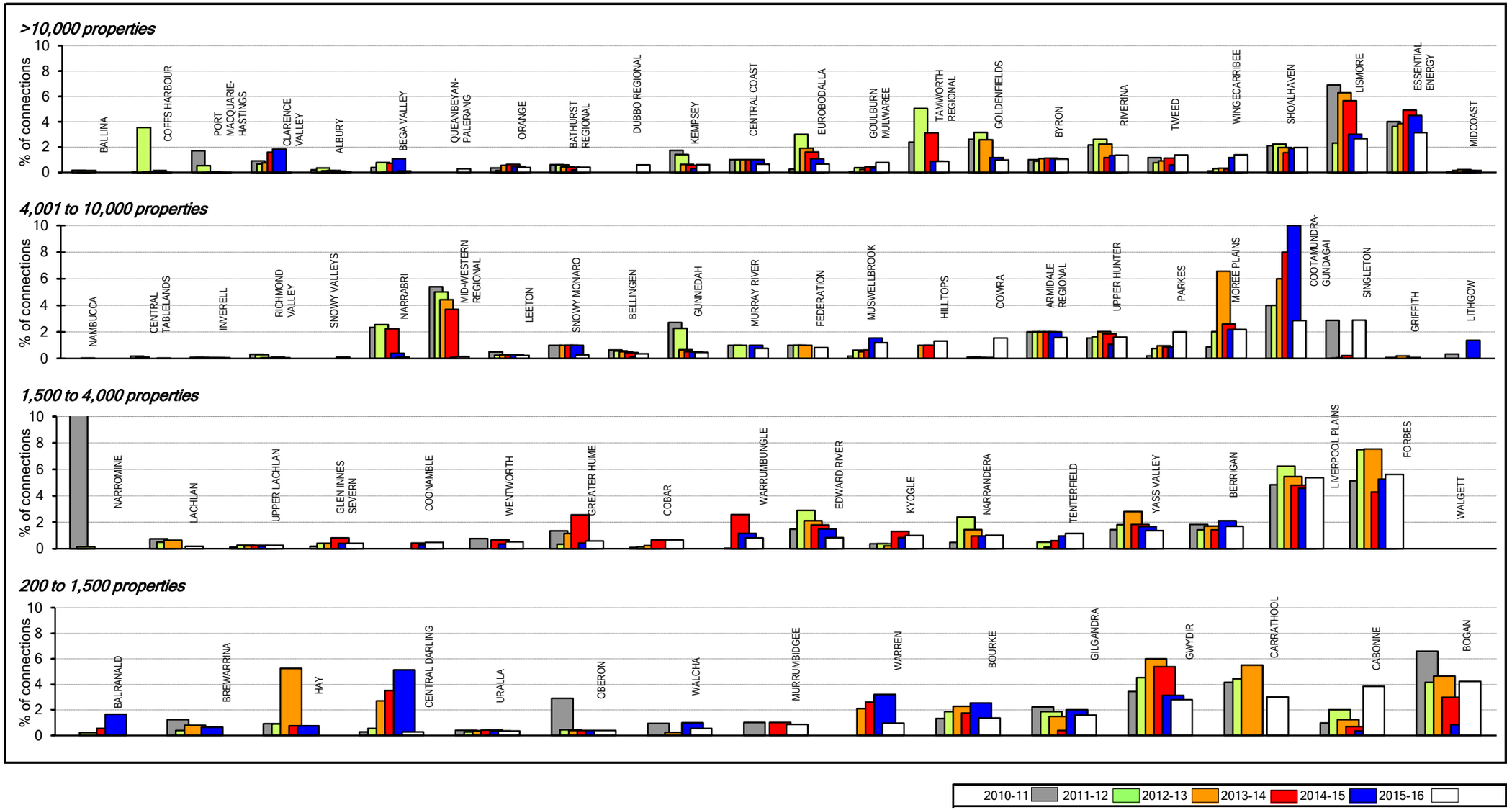


Parameter: No. of Pipeline Breaks (WB104) x 100
Length of Distribution and Trunk Mains (WB22)

Notes:

1. This figure shows ranked values of the 2015-16 water supply main breaks for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the number of main breaks for the 24 LWUs shown ranges from 1.7 to 92 per 100km of water mains. The 1 LWU on the right did not report this indicator for 2015-16. Results for the previous 5 years are also shown.
2. The Statewide median number of water supply main breaks is 9 per 100km of water main [National Median is 13 per 100km of water main]. This has remained much lower than all the other states and capital city utilities, indicating good water main asset condition (graph 10 of Appendix A and figure 30 of Table 4). Refer also to Table 5 and Table 10.
3. For general notes see section 6.

Figure 22: Service connection failures - water supply



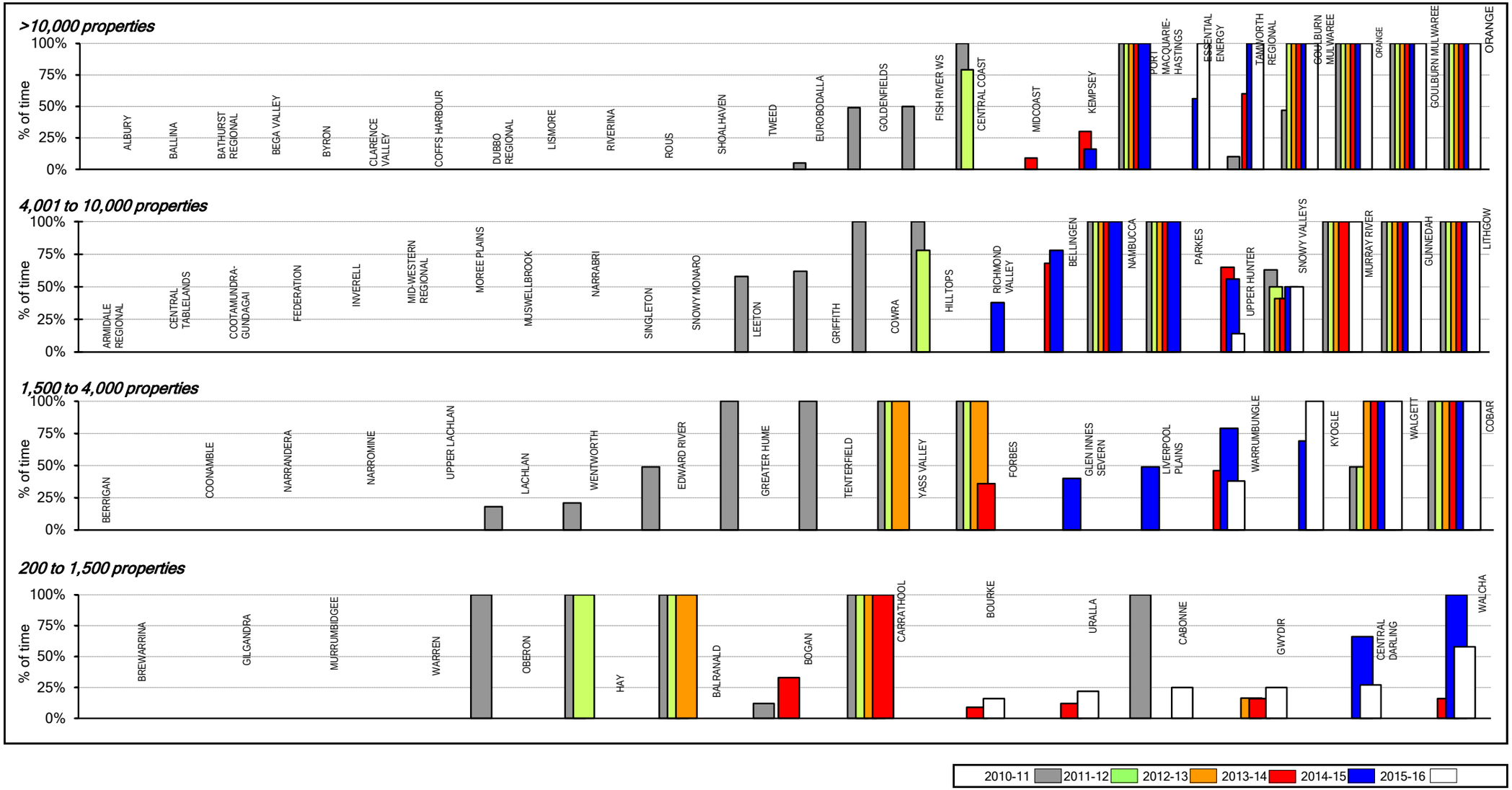
Parameter:

$$\frac{\text{No. of Service Connection Failures (WB105) x 100}}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment}}$$

Notes:

1. This figure shows ranked values of the 2015-16 water supply service connection failures for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the number of service connection failures for the 24 LWUs shown ranges from nil to 3%. The 2 LWUs on the right did not report this indicator for 2015-16. Results for the previous 5 years are also shown.
2. Refer also to Table 10 and columns 48 to 59 of Table 5C.
3. For general notes see section 6.

Figure 23: Drought water restrictions - water supply

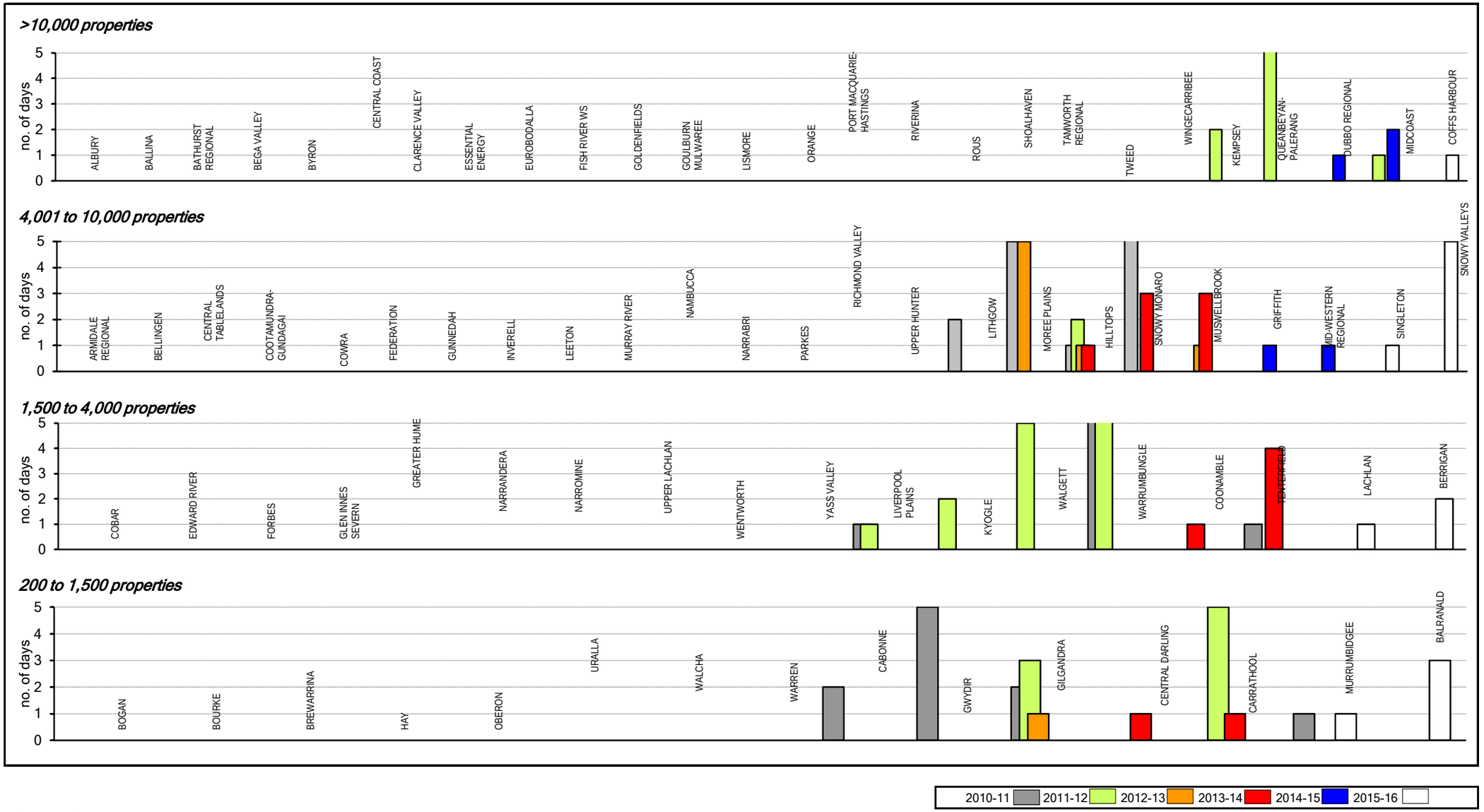


Parameter: No. of Days of Water Restrictions Due to Drought (WB95) x 100 / 365 Days

Notes:

1. This figure shows ranked values of the 2015-16 drought water restrictions due to drought for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), 5 of the 24 reporting LWUs reported restrictions ranging from 0% of the time to 100% of the time. 19 LWUs reported no drought water restrictions. Results for the previous 5 years are also shown.
2. 25% of the LWUs needed to apply drought water restrictions in 2015-16.
3. Refer also to Table 12 and to section 2.1 of the NSW Water Supply and Sewerage Performance Monitoring Report (www.water.nsw.gov.au).
4. For general notes see section 6.

Figure 24: Chlorination system malfunction - water supply

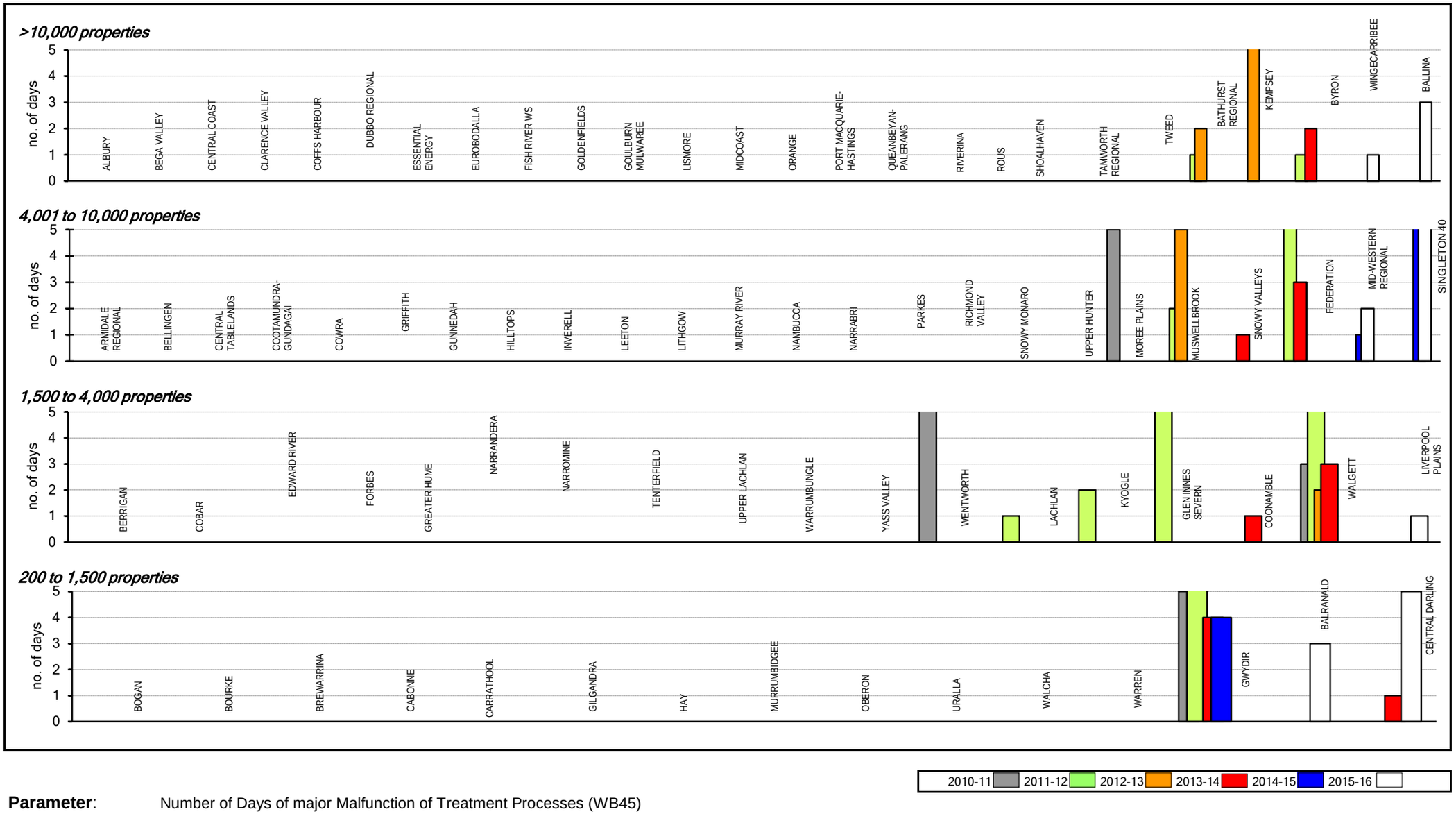


Parameter: Number of Days Chlorination System failed to Operate (WB44)

Notes:

1. The figure shows the 2015-16 ranked number of days a chlorination system for potable water did not operate for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the number of days the chlorination system did not operate for the 24 LWUs shown ranges from nil to 5 days. Results for the previous 5 years are also shown.
2. For LWUs with more than one chlorination system, the weighted average (based on capacity) of days was used. Refer also to Appendix D1.
3. For general notes see section 6.

Figure 25: Treatment works malfunction - water supply

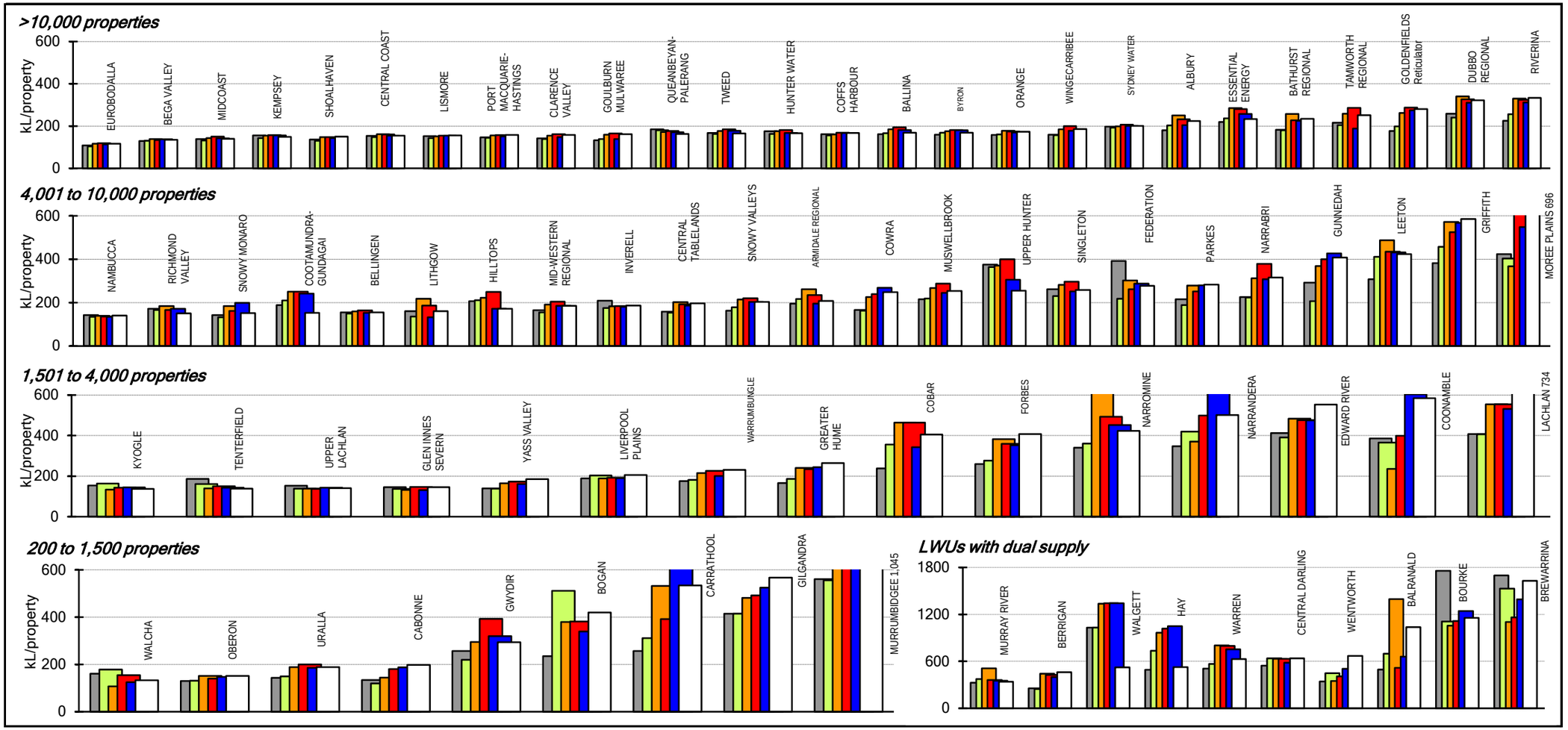


Parameter: Number of Days of major Malfunction of Treatment Processes (WB45)

Notes:

1. The figure shows the 2015-16 ranked number of days of treatment works malfunction for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the number of days of treatment works malfunction for the 24 LWUs shown ranges from nil to 40 days. Results for the previous 5 years are also shown.
2. For LWUs with more than one treatment works, the weighted average days of malfunction (based on treatment works capacity) was used. Refer also to Appendix D1.
3. For general notes see section 6.

Figure 26: Average annual residential water supplied - water supply - W12

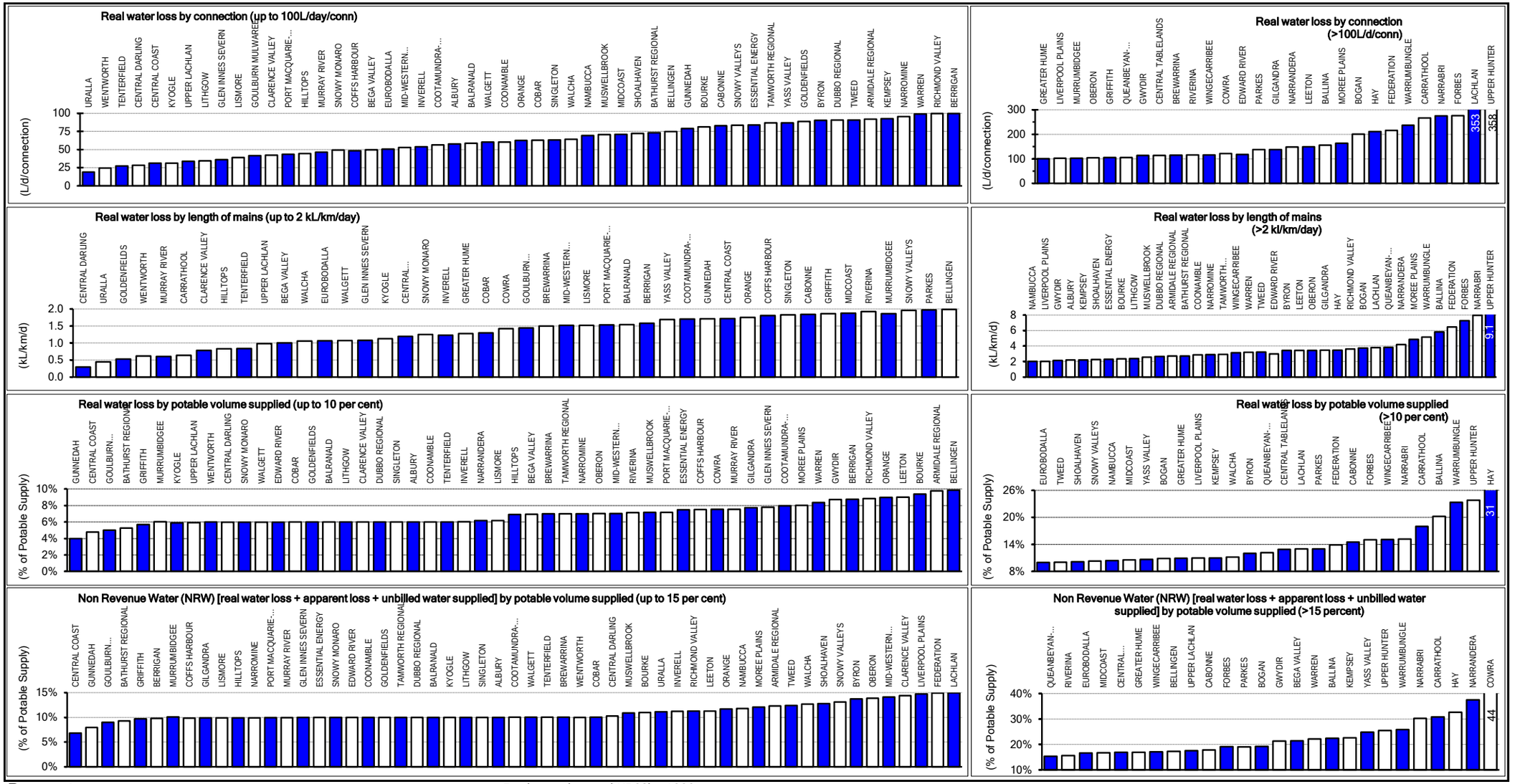


Parameter: [Annual Residential Potable (WB54a) + Non-potable (WB63) + Recycled (WB150) Water Supplied] x 1000
No. of Residential Assessments (WB32) x No. of Connected Residential Properties per Residential Assessment

Notes:

1. This figure shows ranked values of the 2015-16 average annual residential water supplied per connected property for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 annual residential water supplied for the 23 LWUs shown ranges from 140 to 696 kL/a per connected property. Results for the previous 5 years are also shown.
2. Results for the 10 LWUs with a dual water supply (ie. A potable supply for indoor use and a non-potable supply for outdoor use) are shown as a separate group in the bottom right hand corner. All these LWUs have fewer than 4,650 properties. Refer to Note 12 of section 6 for further information.
3. The Statewide median annual residential water supplied is 162 kL/a per connected property [National Median is 181 kL/a per connected property]. The median residential water supplied for coastal and inland LWUs is 155 and 248kL/a per connected property respectively. Refer also to Table 5, Table 6, graph 13 of Appendix A and figure 33 of Table 4.
4. Refer also to section 4.4 of this report and to sections 2.5 and 3.2 and figures 14 and 15 of the NSW Water Supply and Sewerage Performance Monitoring Report (www.water.nsw.gov.au).
5. 25% of the LWUs needed to apply drought water restrictions in 2015-16.
6. For general notes see section 6.

Figure 27: Water losses (real loss (leakage) [A10, A11] and apparent loss) - water supply



Parameter:

$$\frac{\text{Real water losses (WB68) x 1000}}{\text{No. of service connections (WB30)}}$$

Parameter:

$$\frac{\text{Real water losses (WB68) x 100}}{\text{Length of mains (WB22)}}$$

Parameter:

$$\frac{\text{Real water losses (WB68) x 100}}{\text{Total potable water supplied (WB62)}}$$

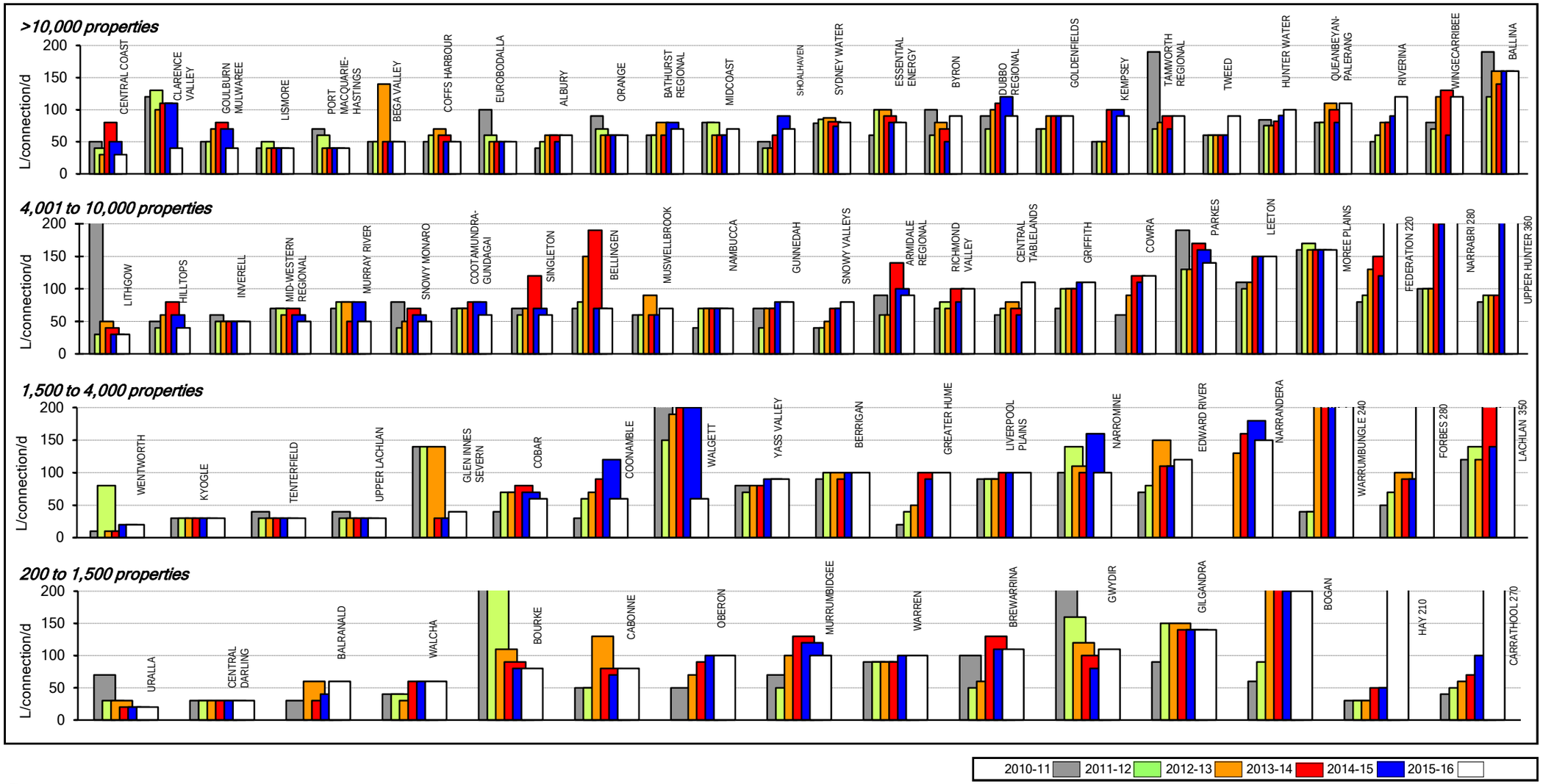
Parameter:

$$\frac{\text{[Real \& apparent water losses (WB69) + Unbilled water supplied (WB61)] x 100}}{\text{Total potable water supplied (WB62)}}$$

Notes:

1. Refer to note 9 of section 6 for water losses. Refer also to figures 28 and 29, Table 5, Table 10, Table 10A, graph 12 of Appendix A and figure 34 of Table 4.
2. For general notes see section 6.

Figure 28: Real losses (L/service connection/d) - water supply - A10

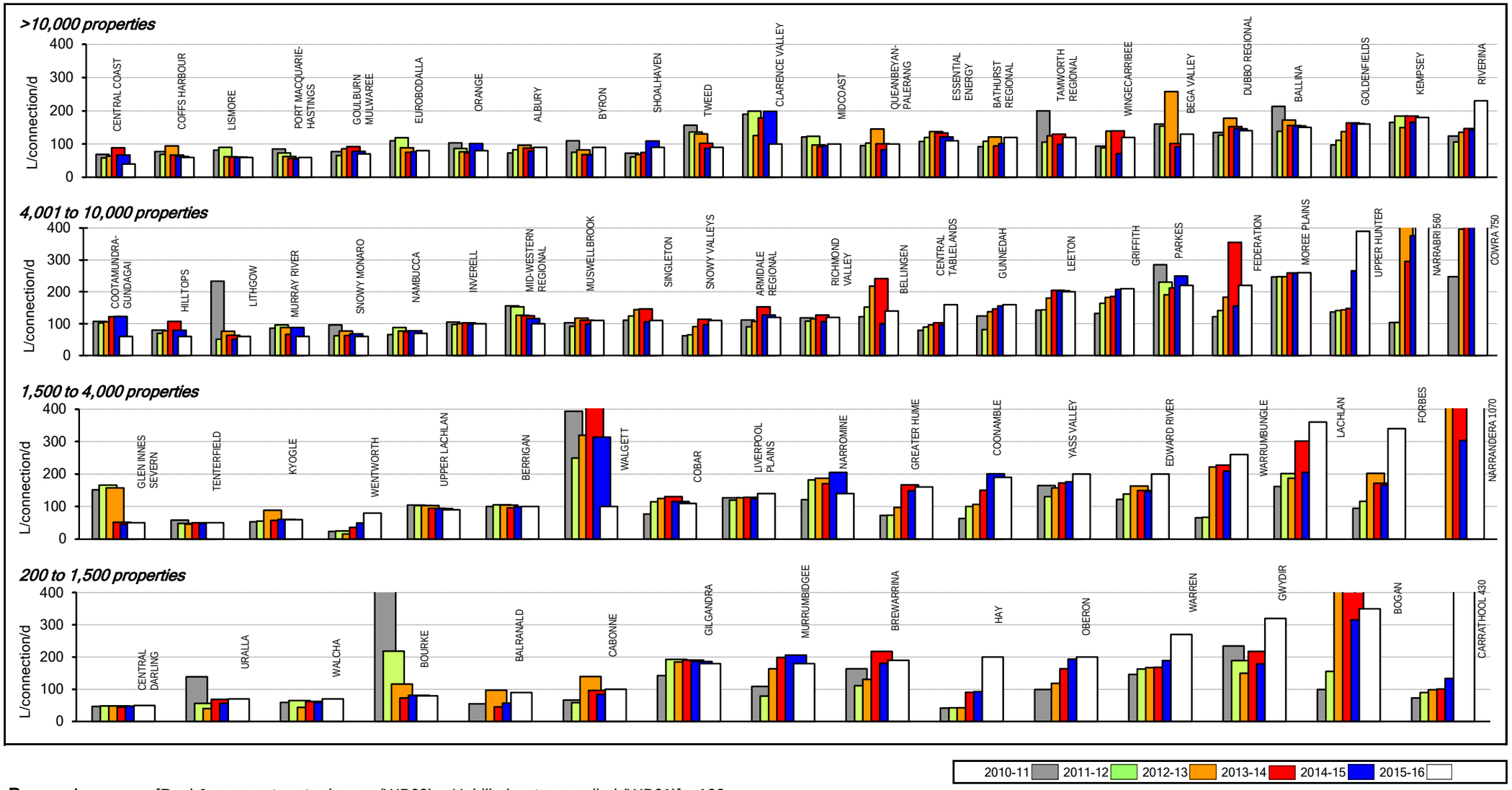


Parameter: $\frac{\text{Real water losses (WB68) x 1000}}{\text{No. of service connections (WB30)}}$

Notes:

1. This figure shows ranked values of the 2015-16 real losses for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the real losses for the 24 LWUs shown ranges from 30 to 360 L/service connection/d. Results for the previous 5 years are also shown.
2. The Statewide median real losses is 70 L/service connection/d [National Median is 76 L/service connection/d]. Refer also to Table 10, graph 12 of Appendix A and figure 34 of Table 4.
3. As a result of the Regional NSW Water Loss Management Program 2006-2011, many utilities have been able to reduce their real losses. Two notable results are Uralla, which reduced losses from 15% to 3% and Snowy River, which reduced losses from 34% to 12% of the potable water supplied (refer to columns 10 and 13 of Table 10A).
4. For general notes see section 6.

Figure 29: Non Revenue Water (L/service connection/d) - water supply

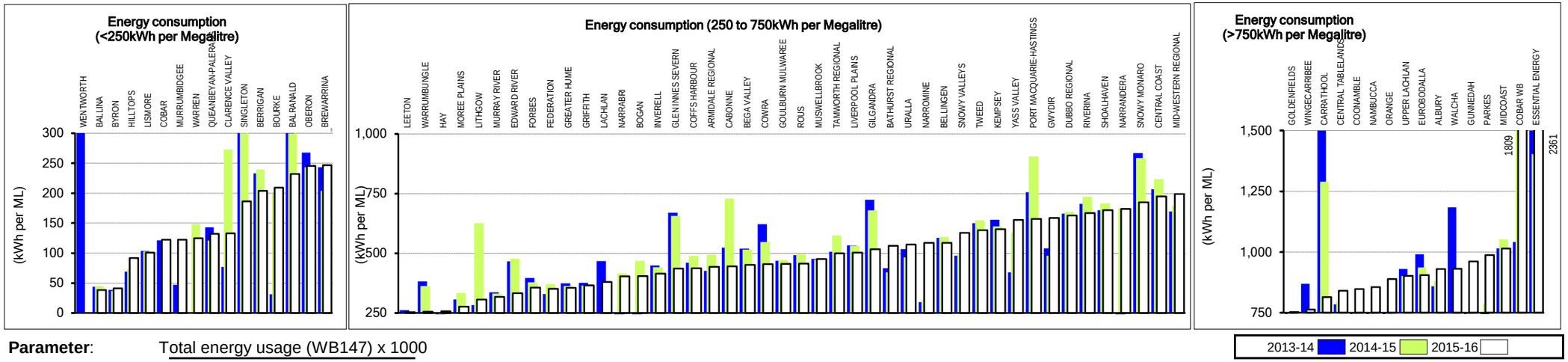


Parameter: [Real & apparent water losses (WB69) + Unbilled water supplied (WB61)] x 100 / No. of service connections (WB30)

Notes:

1. This figure shows ranked values of the 2015-16 non revenue water for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the non revenue water for the 24 LWUs shown ranges from 60 to 750 L/service connection/d of the potable supply. Results for the previous 5 years are also shown.
2. The Statewide median non-revenue water is 92 L/service connection/d.
3. Refer also to Table 8A and Table 10.
4. For general notes see section 6.

Figure 30: Energy consumption per ML - water supply

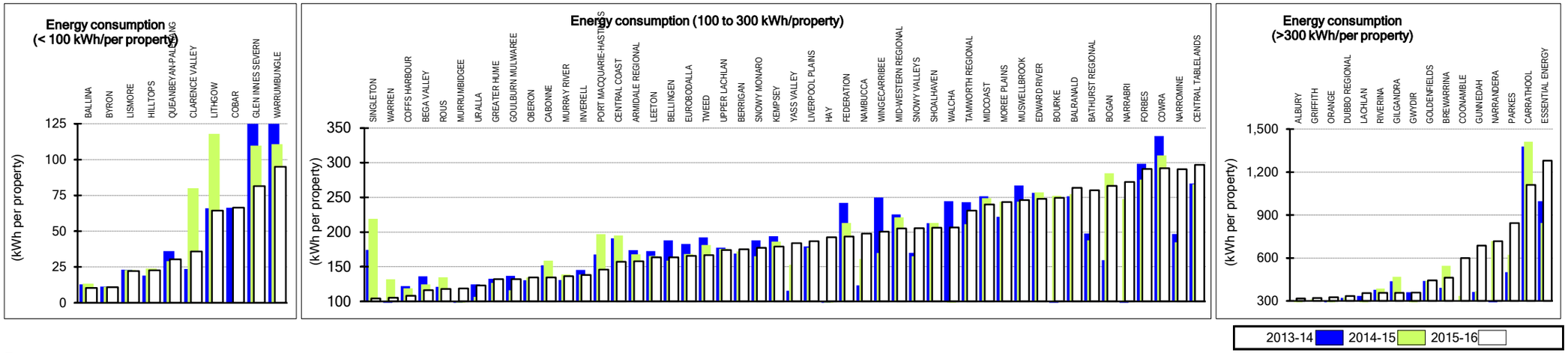


Parameter: $\frac{\text{Total energy usage (WB147) x 1000}}{\text{Total potable water consumption (WB62)}}$

Notes:

1. This figure shows ranked values of the 2015-16 total energy consumption per ML. The energy consumption per ML for the 76 Local Water Utilitites (LWUs) shown range from about 0 to 2360kWh per ML. Results for the previous 2 years are also shown.
2. For general notes see section 6.

Figure 31: Energy consumption per property - water supply

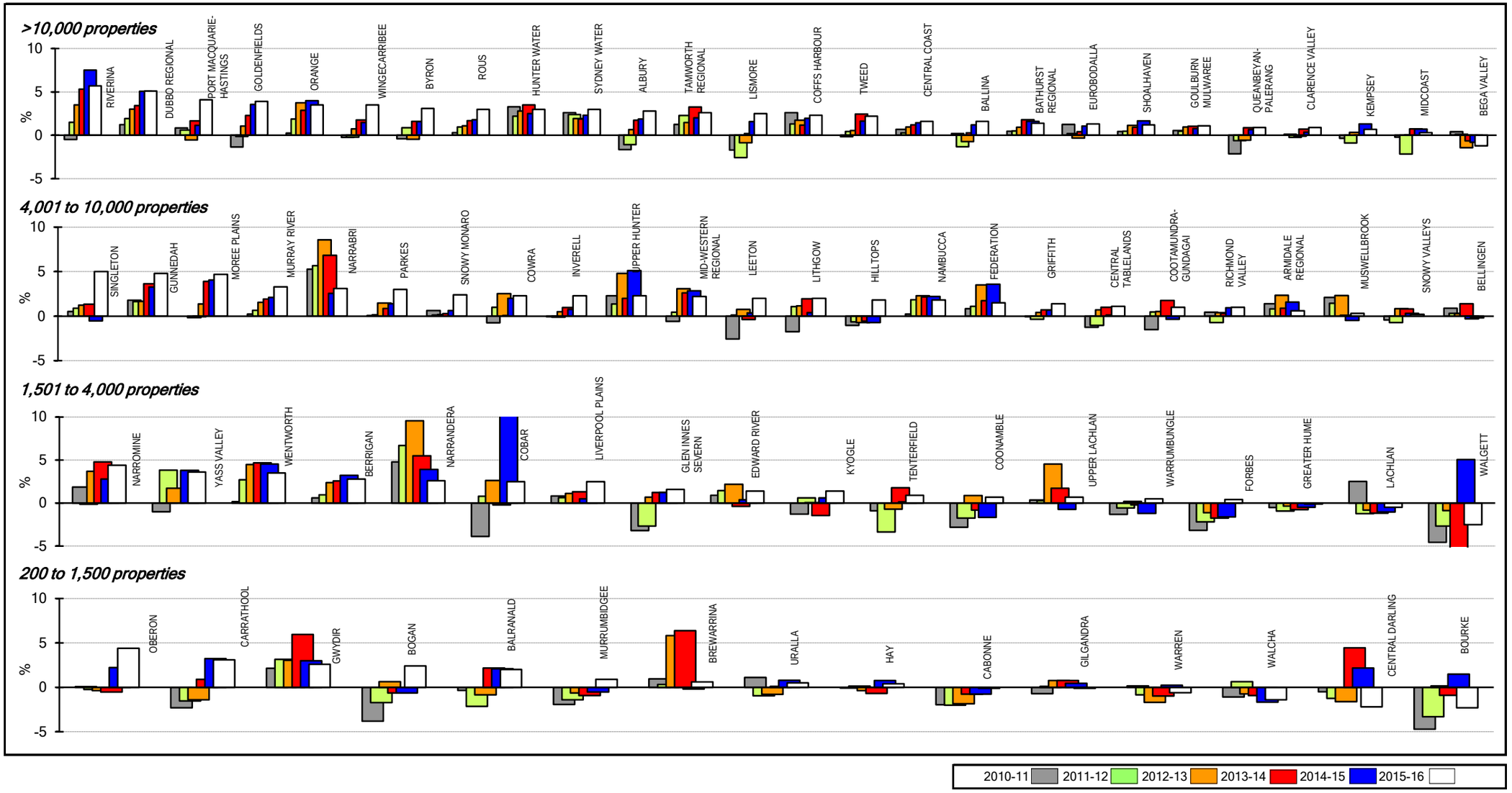


Parameter: $\frac{\text{Total energy usage (WB147) x 1000}}{\text{[No. of residential assessments (WB32) + No. of non-residential assessments (WB33)] x No. of connected properties per assessment}}$

Notes:

1. This figure shows ranked values of the 2015-16 total energy consumption per connected property. The energy usage per connected property for the 74 Local Water Utilitites (LWUs) shown range from 10 to 1280kWh per connected property. Results for the previous 2 years are also shown.
2. For general notes see section 6.

Figure 32: Economic real rate of return - water supply - F17

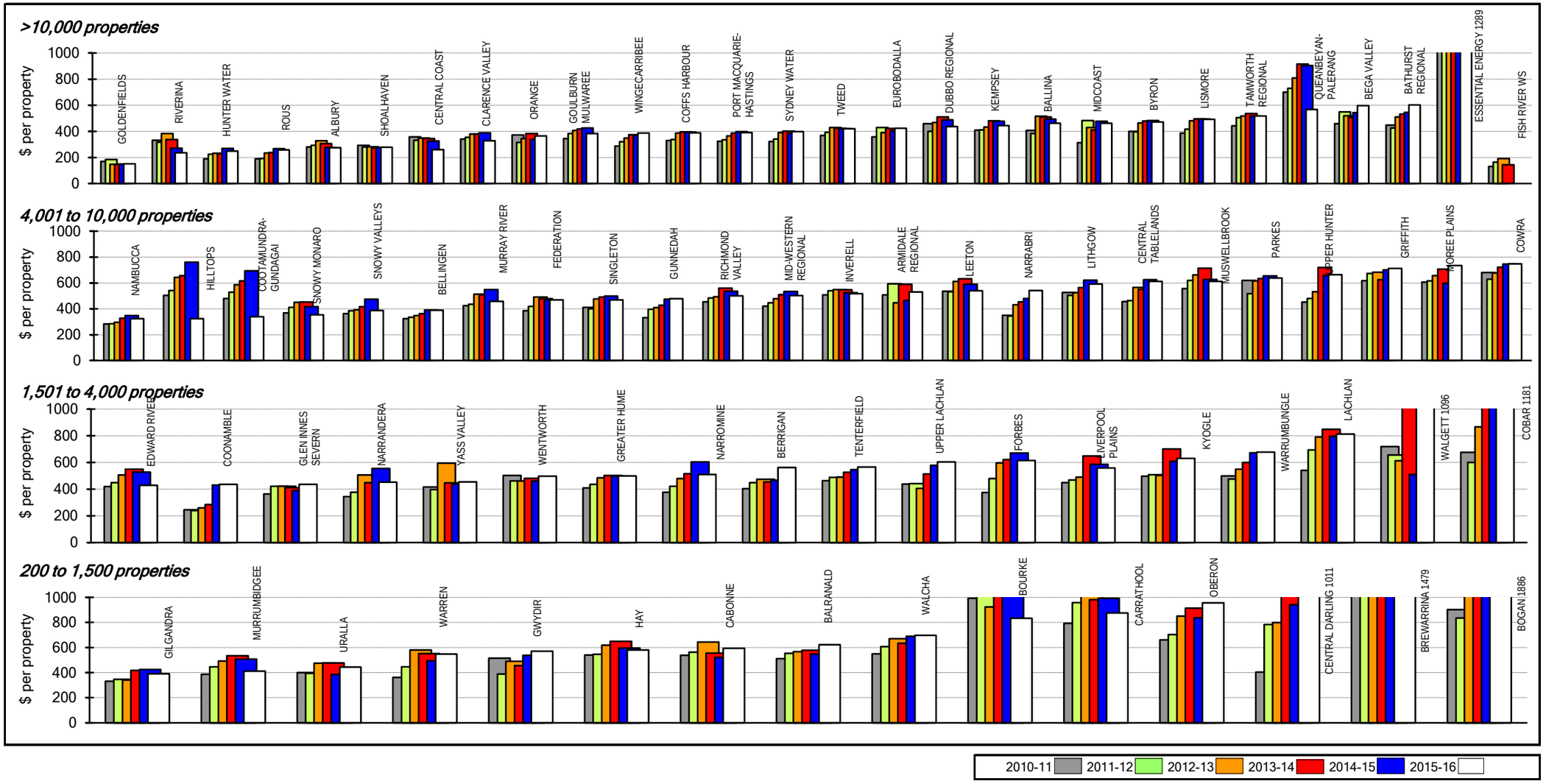


Parameter: [Operating result (W_15) + interest expense (W_4a) - interest income (W_9) - grants for acquisition of assets (W_11a)] x 100 / Written down replacement cost of system assets, plant & equipment (W_33)

Notes:

1. This figure shows ranked values of the 2015-16 water supply economic real rate of return (ERRR) for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 water supply real rate of return for the 24 LWUs shown ranges from 5% to 0%. Results for the previous 5 years are also shown.
2. The statewide median water supply ERRR is 2.3% [National Median is 2.8%]. Refer also to note 28 of section 5.4.3, Table 5, Table 6 and figure 43 of Table 4.
3. The ERRR includes developer provided assets and capital contributions from other LWUs.
4. For general notes see section 6.

Figure 33: Operating cost (OMA) per property - water supply - F11

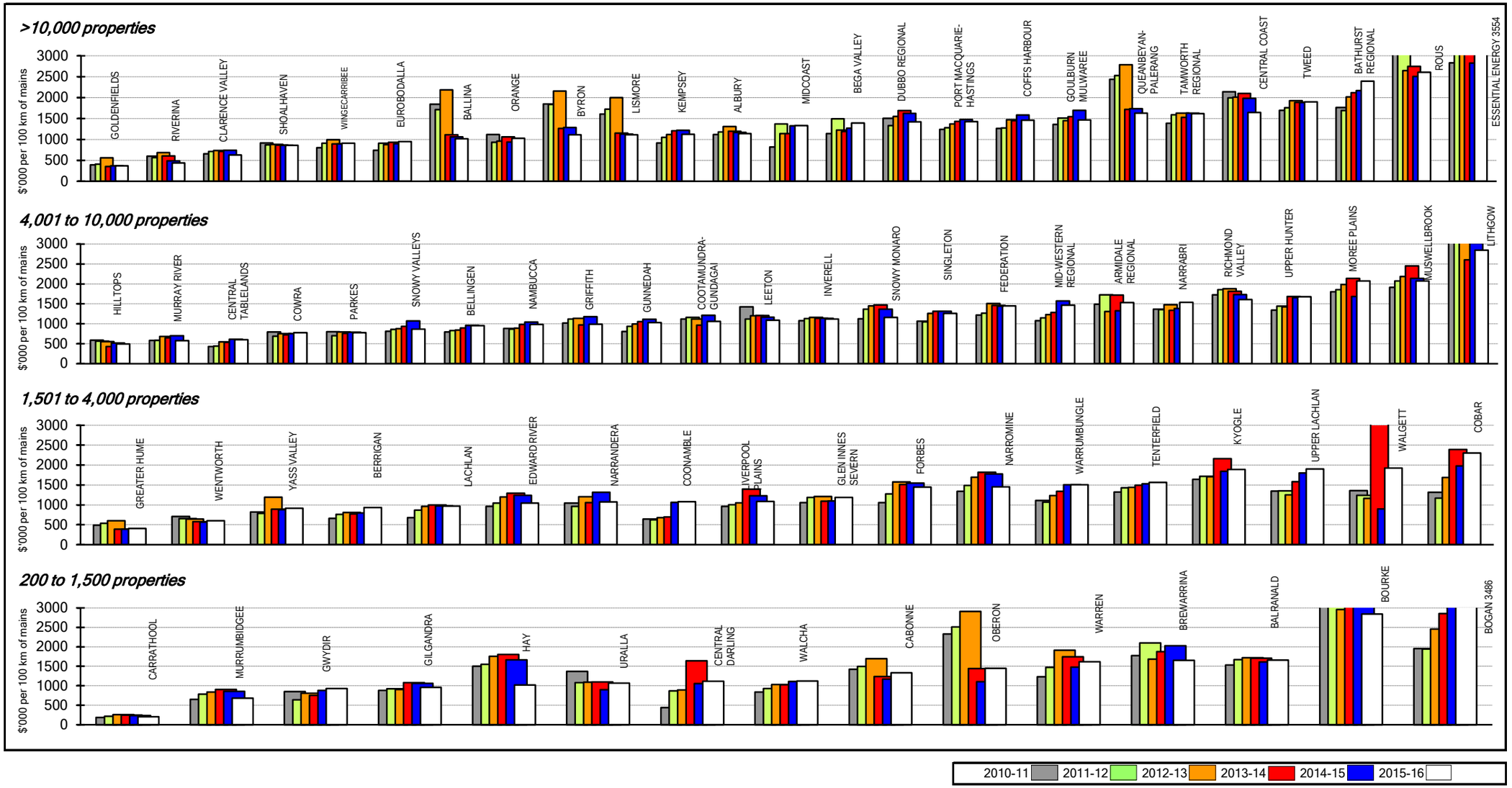


Parameter: $\frac{\text{Management Expenses (W_1) + Total Operations Expenses (W_2) - Purchase of Water + prorata Bulk Supplier's OMA}}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment}}$

Notes:

1. This figure shows ranked values of the 2015-16 water supply operating cost (OMA - operation, maintenance and administration) per property for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 water supply operating costs for the 24 LWUs shown ranges from $324 to $748 per connected property. Results for the previous 5 years are also shown in Jan 2016$.
2. The Statewide median operating cost per connected property is $440 [National Median is $485]. Refer also to tables 2 and 3 of section 5.4.3, notes 33 to 38 of section 5.4.3, Table 5, Table 11, Table 13, graph 22 of Appendix A and figure 49 of Table 4.
3. For general notes see section 6.

Figure 34: Operating cost (OMA) per 100km of main - water supply

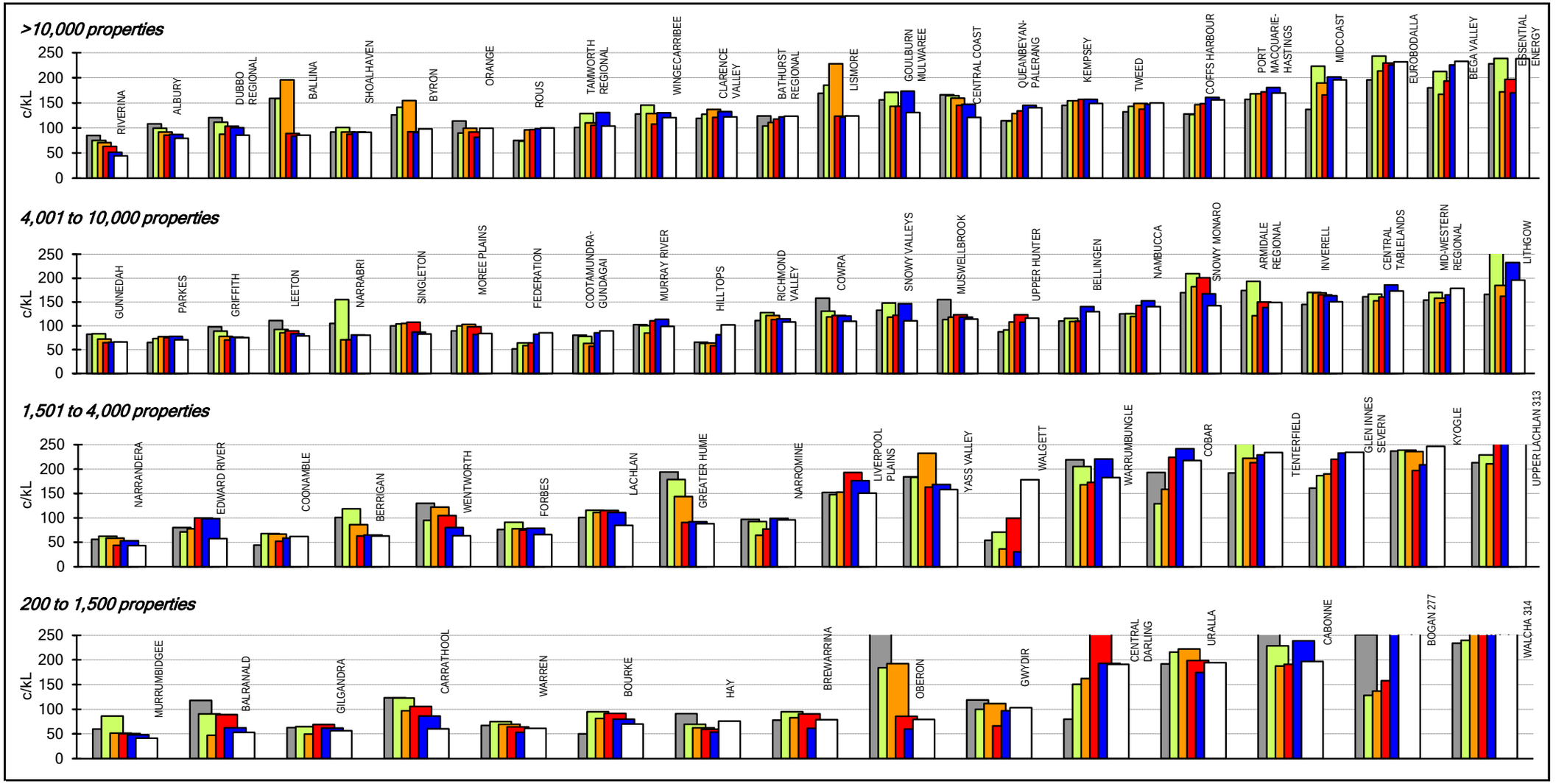


Parameter: $\frac{\text{Water Main Operation Expenses (W\_2c) + Water Main Maintenance Costs (W\_2d)}}{\text{Length of Distribution and Reticulation Mains (WB22) x 100}}$

Notes:

1. This figure shows ranked values of the 2015-16 water supply operating cost (OMA - operation, maintenance and administration) 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, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 operating costs for the 24 LWUs shown ranges from $0.5M to $2.85M per 100km of distribution and reticulation mains (excludes source transfer mains). Results for the previous 5 years are also shown in Jan 2016$.
2. The Statewide median operating cost is $1.12M per 100km of water main. Refer also to Table 11 and Table 13.
3. For general notes see section 6.

Figure 35: Operating cost (OMA) per kL - water supply

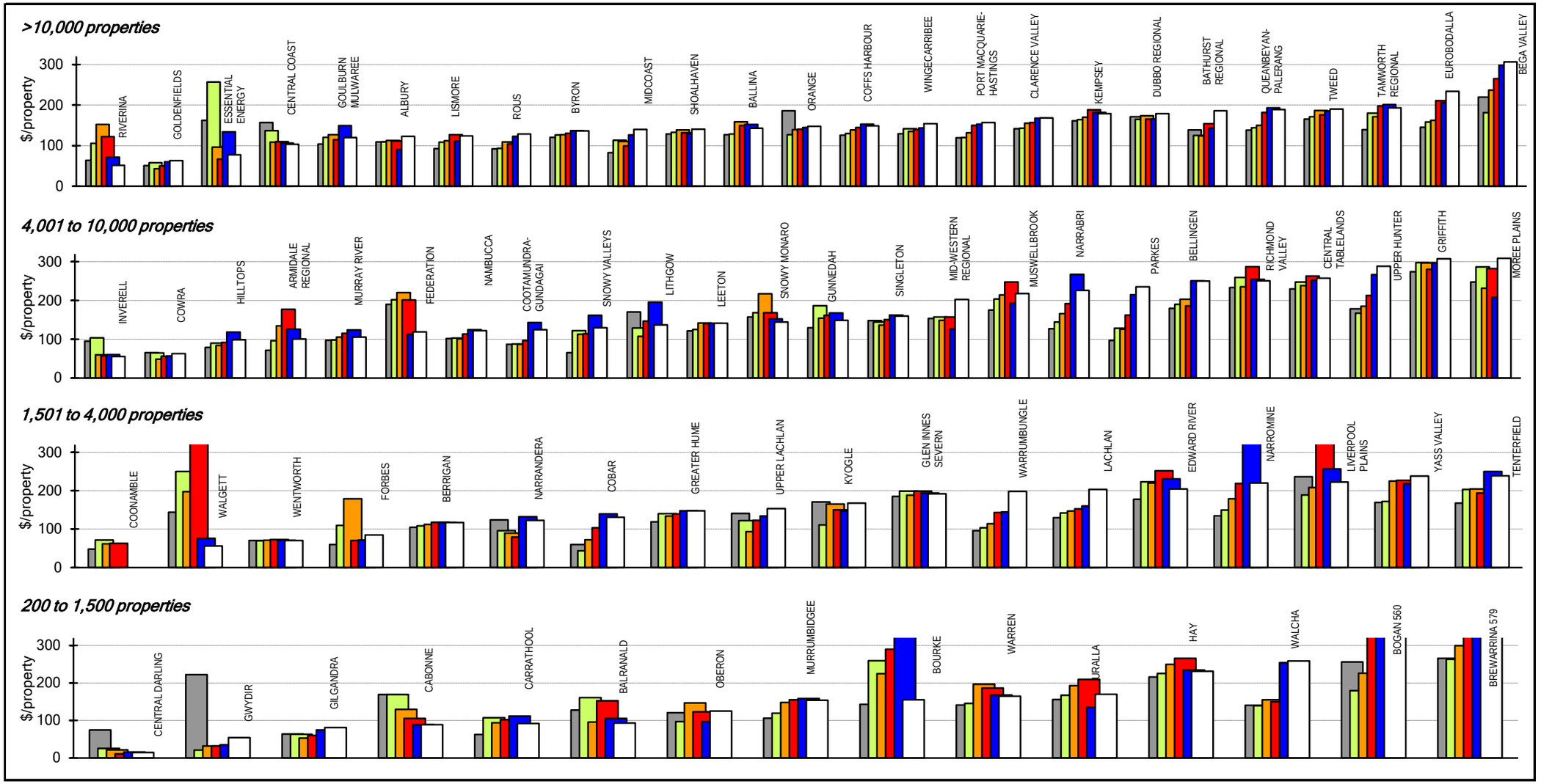


Parameter: $\frac{\text{Management Expenses (W\_1) + Total Operations Expenses (W\_2) - Purchase of Water (W\_2o)}}{\text{Total Potable Water Supplied (WB62)}}$

Notes:

1. This figure shows ranked values of the 2015-16 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, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 operating costs per kL for the 24 LWUs shown ranges from 66 to 196 c/kL. Results for the previous 5 years are also shown in Jan 2016$.
2. The Statewide median operating cost is 120c/kL. Refer also to Table 6.
3. For general notes see section 6.

Figure 36: Management cost per property - water supply



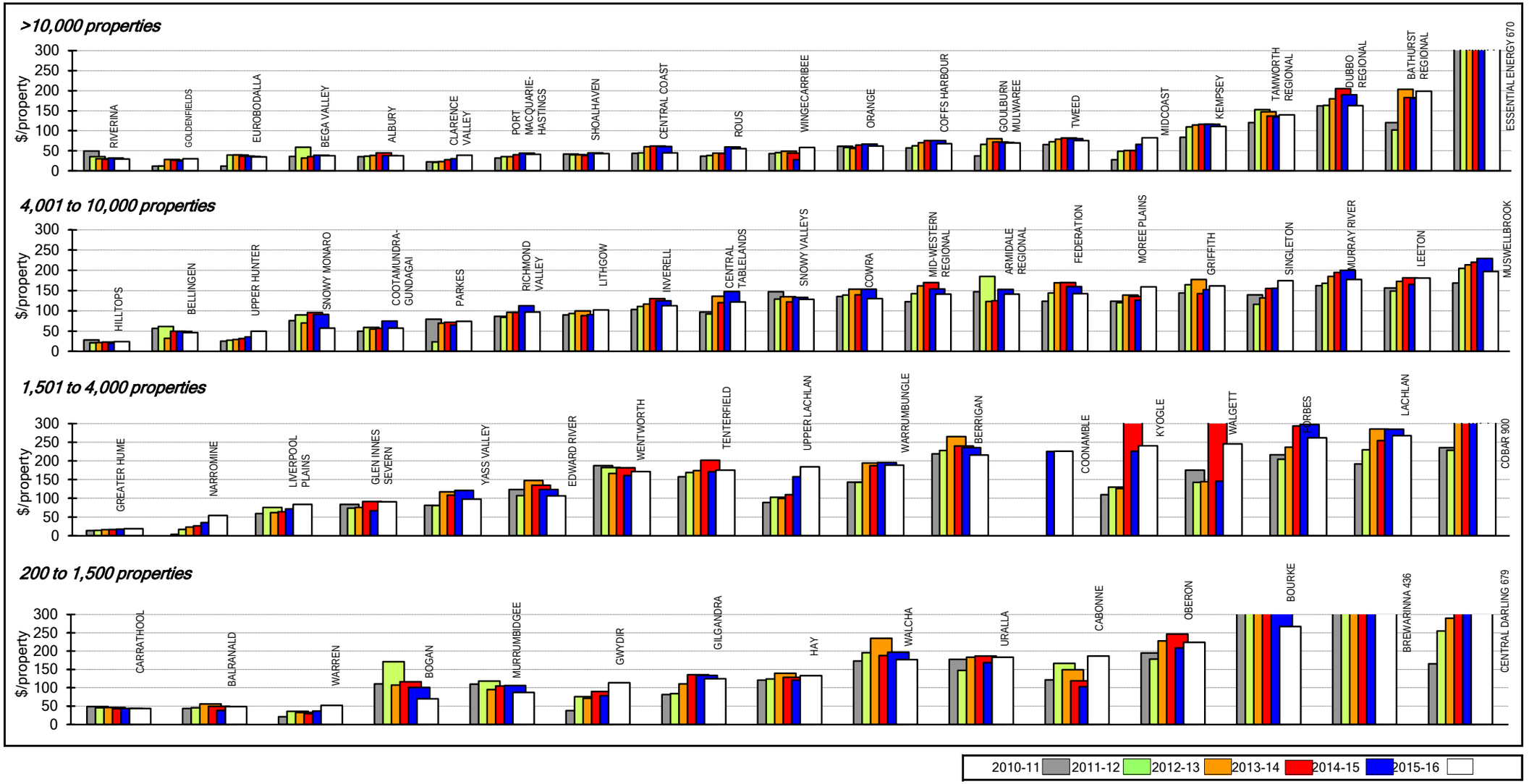
Parameter:

$$\frac{\text{Administration Cost (W\_1a) + Engineering Cost (W\_1b)}}{\text{[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment}}$$

Notes:

1. This figure shows ranked values of the 2015-16 water supply management cost per property for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 management costs per property for the 24 LWUs shown ranges from $55 to $309. Results for the previous 5 years are also shown in Jan 2016$.
2. The Statewide median management cost is $148 per connected property. Refer also to note 33 of section 5.4.3, Table 11 and figure 31 of Table 4.
3. For general notes see section 6.

Figure 37: Treatment cost per property - water supply



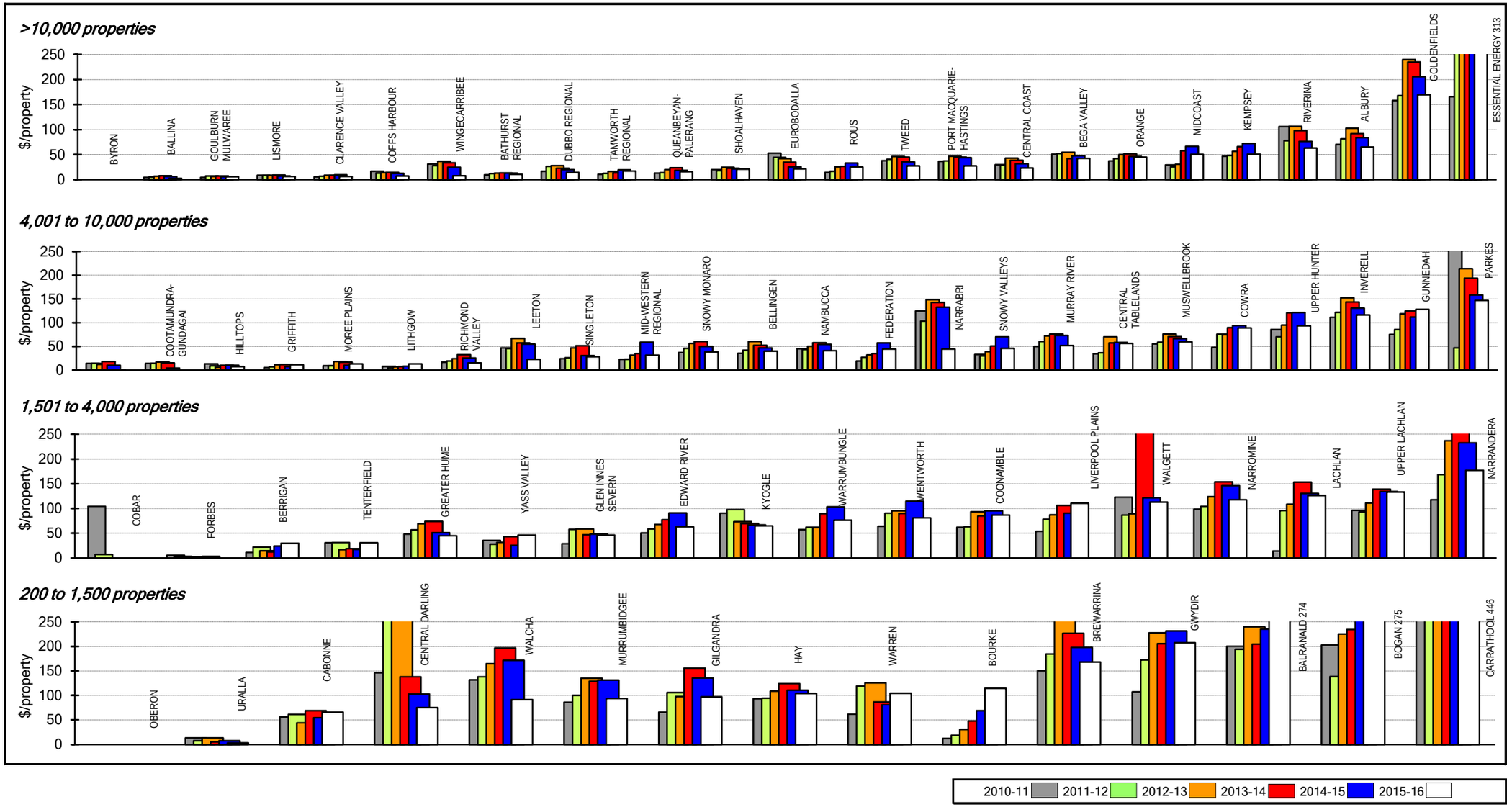
Parameter: Treatment Operation Expenses (W_2j) + Treatment Chemical Cost (W_2k) + Treatment Maintenance Expenses (W_2l)

[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment

Notes:

1. This figure shows ranked values of the 2015-16 water treatment cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 treatment costs for the 21 LWUs shown ranges from $20 to $200 per connected property. Results for the previous 5 years are also shown in Jan 2016$.
2. Only LWUs with a water treatment works involving at least filtration and disinfection for over 50% of their supply have been shown.
3. The Statewide median water treatment cost is $59 per connected property. Refer also to note 34 of section 5.4.3 and Table 13.
4. For general notes see section 6.

Figure 38: Pumping cost per property - water supply

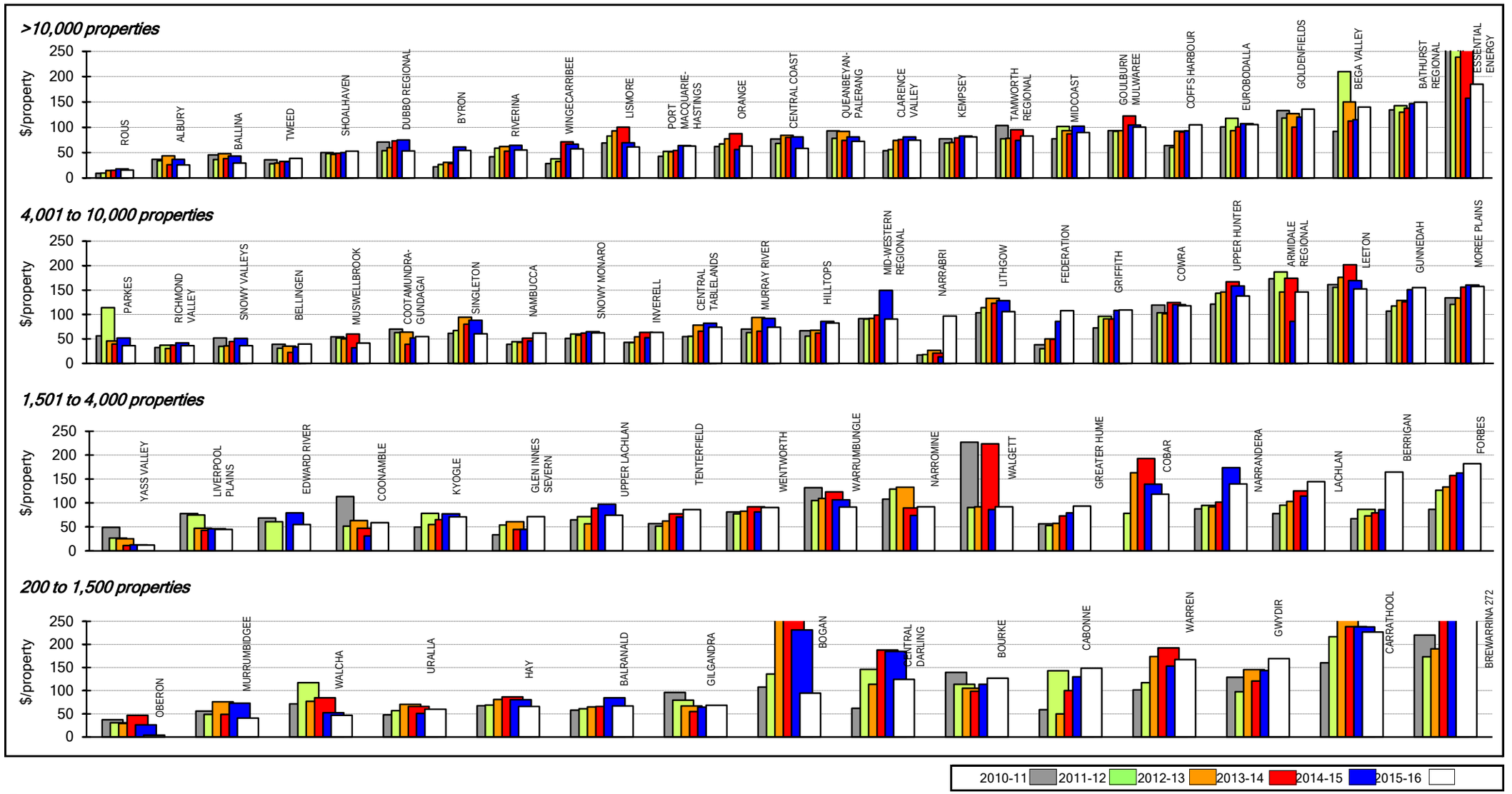


Parameter: Pumping Station Operation Expenses (W_2g) + Pumping Station Energy Cost (W_2h) + Pumping Station Maintenance Costs (W_2i)
[No. of Residential Assessments (WB32) + No. of Non-Residential Assessments (WB33)] x No. of Connected Properties per Assessment

Notes:

1. This figure shows ranked values of the 2015-16 water pumping cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 water pumping costs for the 24 LWUs shown ranges from $-25 to $147 per connected property. Results for the previous 5 years are also shown in Jan 2016$.
2. The Statewide median water pumping cost (including energy costs) is $28 per connected property. Refer also to note 36 of section 5.4.3 and Table 13.
3. For general notes see section 6.

Figure 39: Water main cost per property - water supply



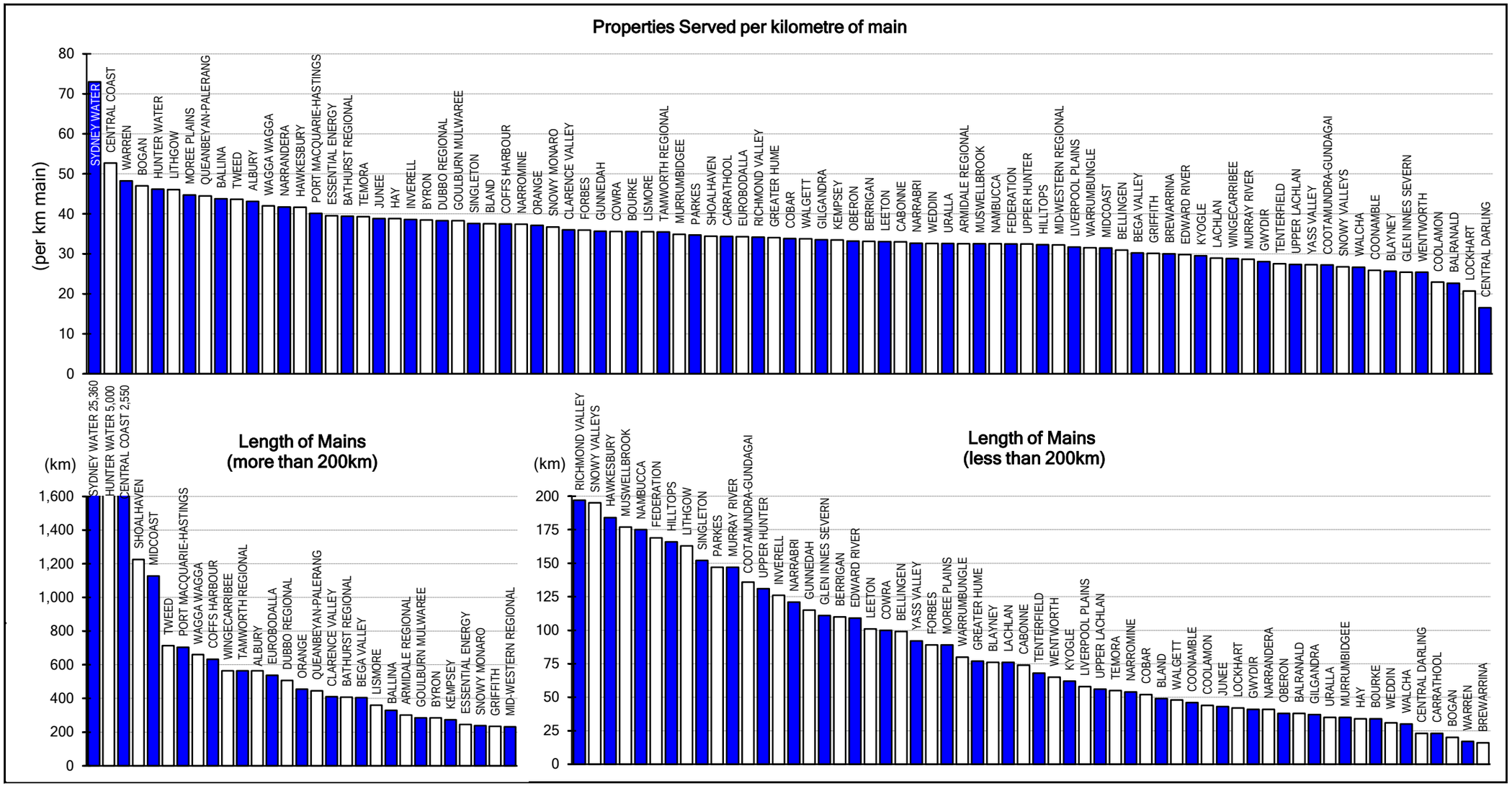
Parameter: $\frac{\text{Water main operation expenses (W\_2c) + water main maintenance costs (W\_2d)}}{\text{[No. of residential assessments (WB32) + No. of non-residential assessments (WB33)] x No. of connected properties per assessment}}$

Notes:

1. This figure shows ranked values of the 2015-16 water main operating cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 water main costs for the 24 LWUs shown ranges from $36 to $158 per property. Results for the previous 5 years are also shown in Jan 2016$.
2. The Statewide median water main cost is $71 per property. Refer also to note 38 of section 5.4.3 and Table 13.
3. For general notes see section 6.

9. SEWERAGE FIGURES

Figure 40: Properties served per km of main, length of mains - sewerage - A5

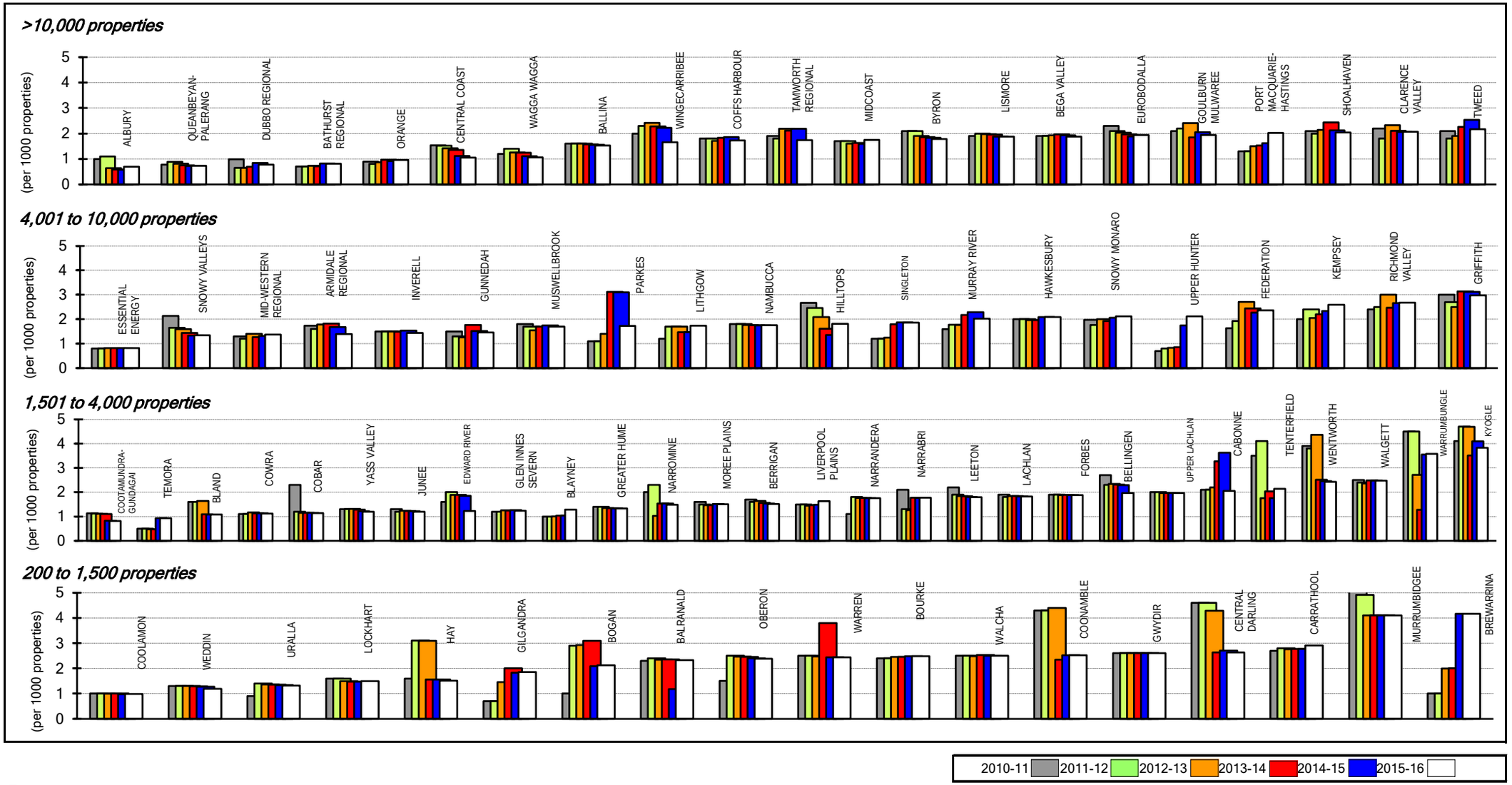


Parameter: $\frac{\text{[No. of Residential Assessments (SB13) + No. of Non-Residential Assessments (SB14)] x No. of Connected Properties per Assessment}}{\text{Length of Reticulation/Gravity Mains (SB7) + Length of Rising Mains (SB8)}}$

Note:

1. The top graph shows the ranked values of number of connected properties per km of sewerage main for each Local Water Utility (LWU). Each bar represents one LWU. The bottom graph of this figure shows the total length of mains for the corresponding LWUs.
2. The Statewide median sewerage connected properties per km of main is 38 [National Median is 40 per km of main]. Refer also to Table 14 and graph 2 of Appendix A.
3. For general notes see section 6.

Figure 41: Employees - sewerage



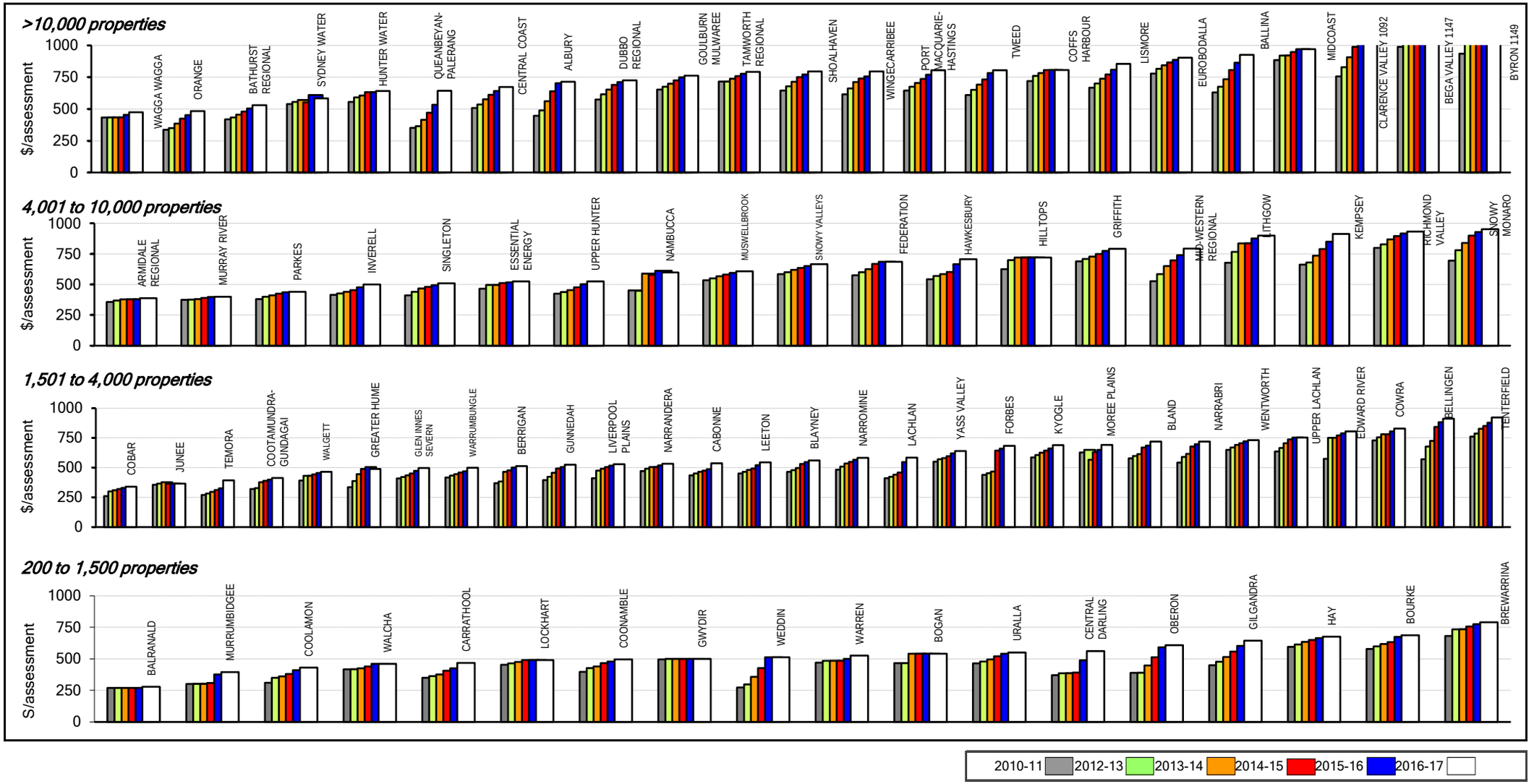
Parameter:

$$\frac{\text{Full-time Equivalent Employees (SB49) x 1000}}{\text{[No. of Residential Assessments (SB13) + No. of Non-Residential Assessments (SB14)] x No. of Connected Properties per Assessment}}$$

Notes:

1. This figure shows ranked values of the 2015-16 sewerage employees for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 sewerage employees for the 19 LWUs shown ranges from about 1 to 3 per 1,000 connected properties. Results for the previous 5 years are also shown.
2. The 2015-16 Statewide median number of sewerage employees is 1.7 per 1,000 connected properties. Refer also to note 2 of section 5.4.3, and Table 14.
3. For general notes see section 6.

Figure 42: Typical residential bill – sewerage - P6

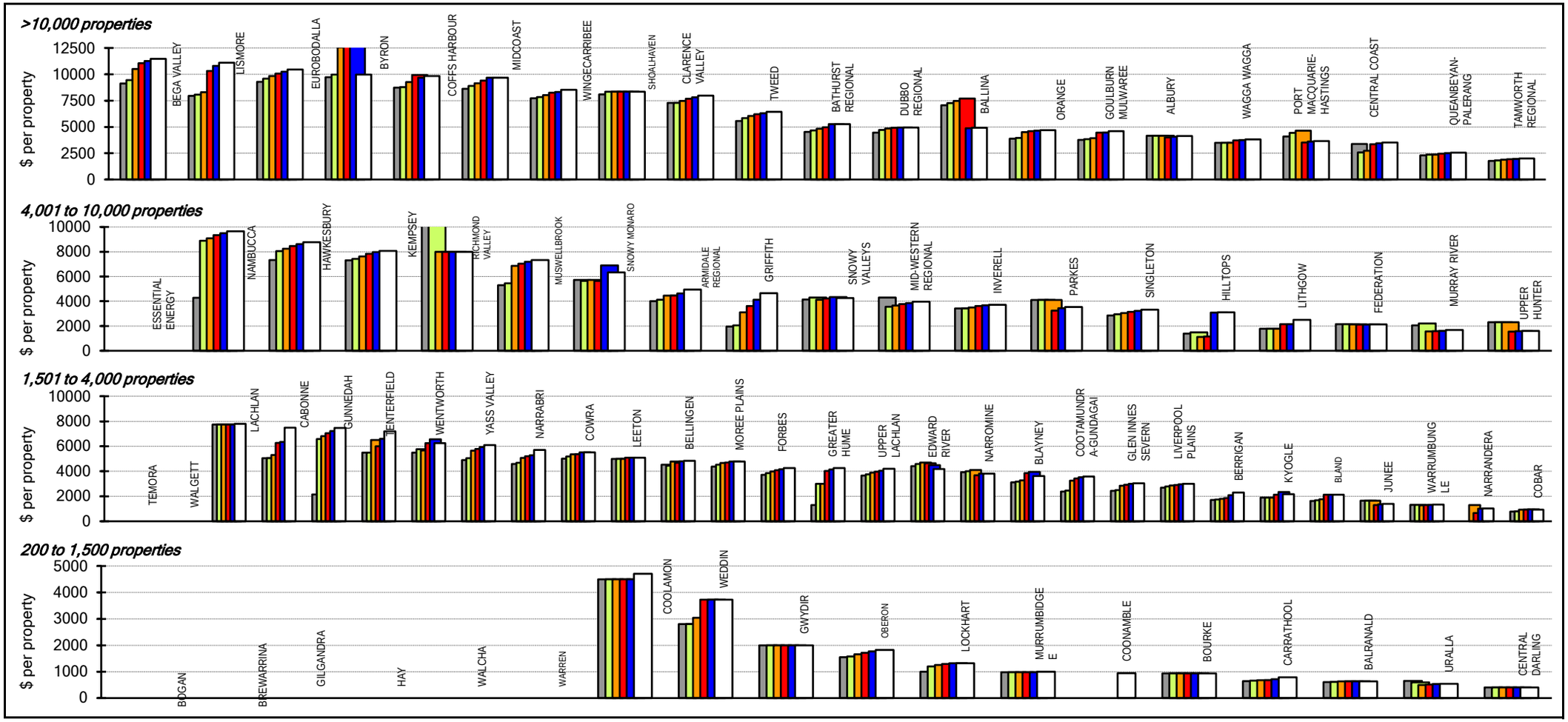


Parameter: Residential Access Charge

Notes:

1. This figure shows ranked values of the 2016-17 typical residential bill for sewerage for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2016-17 typical residential bill for sewerage for the 19 LWUs shown ranges from about $388 to $953.
2. The 2016-17 Statewide median typical residential bill for sewerage is $718 per assessment [National Median for 2015-16 is $703 per assessment]. Refer also to Table 5, Table 7, graph 6 of Appendix A and figure 12 of Table 4.
3. For general notes see section 6.

Figure 43: Typical developer charge - sewerage

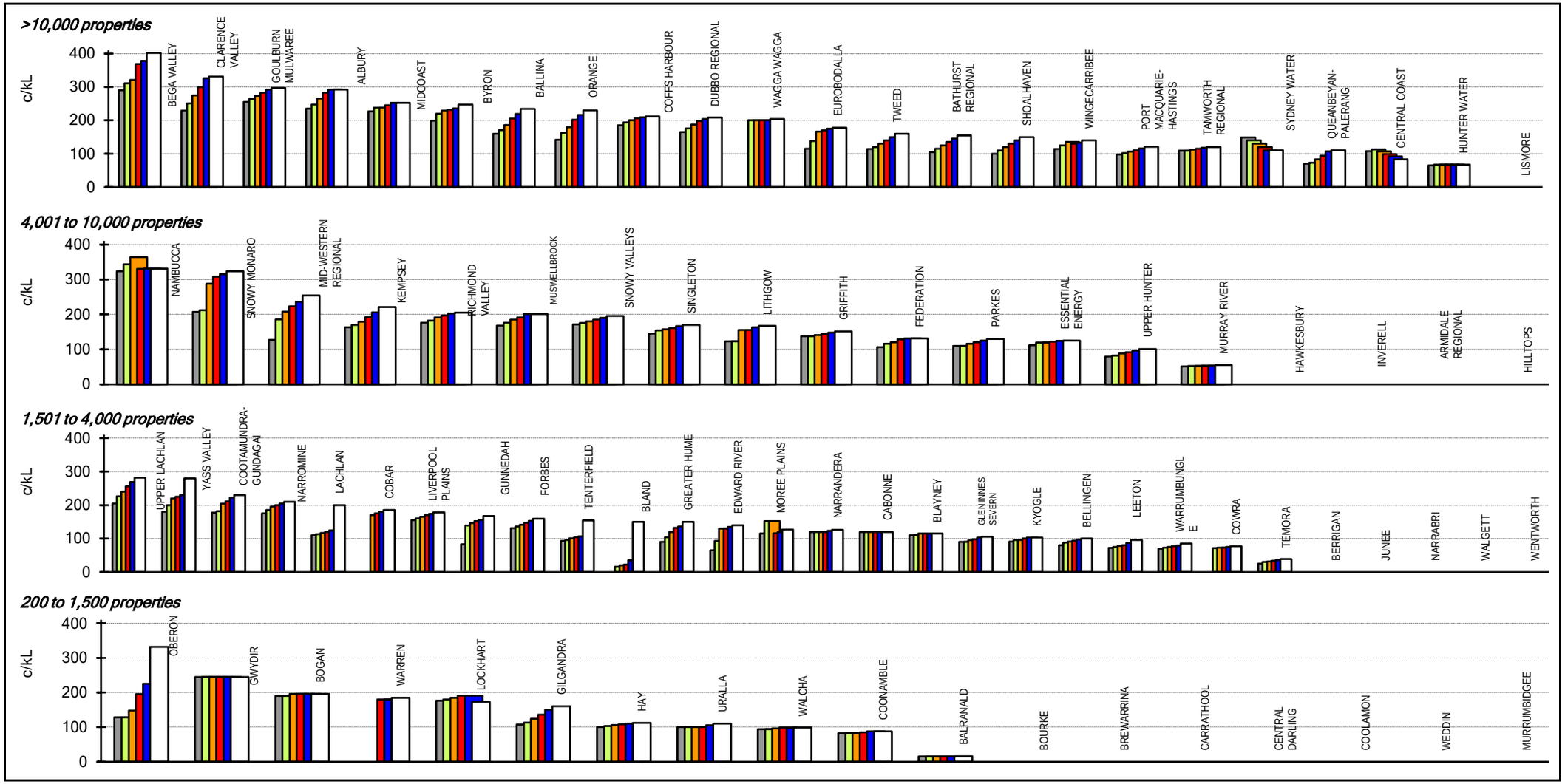


Parameter: Typical Sewerage Developer Charge (SB62)

Notes:

1. This figure shows ranked values of the 2016-17 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, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the typical developer charge for sewerage for the 17 LWUs shown ranges from $9700 to $1700 per equivalent tenement (ET).
2. The 2016-17 Statewide median typical sewerage developer charge was $4,700 per ET, which is 31% of the current replacement cost of sewerage system assets of $15,400 per assessment. Refer also to Table 7.
3. 78 LWUs levied sewerage developer charges.
4. For general notes see section 6.

Figure 44: Non-residential sewer usage charge - sewerage

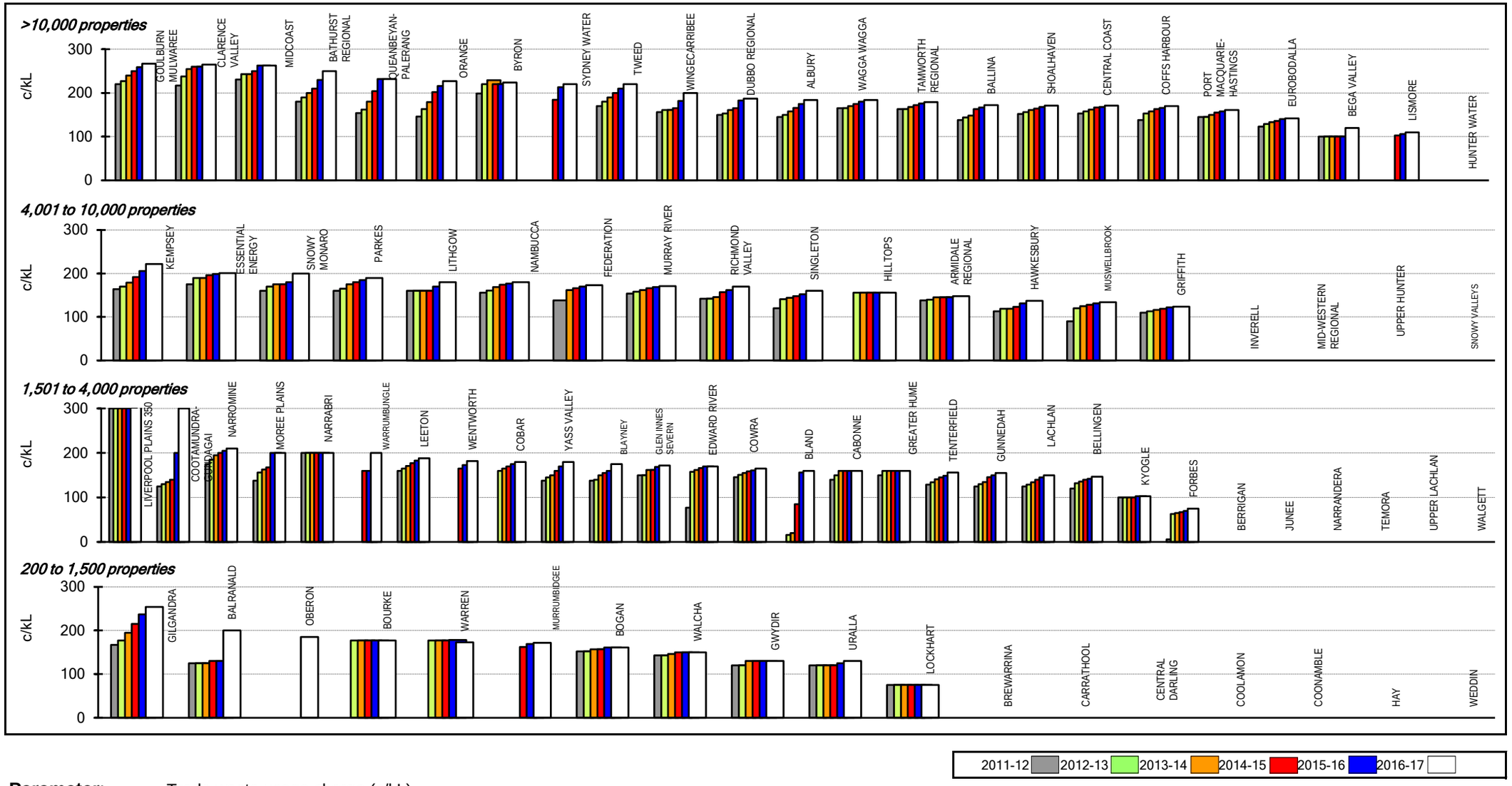


Parameter: Non-residential sewer usage charge (c/kL)

Notes:

1. This figure shows ranked values of the 2016-17 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, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the non-residential sewer usage charge for the 19 LWUs shown ranges from 331 to 55c/kL. 4 utilities do not have a sewer usage charge.
2. The 2016-17 Statewide median non-residential sewer usage charge was 159c/kL. Refer also to Table 7 and figure 14 of Table 4.
3. For general notes see section 6.

Figure 45: Trade waste usage charge - sewerage

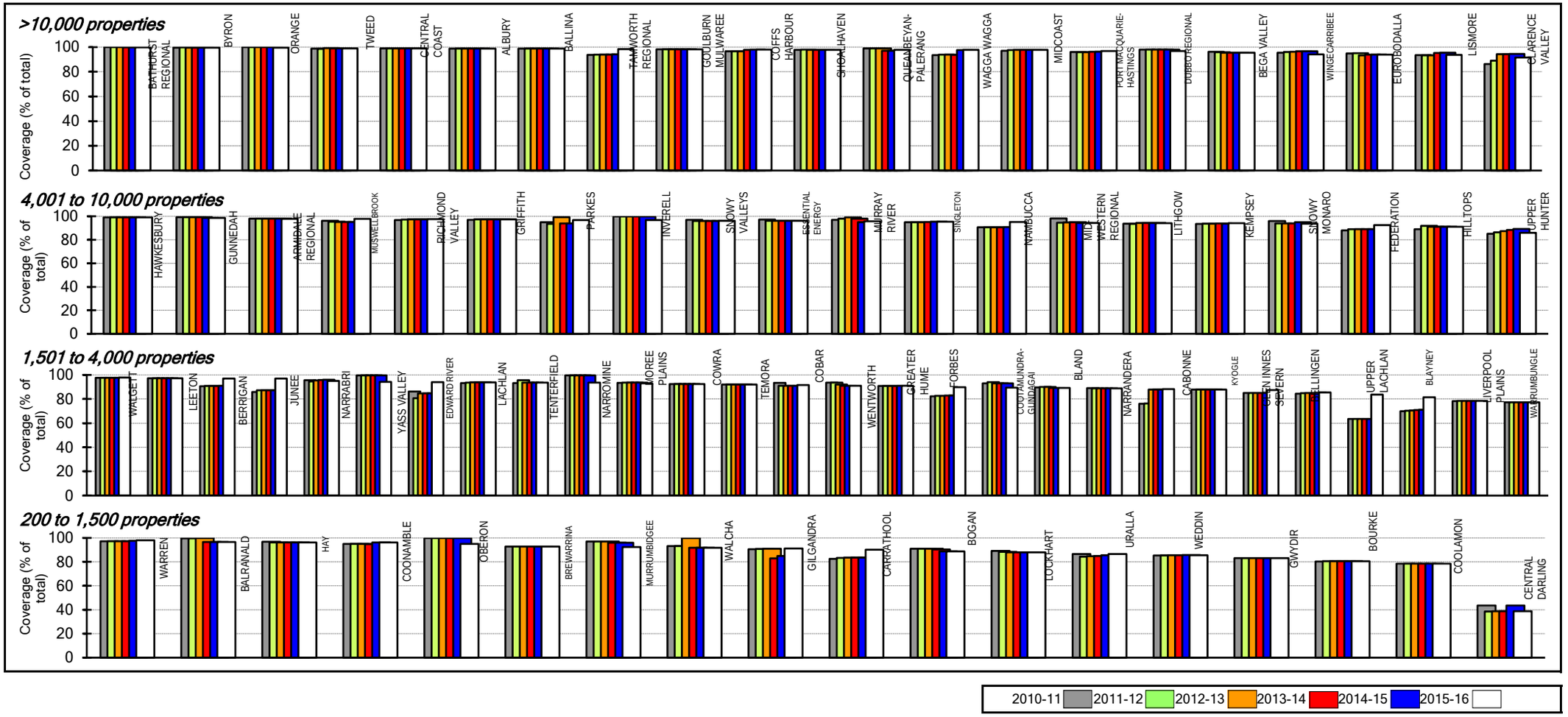


Parameter: Trade waste usage charge (c/kL)

Notes:

1. This figure shows ranked values of the 2016-17 trade waste usage charge for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the trade waste usage charge for the 19 LWUs shown ranges from 222 to 124c/kL. 4 utilities do not have a trade waste usage charge.
2. Refer also to Table 7 and Table 7C.
3. For general notes see section 6.

Figure 46: Sewerage coverage



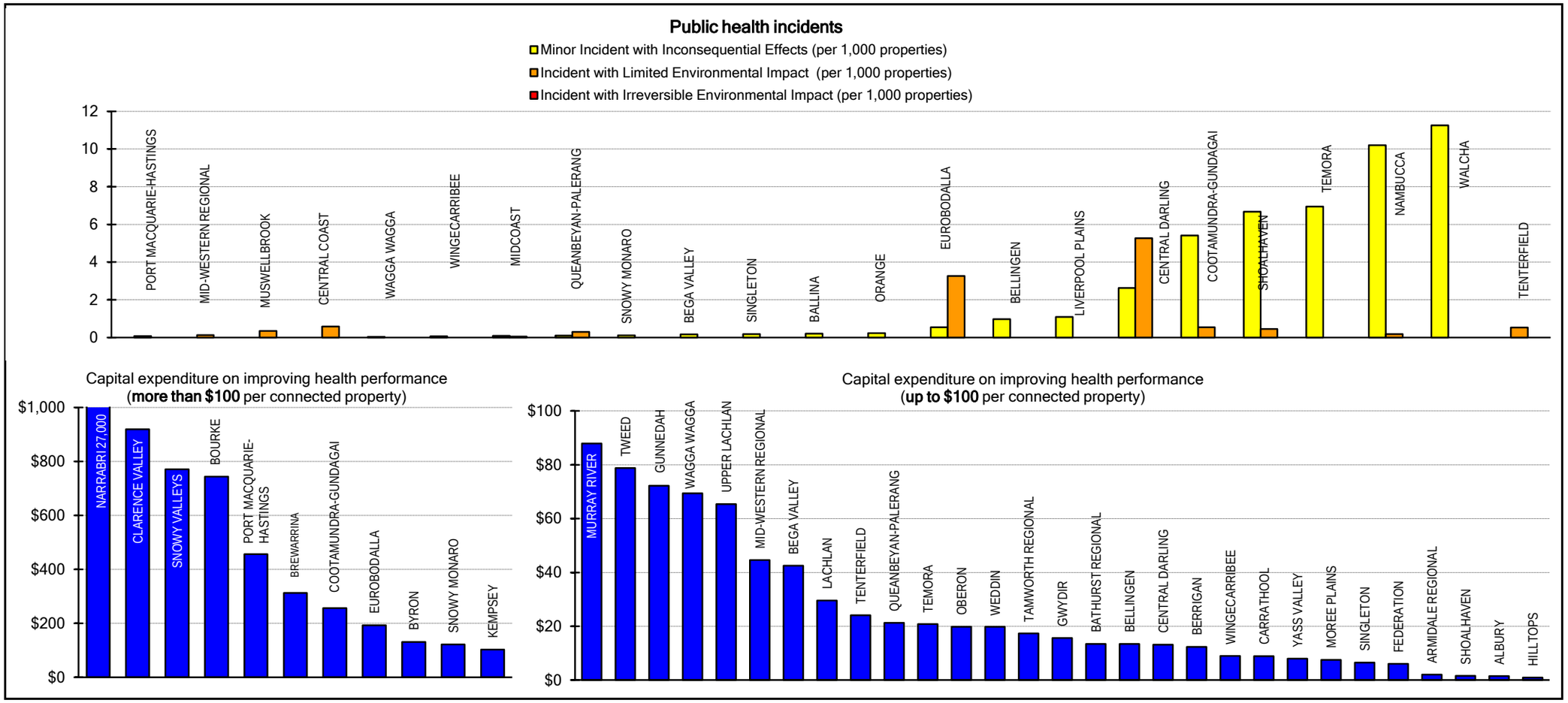
Parameter:

$$\frac{\text{Population served (SB1)}}{\text{Population served (SB1) + unserved urban population (SB21)}}$$

Notes:

1. This figure shows ranked values of the sewerage coverage for the urban population for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the sewerage coverage for the 19 LWUs shown ranges from from 99.1% to 91%. Results for the previous 5 years are also shown.
2. The 2015-16 Statewide median sewerage coverage was 97.8%.
3. The sewerage coverage for the median LWU was 94%.
4. The overall sewerage coverage for regional NSW was 96.4% of the urban population (ie. 1.75 million people). The systematic provision of backlog sewerage services for unsewered small towns under the NSW Government's Country Towns Water Supply and Sewerage Program has increased the sewerage coverage to 96.4% of the urban population, compared to 92.3% in 1996.
5. For general notes see section 6.

Figure 47: Public health incidents, capital expenditure - sewerage



Parameter:
$$\frac{\text{Total No. of minor incidents with inconsequential effects (SB44)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

Parameter:
$$\frac{\text{Total No. of minor incidents with limited health impacts (SB45)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

Parameter:
$$\frac{\text{Total No. of major incidents with major health impacts (SB46)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

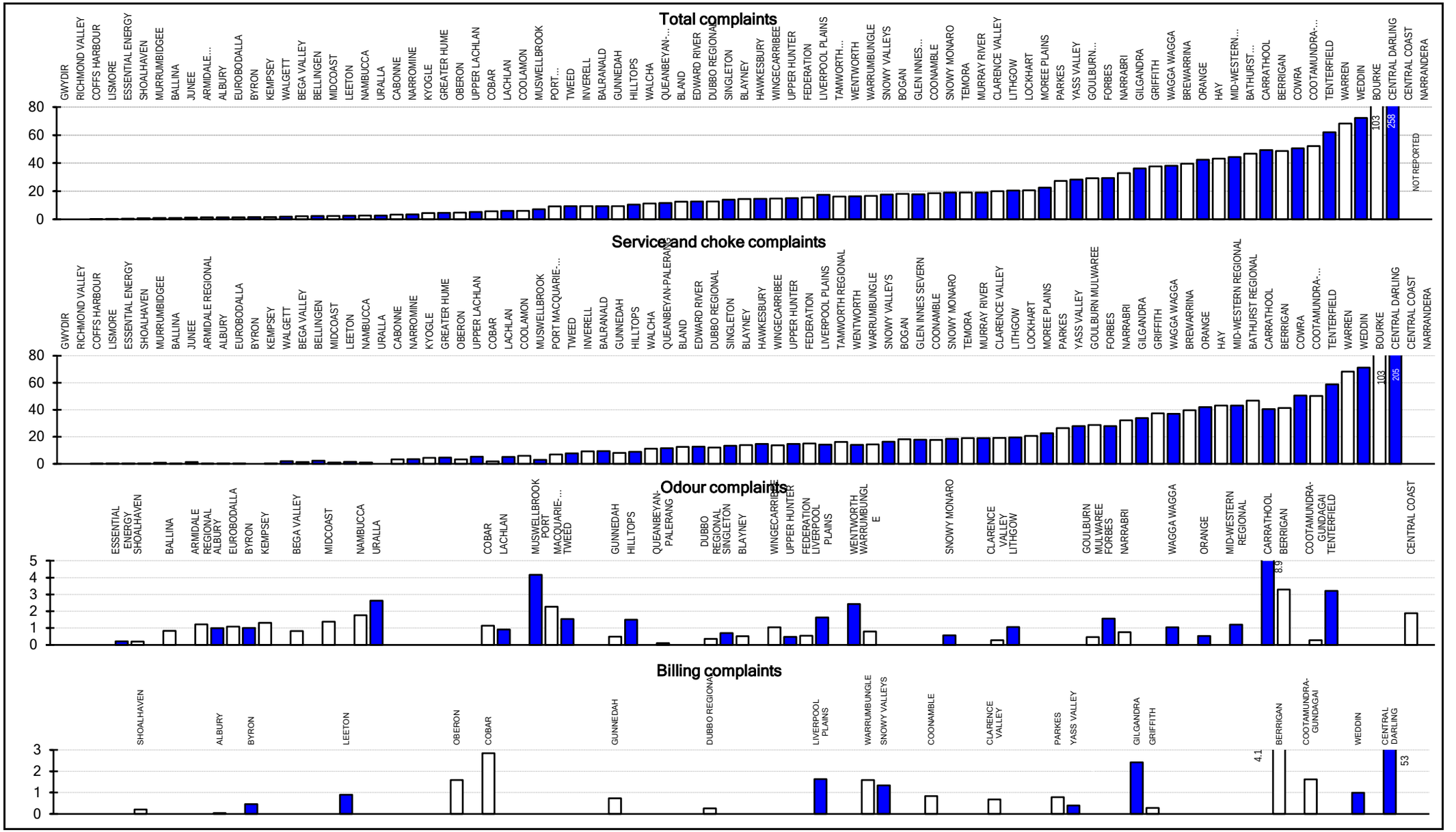
Parameter:
$$\frac{\text{Capital expenditure on improving health performance (\$) x (SB48)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

Notes:

1. Narrandera did not report public health incidents. 23 Utilities reported incidents and are shown in the figure above, while 62 utilities reported zero health incidents.

2. For general notes see section 6.

Figure 48: Complaints (per 1000 properties) - sewerage



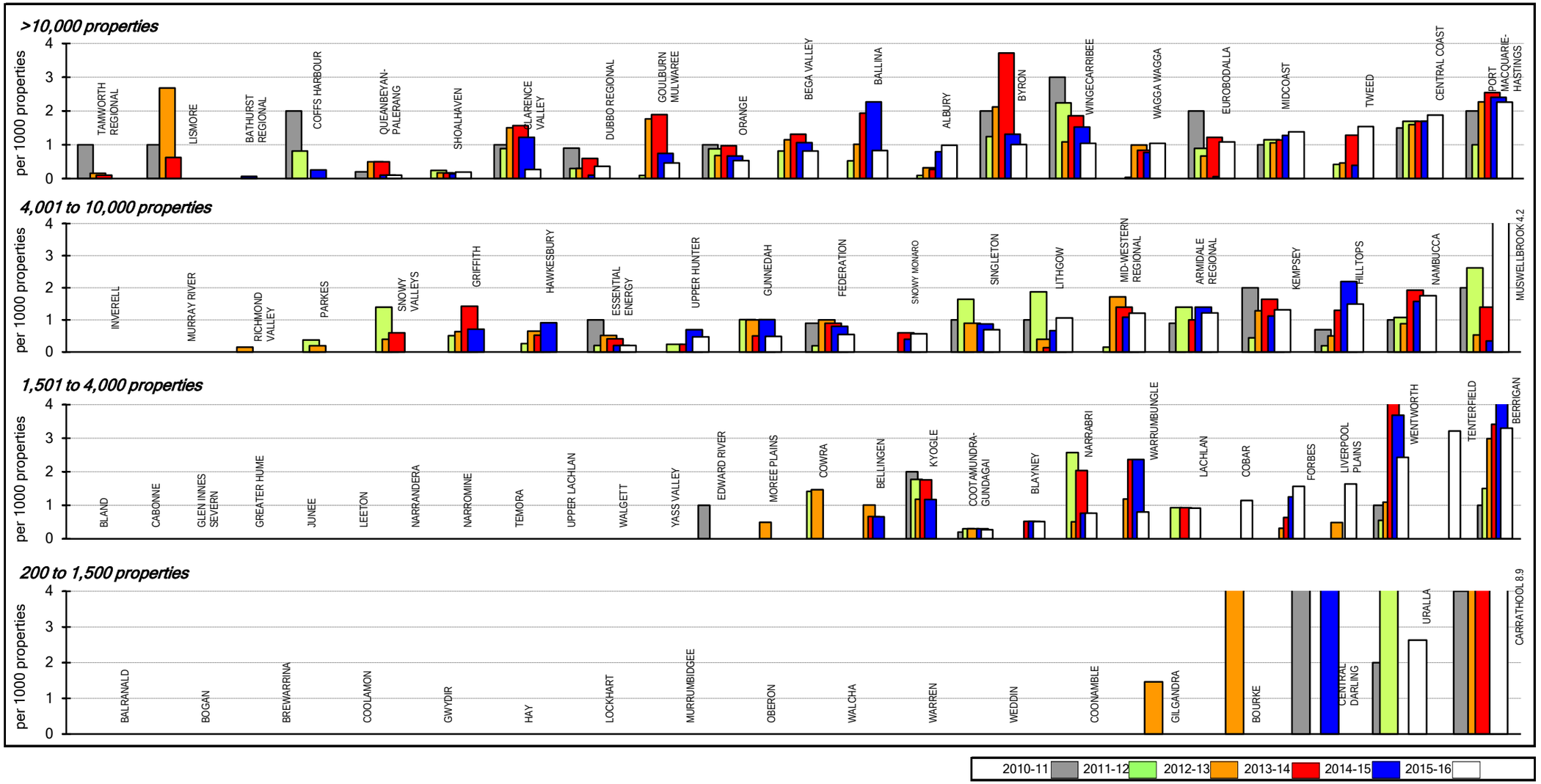
Parameter:

$$\frac{\text{[Total no. of complaints (SB34) + (SB37) + (SB38) + (SB39)] x 1000}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

Note:

1. For general notes see section 6.

Figure 49: Odour complaints - sewerage

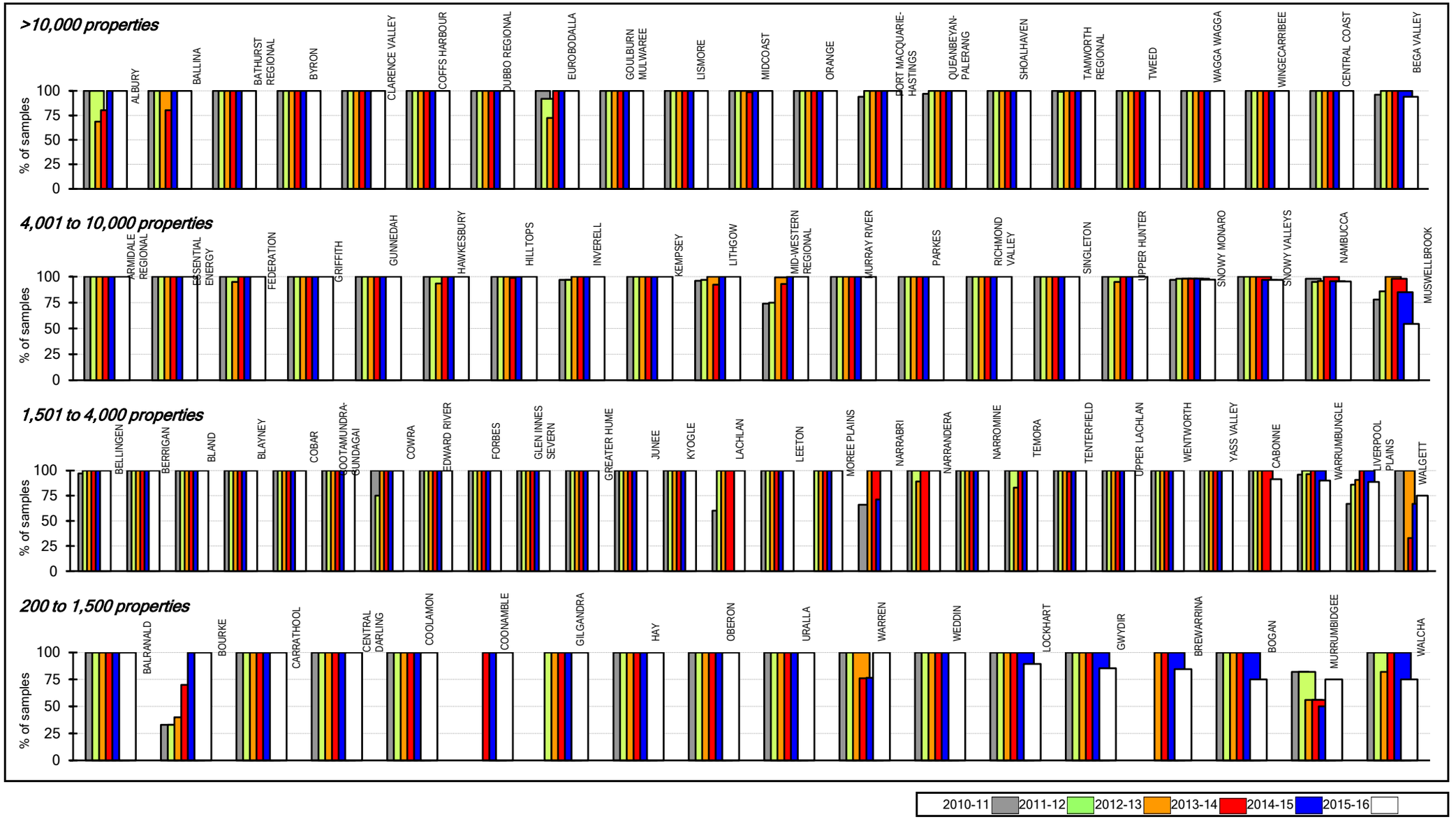


Parameter: [No. of Odour Complaints from Treatment Works and Pumping Stations (SB39) x 1000] / [No. of Residential Assessments (SB13) + No. of Non-Residential Assessments (SB14)] x No. of Connected Properties per Assessment

Notes:

1. This figure shows ranked values of the 2015-16 number of sewage odour complaints for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the number of odour complaints for the 19 LWUs shown ranges from 0 to 1.8 complaints per thousand connected properties. Results for the previous 5 years are also shown.
2. This is a very important indicator for residents if the 'utility gets it wrong' and there are widespread sewage odour complaints in its area. The above results indicate that this has not been the case in regional NSW, where over the last 6 years, odour complaints have rarely exceeded 5 per thousand connected properties.
3. The 2015-16 Statewide median number of odour complaints is 0.9 per 1000 properties. Refer also to Table 17 and figure 21 of Table 4.
4. For general notes see section 6.

Figure 50: Compliance with BOD in licence - sewerage

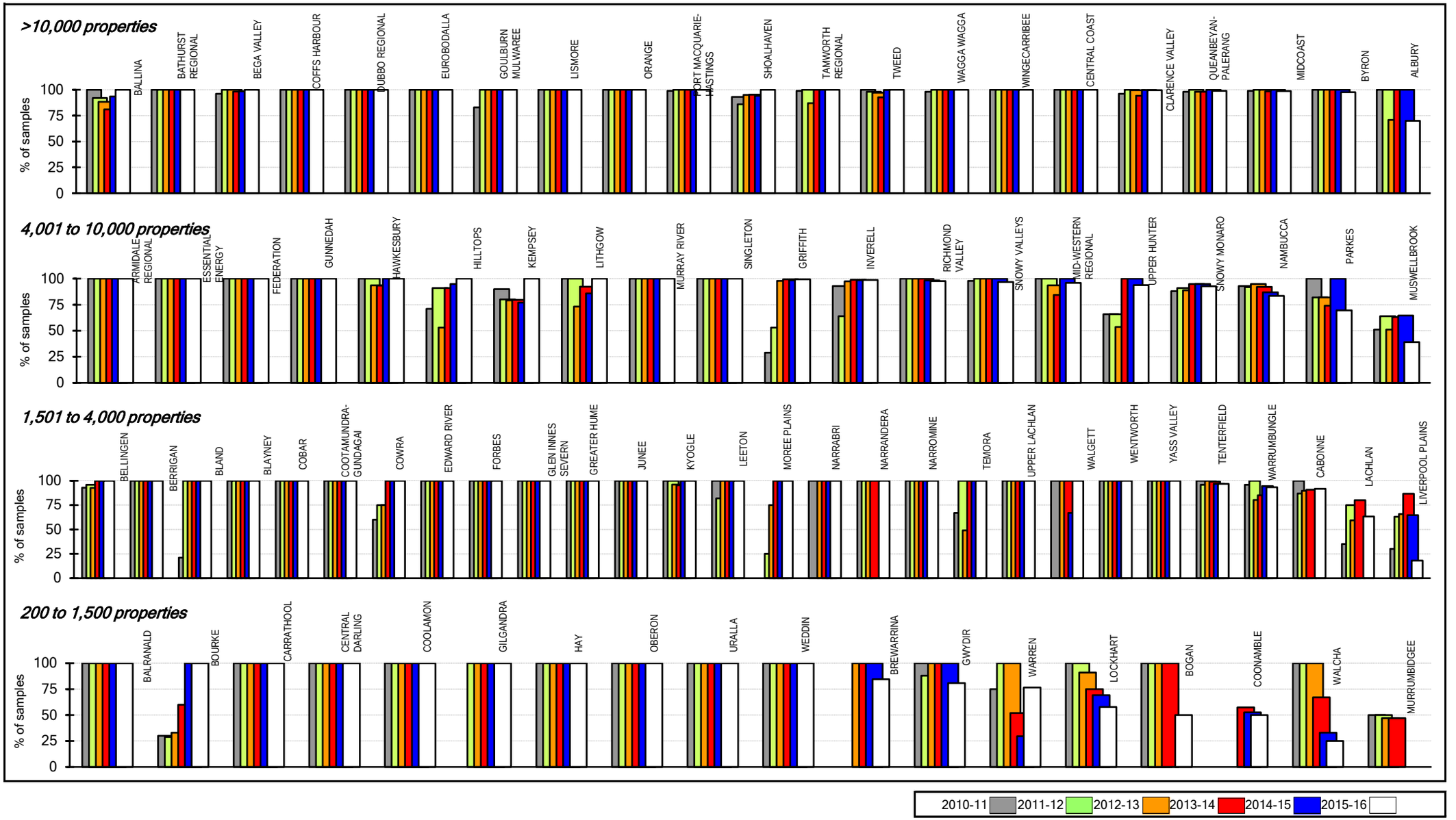


Parameter: Percentage of samples complying with 90 percentile Environment Protection Authority (EPA) licence limits for Biochemical Oxygen Demand (BOD) (ST50)

Note:

1. Refer also to Table 17.
2. For general notes see section 6.

Figure 51: Compliance with SS in licence - sewerage

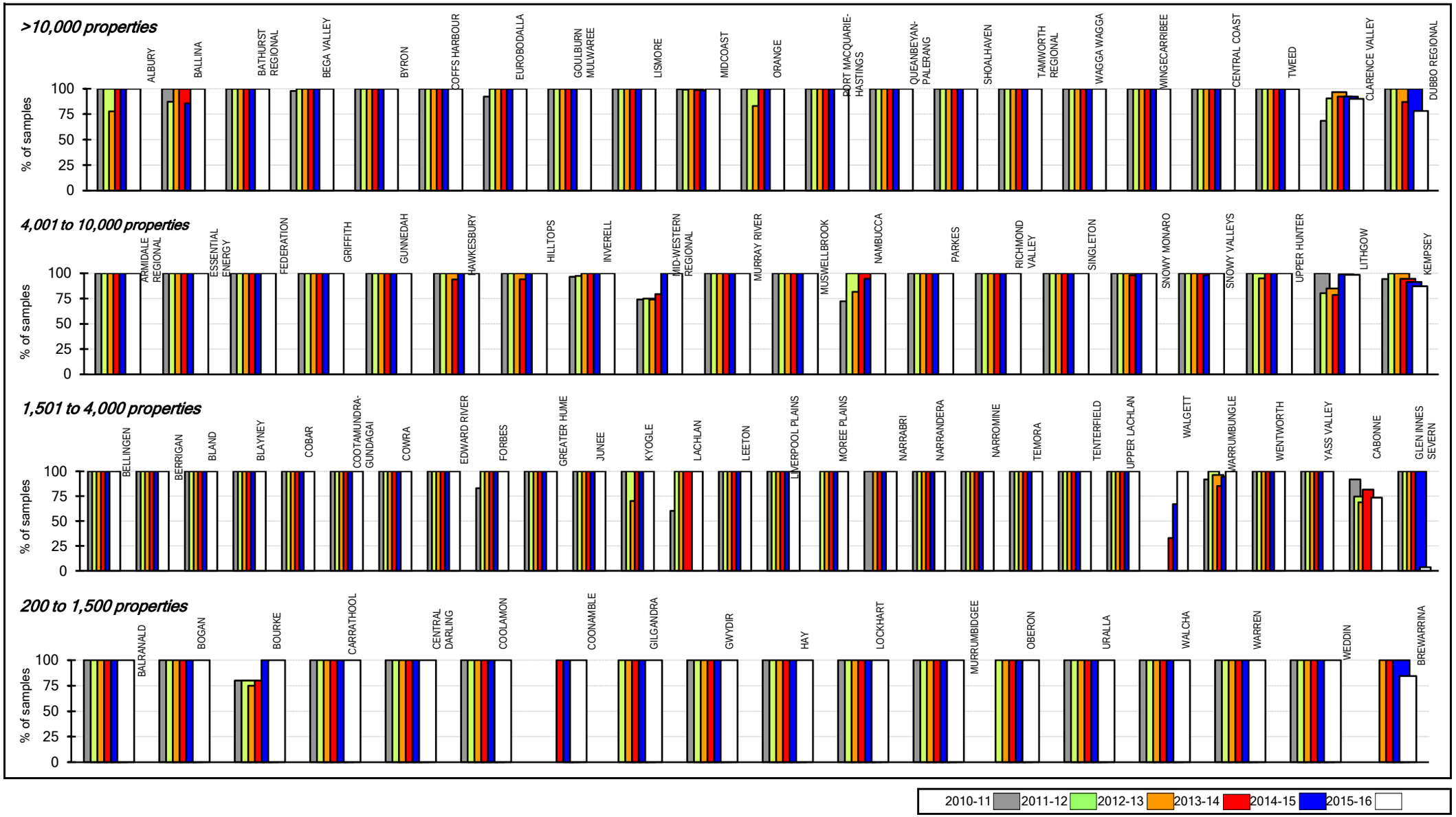


Parameter: Percentage of samples complying with 90 percentile Environment Protection Authority (EPA) licence limits for Suspended Solids (SS) (ST52)

Note:

1. Refer also to Table 17.
2. For general notes see section 6.

Figure 52: Compliance with N in licence - sewerage

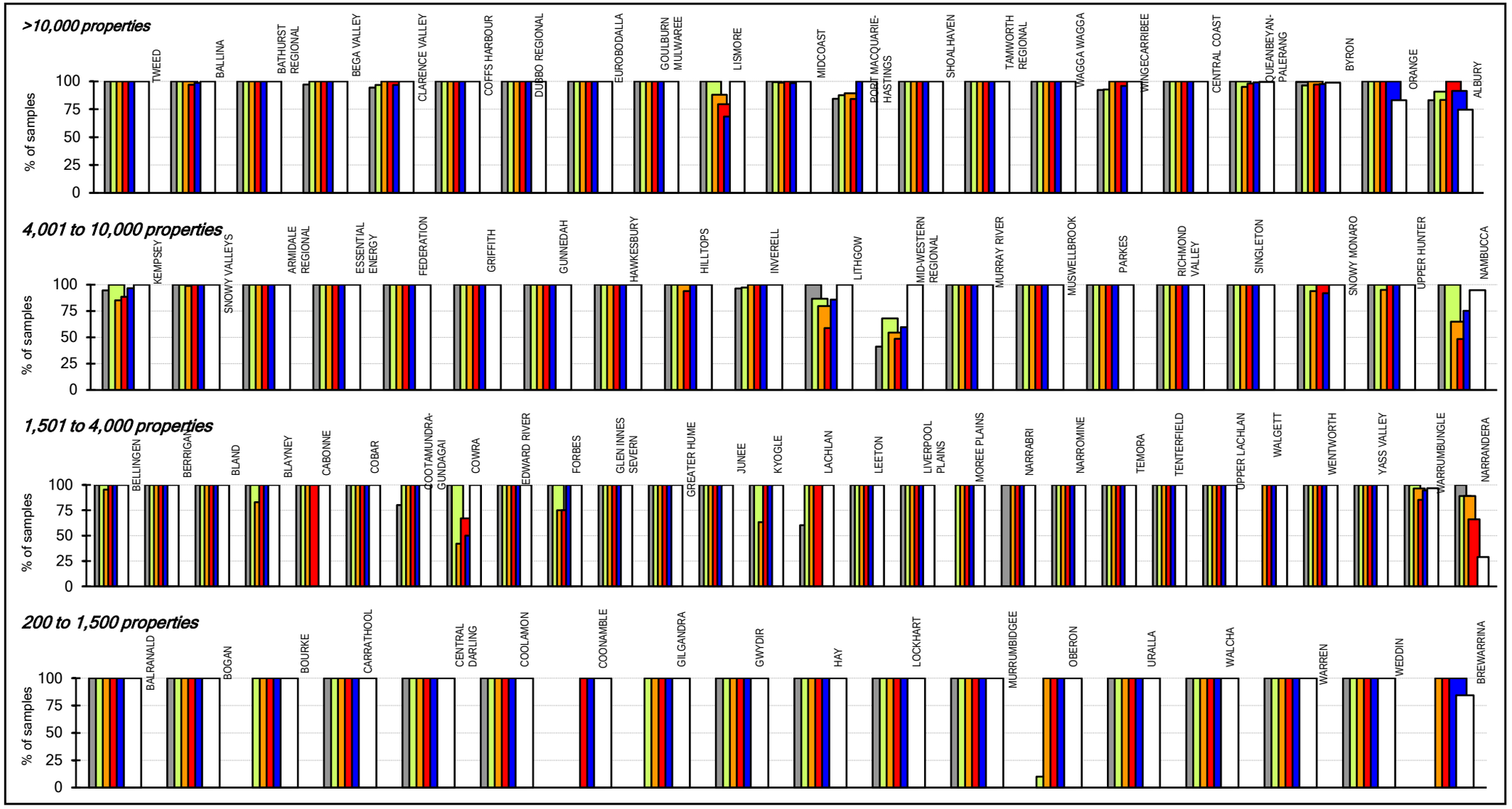


Parameter: Percentage of samples complying with 90 percentile Environment Protection Authority (EPA) licence limits for Total Nitrogen (ST54)

Note:

1. Refer also to Table 17.
2. For general notes see section 6.

Figure 53: Compliance with P in licence - sewerage

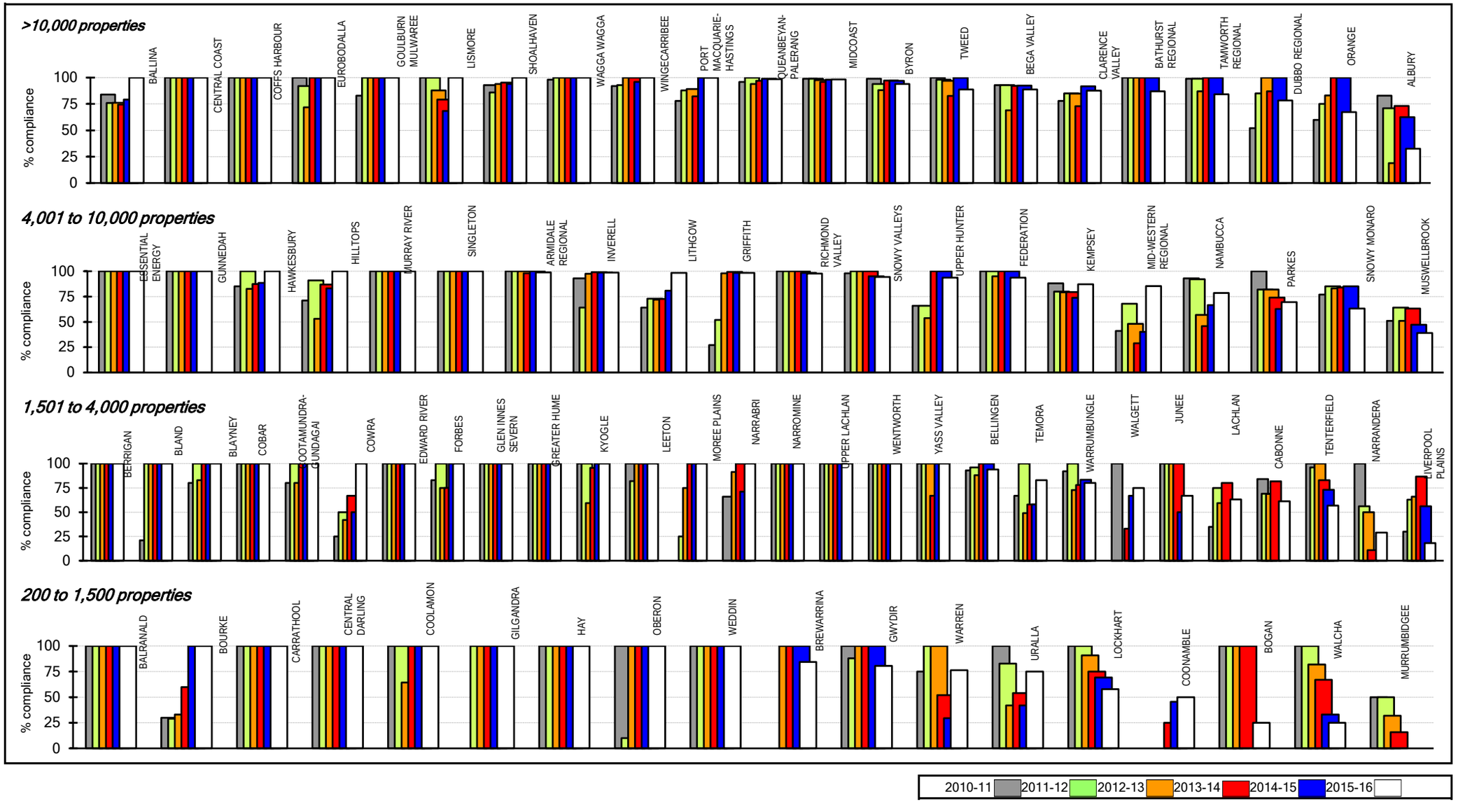


Parameter: Percentage of samples complying with 90 percentile Environment Protection Authority (EPA) licence limits for Total Phosphorus (ST60)

Note:

1. Refer also to Table 17.
2. For general notes see section 6.

Figure 54: Percent of sewage volume treated that was compliant - sewerage - E4

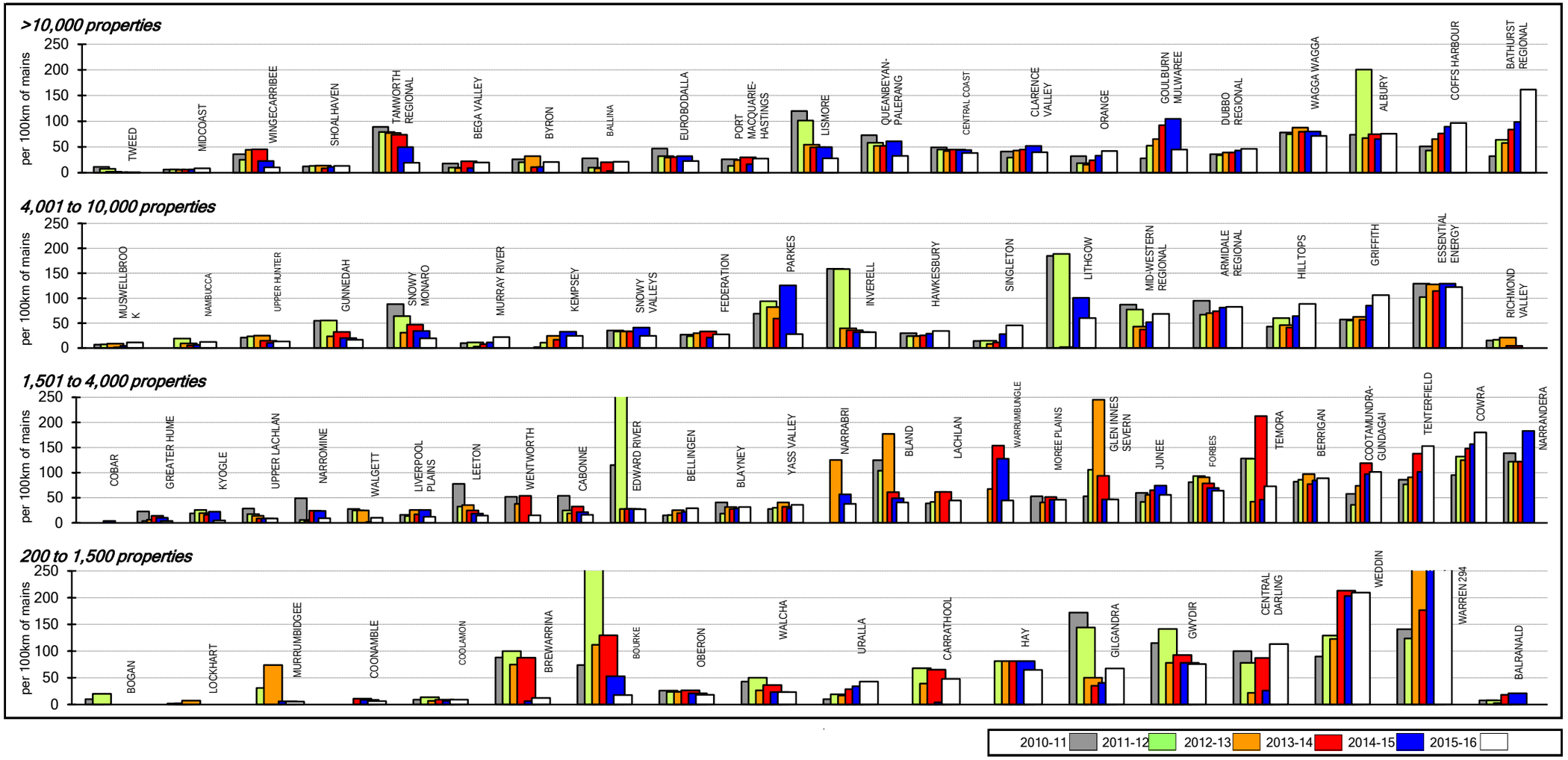


Parameter: (No. of scheduled samples complying with all of the licence limits) x 100
Total No. of scheduled samples in reporting period

Note:

1. Refer also to Table 17, graph 18 of Appendix A and figure 18 of Table 4.
2. For general notes see section 6.

Figure 55: Sewerage main breaks and chokes - sewerage - A14



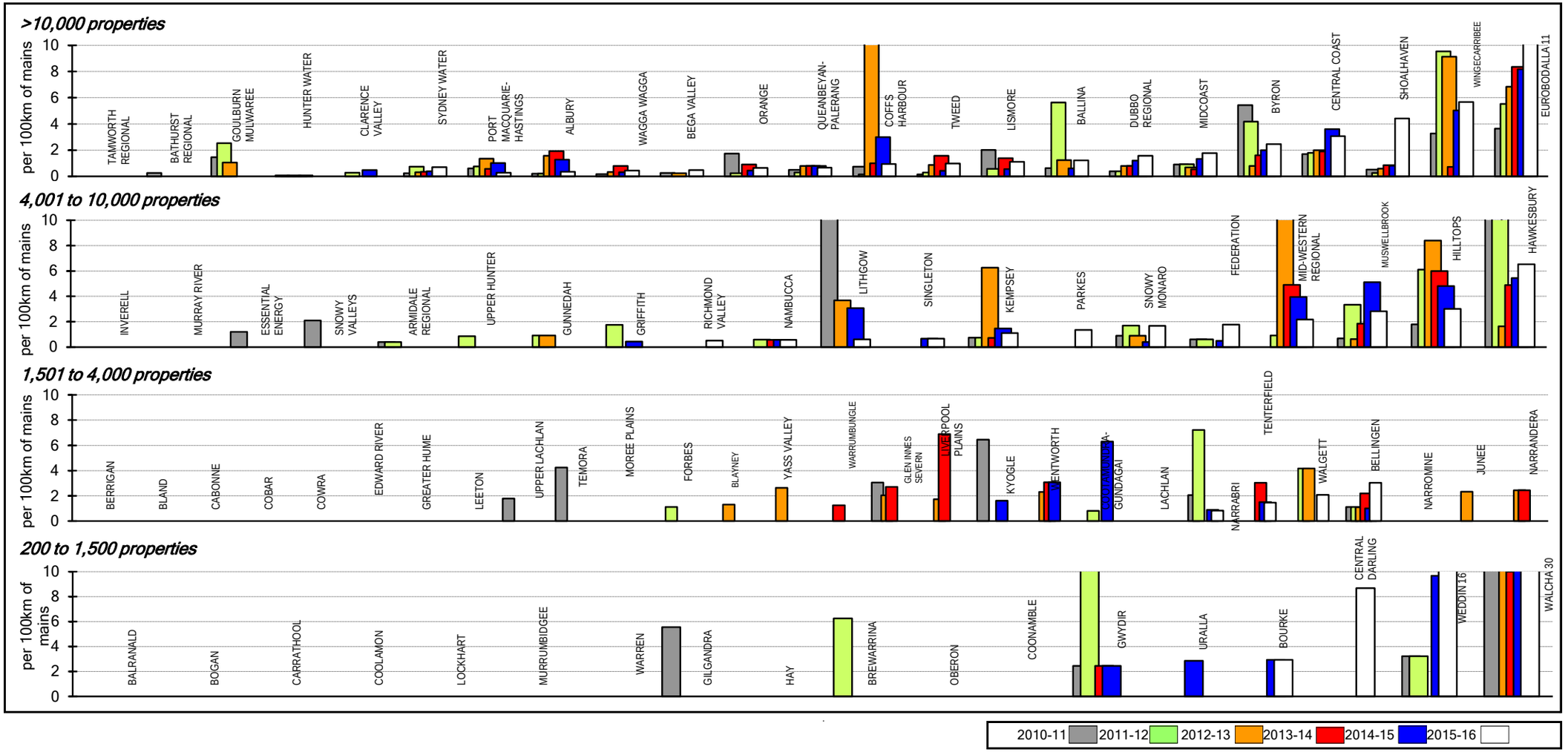
Parameter:

$$\frac{\text{Total No. of Sewerage Main Breaks and Chokes [(SB64) + (SB65)] x 100}}{\text{Length of Reticulation/Gravity Mains (SB7) + Length of Rising Mains (SB8)}}$$

Notes:

1. This figure shows ranked values of the 2015-16 sewerage main breaks and chokes for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 sewerage main breaks and chokes for the 19 LWUs shown ranges from 11 to 122 chokes per 100 km of sewer mains. The 1 LWU on the right did not report this indicator for 2015-16. Results for the previous 5 years are also shown.
2. The Statewide median sewerage main breaks and chokes is 38 per 100 km of sewer mains, which is significantly higher than the National Median of 20. The NSW median has fallen from 75 to 38 over the past 23 years, partly as a result of revision of the national definition for this indicator in 2009-10. Refer also to Table 5, Table 15, graph 17 of Appendix A and figure 36 of Table 4.
3. For general notes see section 6.

Figure 56: Sewer overflows reported to environmental regulator - sewerage - E13



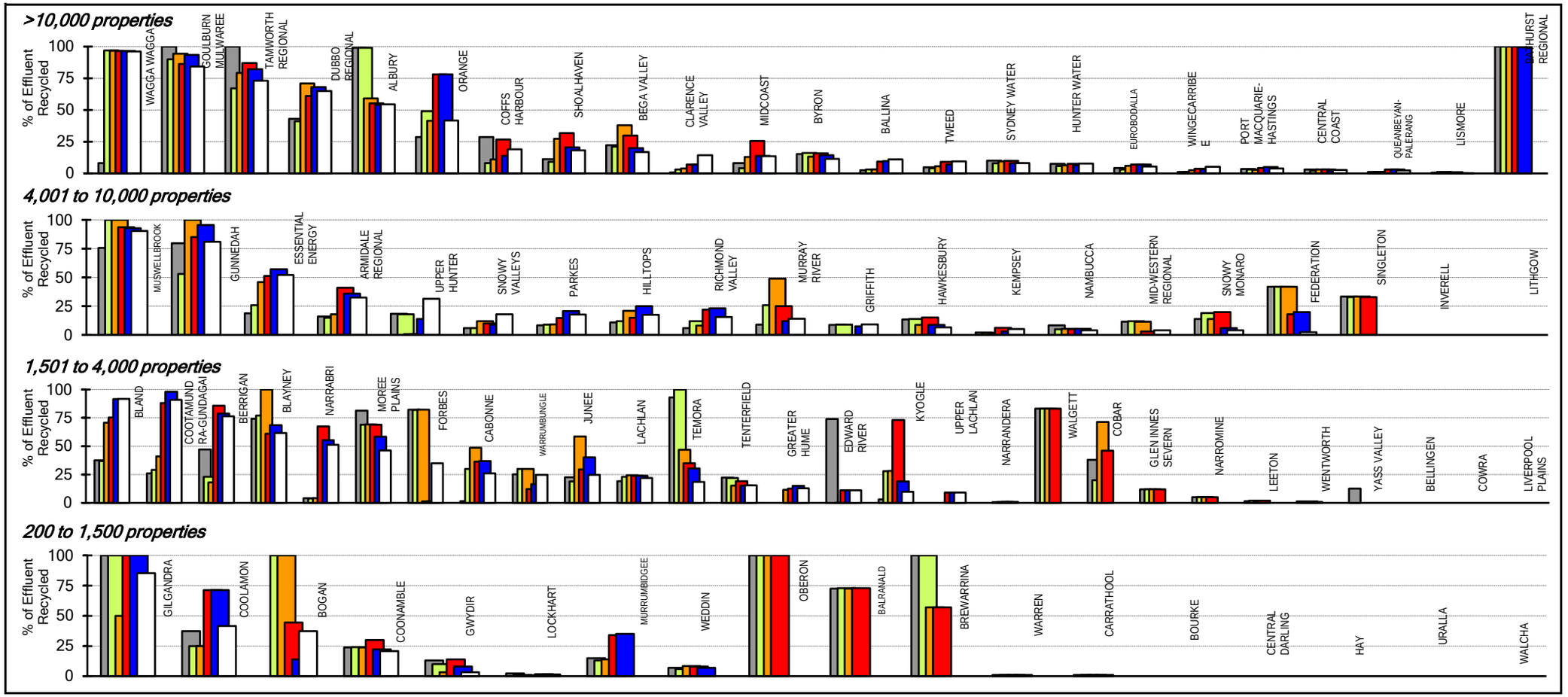
Parameter:

$$\frac{\text{Total No. of Sewage Overflows Reported to Regulator (SB63b) x 100}}{\text{Length of Reticulation/Gravity Mains (SB7) + Length of Rising Mains (SB8)}}$$

Notes:

1. This figure shows ranked values of the 2015-16 overflows reported to the environmental regulator for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 overflows reported to the environmental regulator for the 20 LWUs shown ranges from nil to 7 overflows per 100 km of sewer mains. Results for the previous 5 years are also shown.
2. The Statewide median sewer overflows reported to the environmental regulator is 0.9 per 100 km of sewer mains [National Median is 0.8 per 100 km of sewer mains]. Refer also to Table 15, graph 20 of Appendix A and figure 37b of Table 4.
3. 54% of reporting LWUs had no sewer overflows reported to the environmental regulator.
4. For general notes see section 6.

Figure 57: Recycled water (% of effluent recycled) - sewerage - W27

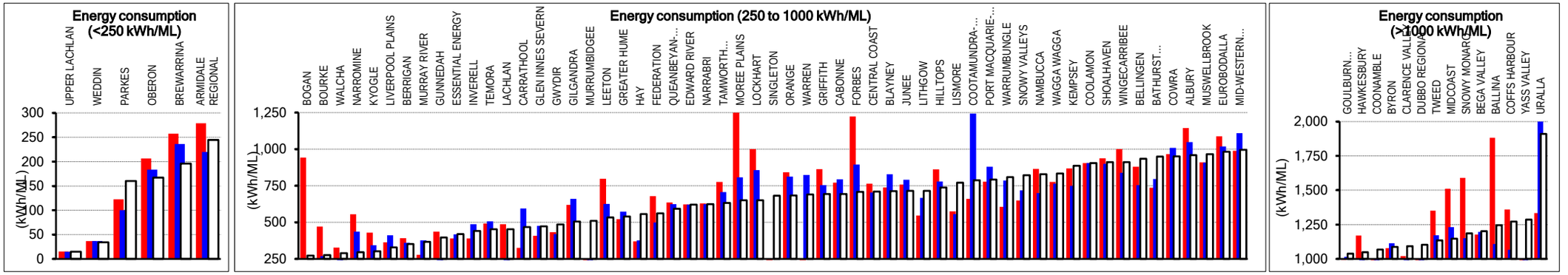


Parameter: Total Volume Recycled (WB158) x 100 / Volume of Sewage Treated (Secondary Treatment) (STT18)

Notes:

1. This figure shows ranked values of the 2015-16 recycled water (% of sewage effluent recycled) for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 recycled water (% of sewage effluent recycled) for the 20 LWUs shown ranges from 90% to 0%.
2. The 2014-15 result has been adopted for any LWUs that did not report historically consistent effluent reuse (generally >25%). These LWUs are shown in italics bold in Tables 5 and 15.
3. The Statewide median reuse of recycled water is 11% of effluent recycled.
4. The total volume of recycled water for regional NSW was 35,500 ML, which was 20% of the total volume of sewage collected [National Median is 17%]. Re-use was carried out by 70% of LWUs. 16% of LWUs recycled over 50% of their effluent.
5. Refer also to Table 5, Table 15, graph 15 of Appendix A, figure 27 of Table 4 and to sections 2.5 and 3.2 of the NSW Water Supply and Sewerage Performance Monitoring Report (www.water.nsw.gov.au).
6. For general notes see section 6.

Figure 58: Energy consumption per ML - sewerage

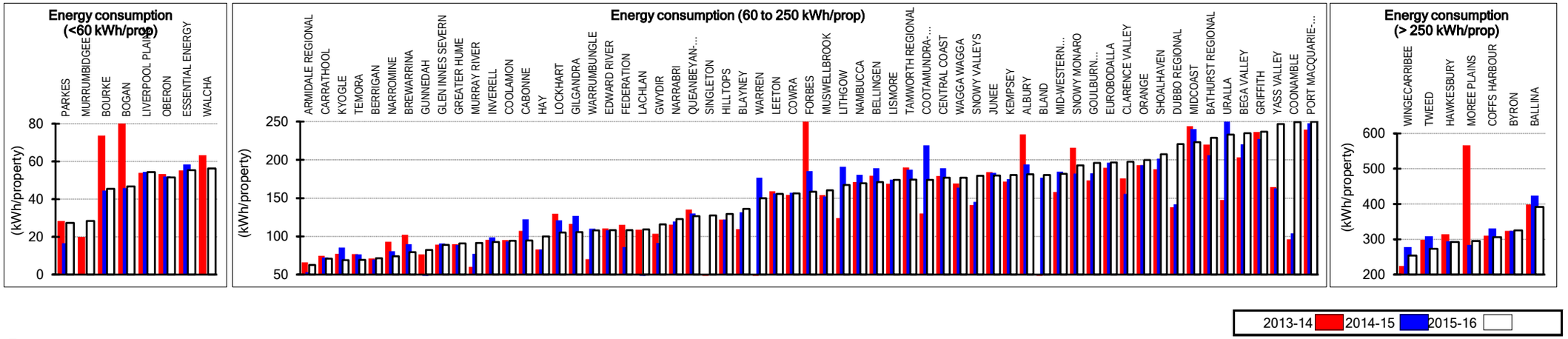


Parameter: $\frac{\text{Total Energy Usage (SB79) x 1000}}{\text{Total Volume of Sewage Collected (ST15)}}$

Notes:

1. This figure shows ranked values of the 2015-16 total energy consumption per ML. The energy consumption per ML for the 77 Local Water Utilitites (LWUs) shown range from about 0 to 1910 kWh per connected property. Results for the previous 2 years are also shown.
2. For general notes see section 6.

Figure 59: Energy consumption per property - sewerage

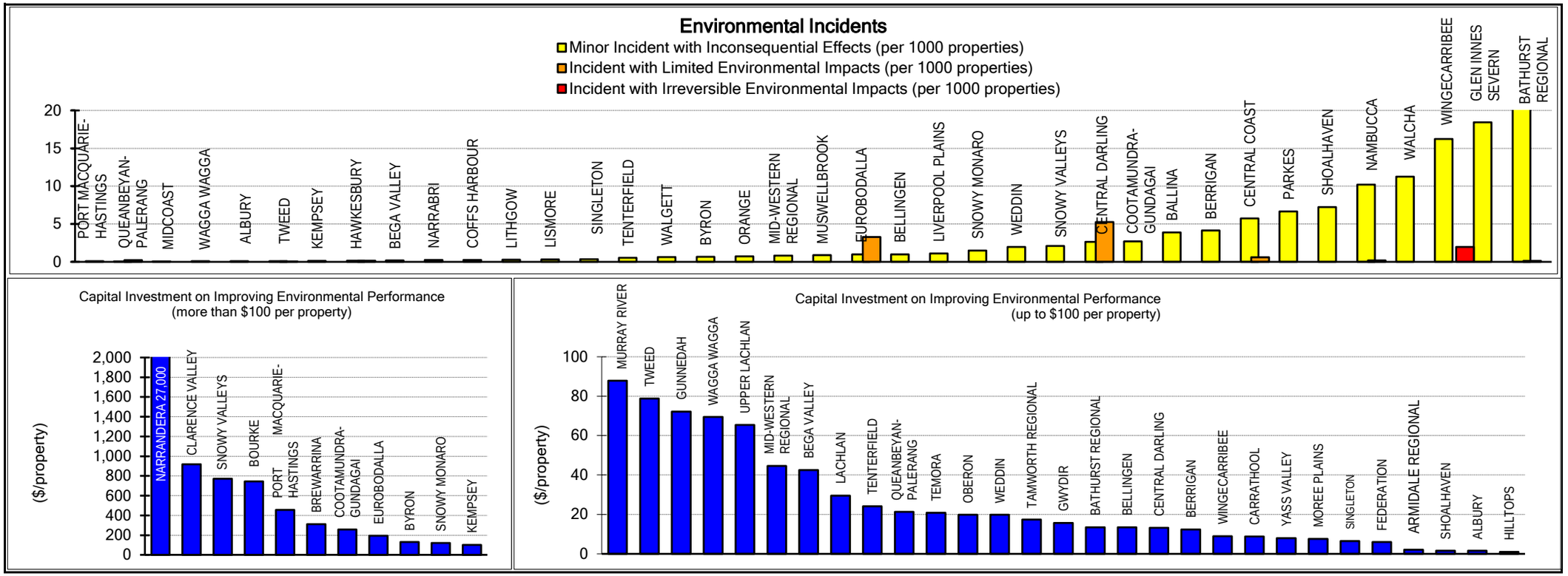


Parameter: $\frac{\text{Total Energy Usage (SB79) x 1000}}{\text{[No. of Residential Assessments (SB13) + No. of Non-Residential Assessments (SB14)] x No. of Connected Properties per Assessment}}$

Notes:

1. This figure shows ranked values of the 2015-16 total energy consumption per connected property. The energy usage per connected property for the 78 Local Water Utilitites (LWUs) shown range from about 0 to 390 kWh per connected property. Results for the previous 2 years are also shown.
2. For general notes see section 6.

Figure 60: Environmental incidents, management systems, capital investment - sewerage



Parameter:

$$\frac{\text{Total number of minor incidents with inconsequential effects (SB69)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

Parameter:

$$\frac{\text{Total number of incidents with limited enviromental impacts (SB70)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

Parameter:

$$\frac{\text{Total number of incidents with irreversible enviromental impacts (SB71)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

Parameter:

$$\frac{\text{Capital expenditure on improving environmental performance (\$) (SB76)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

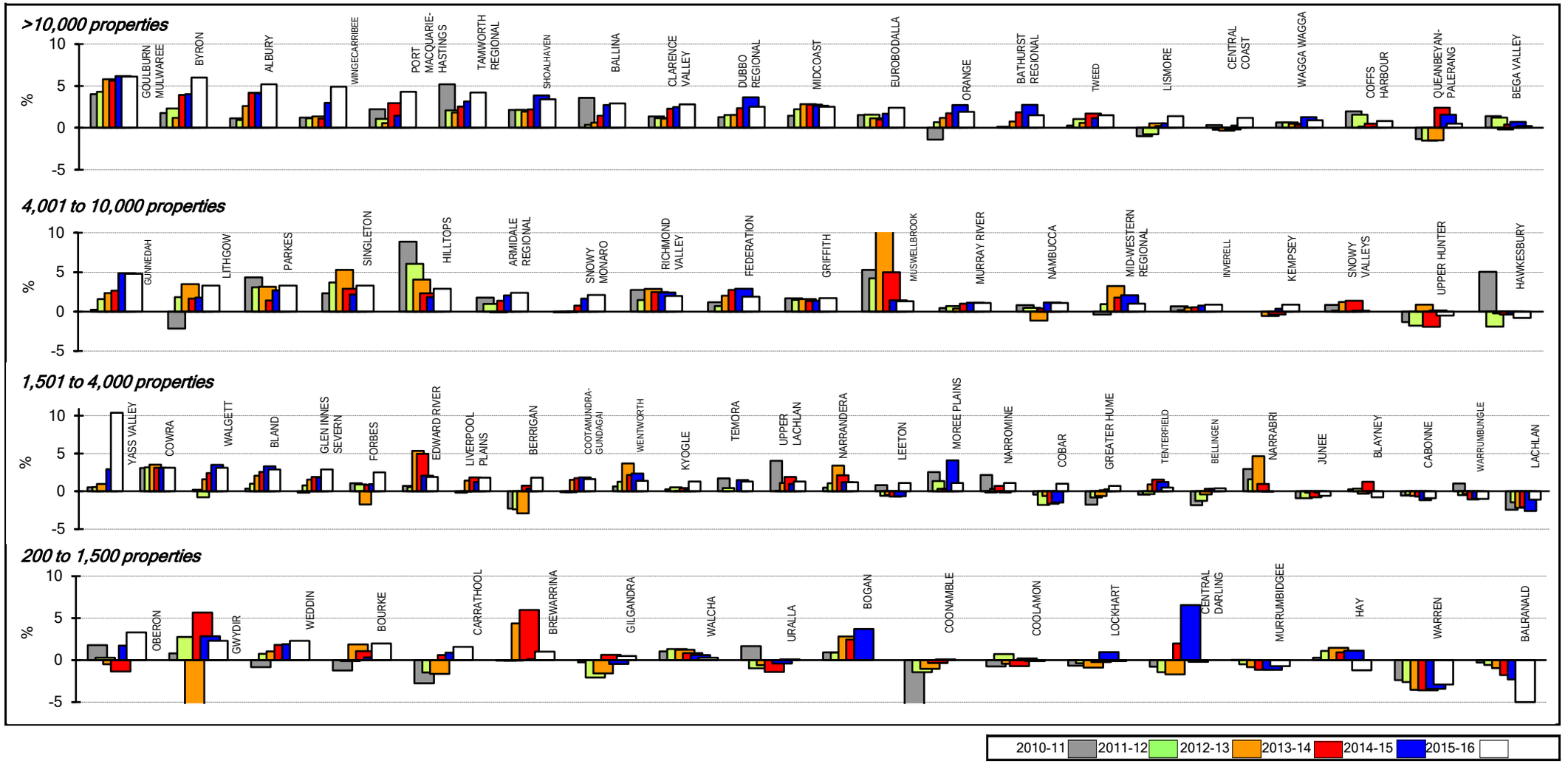
Notes:

1. The following utility did not report for environmental incidents: Narrandera. 38 utilities reported and are shown in the figure above, while 47 utilities reported zero environmental incidents.

2. The following 46 LWUs have prepared a sewerage Environmental Management Plan:
   Albury, Ballina, Bega Valley, Bland, Bogan, Brewarrina, Byron, Cabonne, Central Coast, Clarence Valley, Coffs Harbour, Coolamon, Cootamundra-Gundagai, Dubbo, Essential Energy, Federation, Gilgandra, Glen Innes Severn, Greater Hume, Griffith, Gunnedah, Hawkesbury, Kempsey, Kyogle, Lachlan, Lismore, Lockhart, Murray River, Murrumbidgee, Muswellbrook, Nambucca, Narromine, Parkes, Shoalhaven, Singleton, Snowy Monaro, Snowy Valleys, Temora, Tweed, Uralla, Wagga Wagga, Walcha, Warren, Weddin, Wingecarribee, Yass Valley.

3. For general notes see section 6.

Figure 61: Economic real rate of return - sewerage - F18



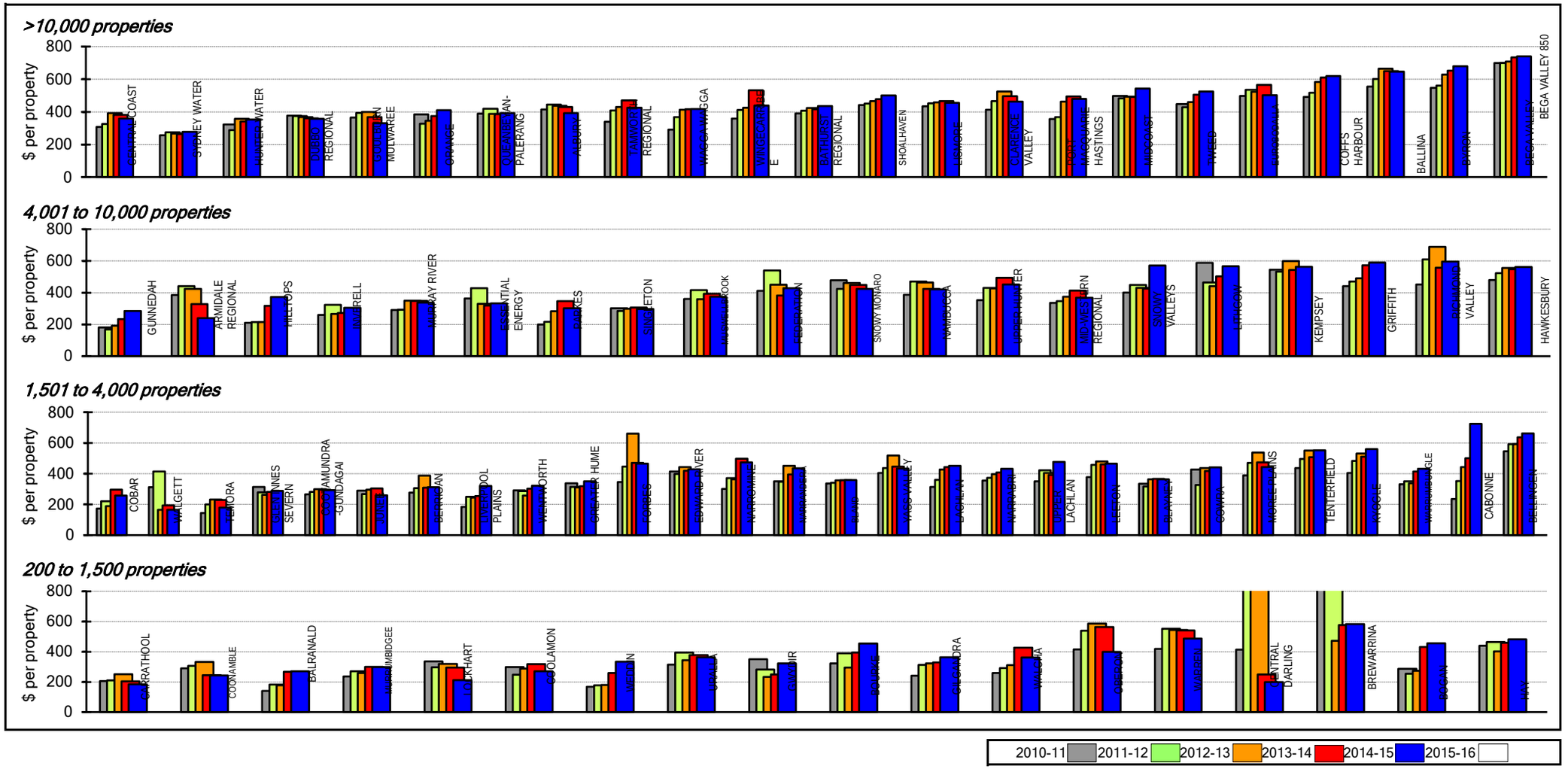
Parameter: [Operating Result (S_16) + Interest Expense (S_4a) - Interest Income (S_10) - Grants for Acquisition of Assets (S_12a)] x 100

Written Down Replacement Cost of System Assets, Plant & Equipment (S_34)

Notes:

1. This figure shows ranked values of the 2015-16 sewerage economic real rate of return (ERRR) for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 sewerage real rate of return for the 19 LWUs shown ranges from 4.8% to -0.8%. Results for the previous 5 years are also shown.
2. The Statewide median sewerage ERRR is 2.5% [National Median is 2.9%]. Refer also to note 28 of section 5.4.3, Table 5, Table 7 and figure 46 of Table 4.
3. The ERRR includes developer provided assets and capital contributions from other LWUs.
4. For general notes see section 6.

Figure 62: Operating cost (OMA) per property - sewerage - F12



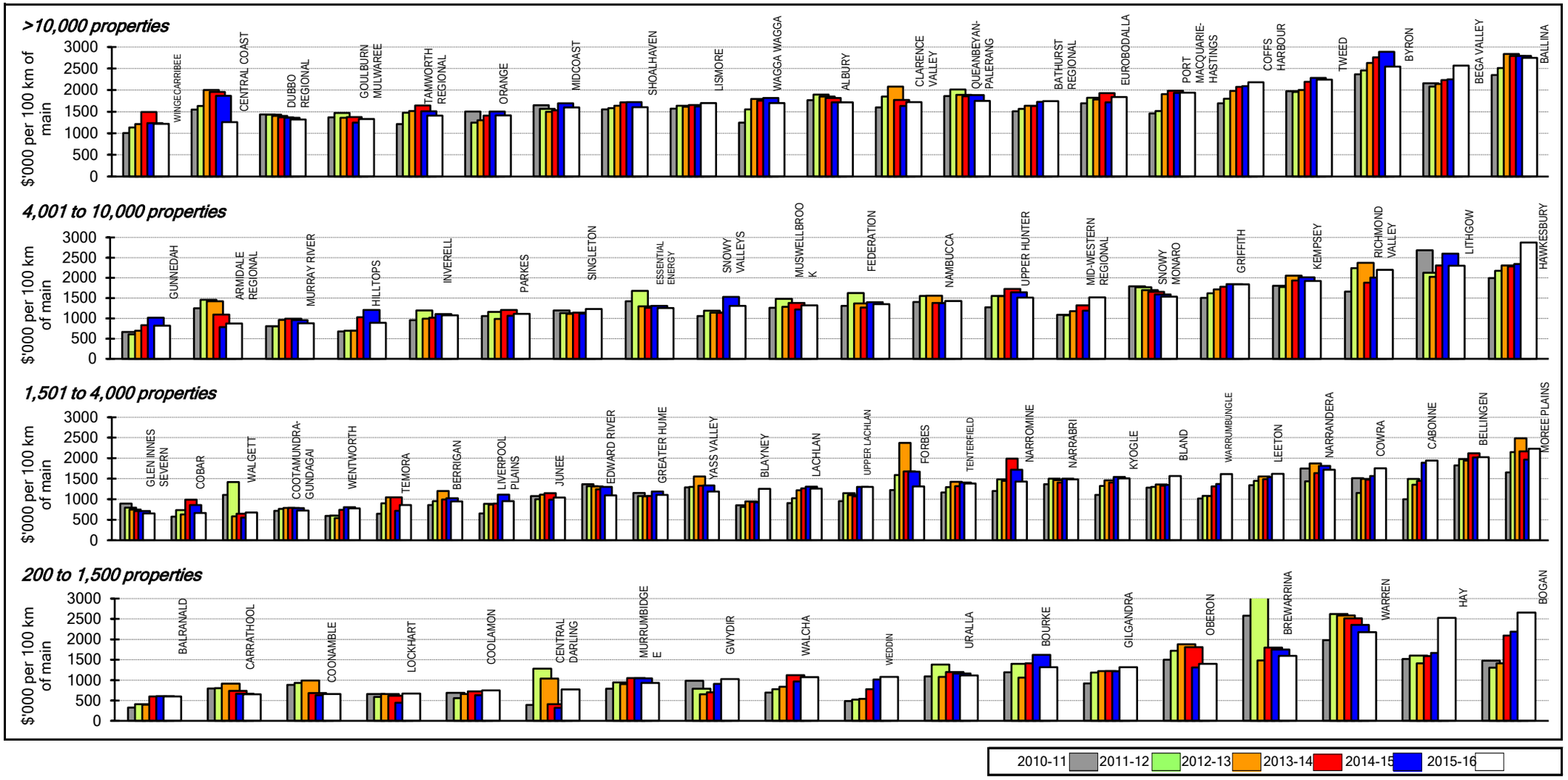
Parameter: Management Expenses (S_1) + Total Operations Expenses (S_2) - Purchase of Water + Bulk Supplier's OMA

[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment

Notes:

1. This figure shows ranked values of the 2015-16 water supply operating cost (OMA - operation, maintenance and administration) per property for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the operating costs for the 20 LWUs shown ranges from $0 to $0 per connected property. Results for the previous 5 years are also shown.
2. The Statewide median operating cost per connected property is $470 [National Median is $400]. Refer also to tables 2 and 3 of section 5.4.3, notes 33 to 38 of section 5.4.3, Table 5, Table 16, graph 23 of Appendix A and figure 50 of Table 4.
3. For general notes see section 6.

Figure 63: Operating cost (OMA) per 100 km of main - sewerage



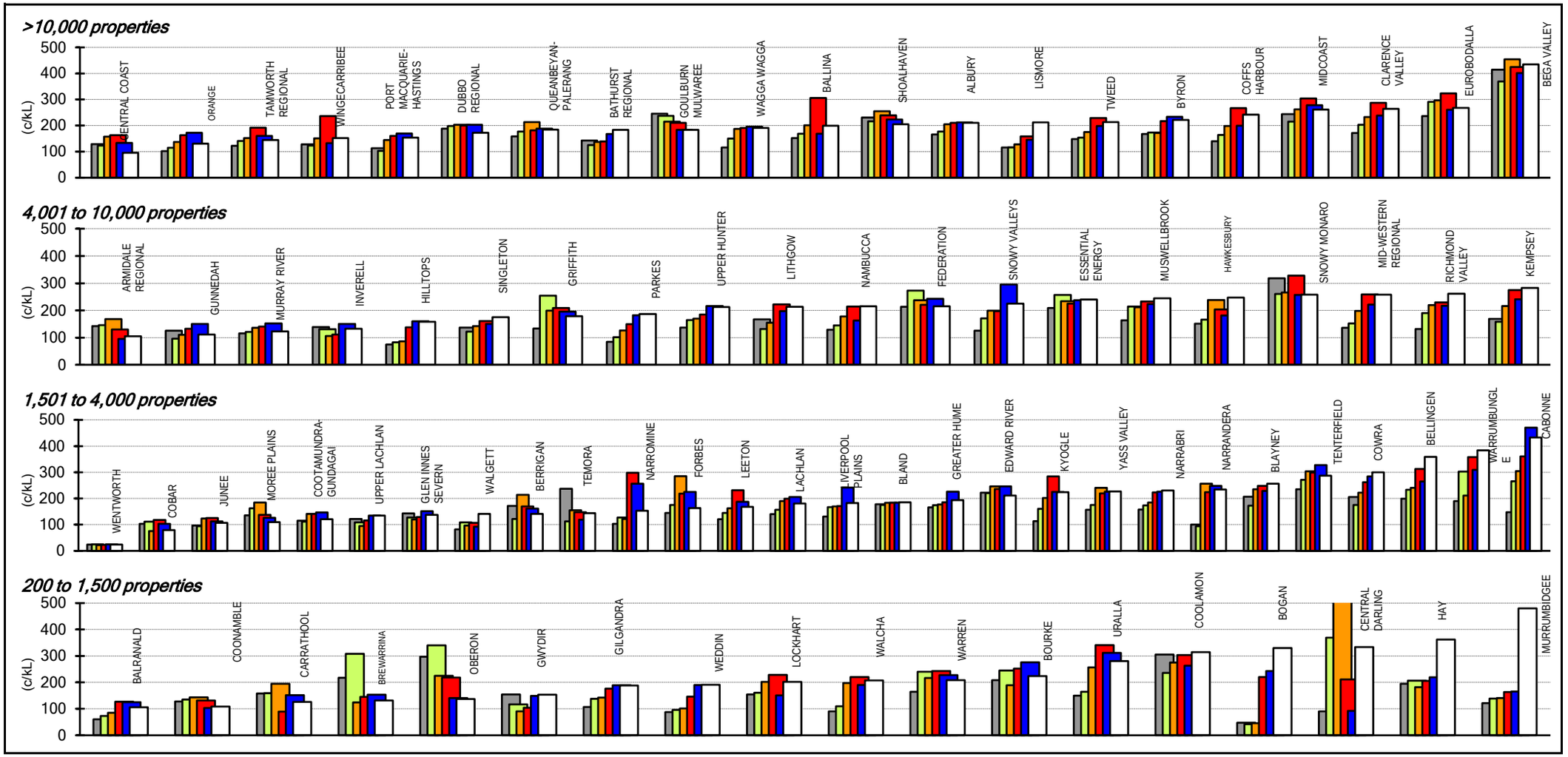
Parameter:

$$\frac{\text{Management Expenses (S\_1) + Total Operations and Maintenance Expenses (S\_2)}}{\text{[Length of Reticulation Mains (SB7) + Length of Rising Mains (SB8)] x 10}}$$

Notes:

1. This figure shows ranked values of the 2015-16 sewerage operating cost (OMA - operation, maintenance and administration) 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, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the sewerage operating costs for the 20 LWUs shown ranges from $0.82M to $2.88M per 100 km of sewer main. Results for the previous 5 years are also shown.
2. The Statewide median operating cost is $1.7M per 100 km of sewer main. Refer also to Table 16 and Table 18.
3. For general notes see section 6.

Figure 64: Operating cost (OMA) per kL - sewerage

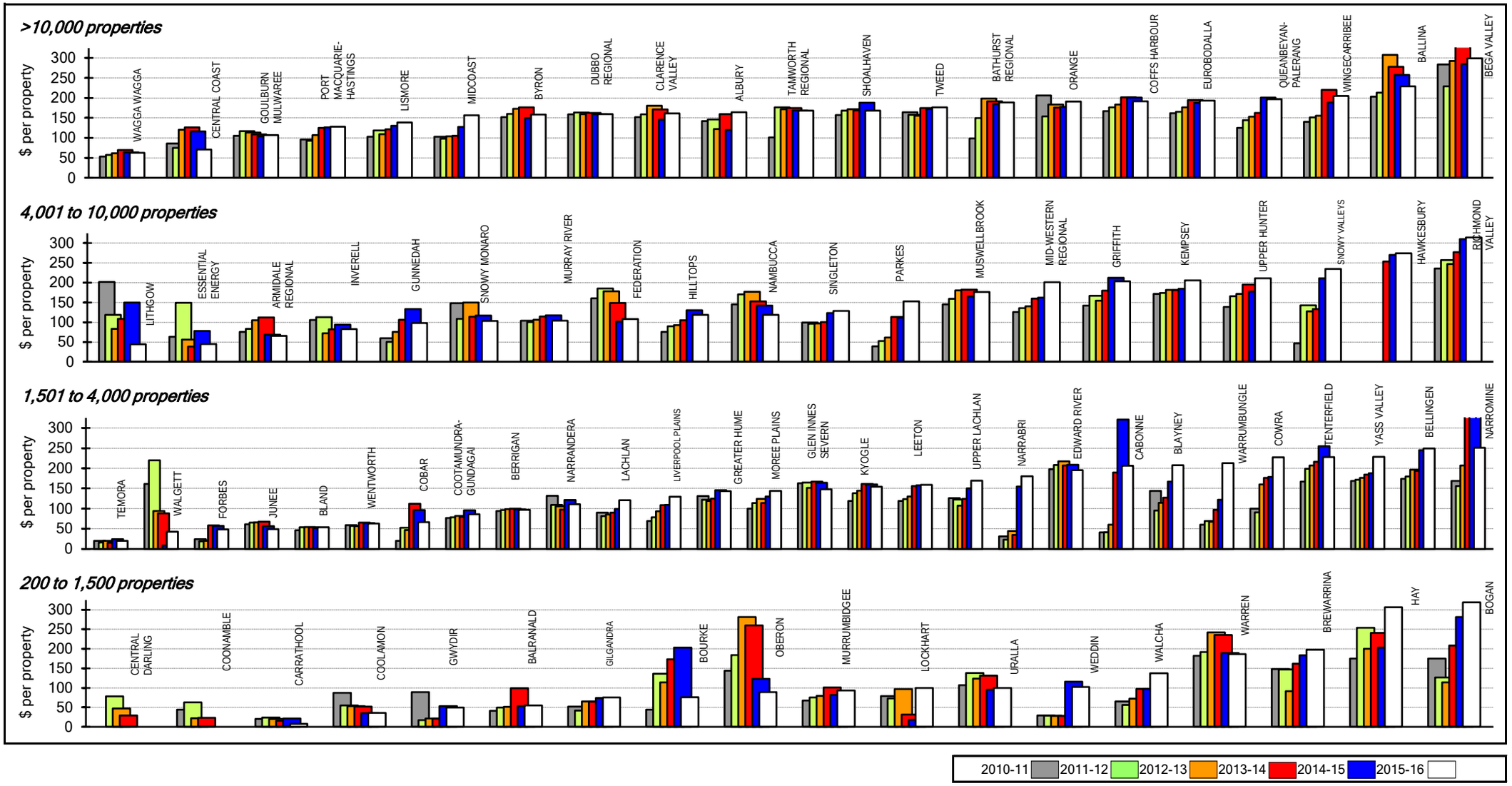


Parameter: $\frac{\text{Management Expenses (S_1) + Total Operations and Maintenance Expenses (S_2)}}{\text{Volume of Sewage Treated (Secondary Treatment) (ST18) x 10}}$

Notes:

1. This figure shows ranked values of the 2015-16 sewerage operating cost (OMA - operation, maintenance and administration) 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, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the sewerage operating costs for the 20 LWUs shown ranges from 105c/kL to 283c/kL. Results for the previous 5 years are also shown.
2. The Statewide median operating cost is 208c/kL. Refer also to Table 7.
3. For general notes see section 6.

Figure 65: Management cost per property - sewerage



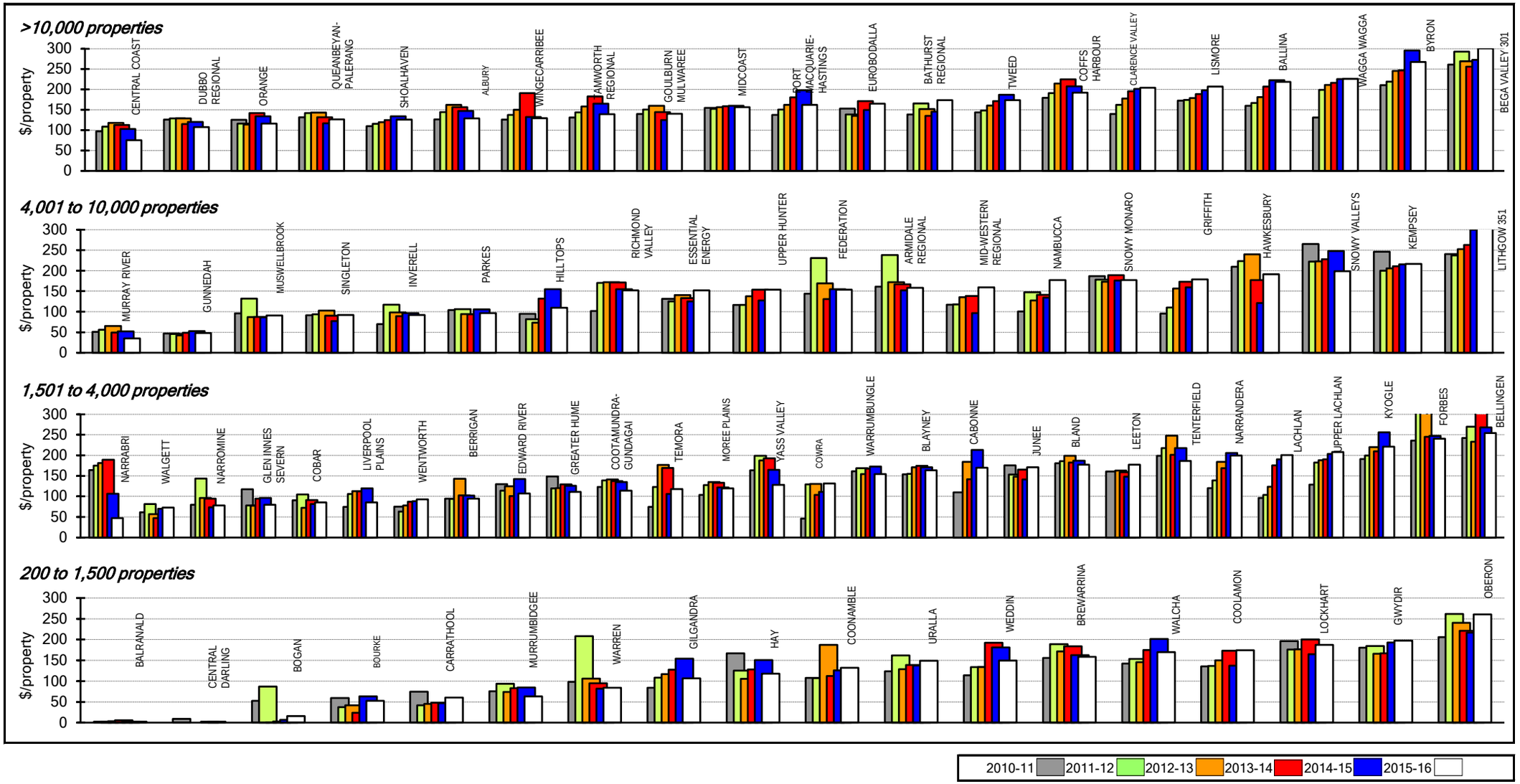
Parameter:

$$\frac{\text{Administration cost (S\_1a) + engineering cost (S\_1b)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

Notes:

1. This figure shows ranked values of the 2015-16 water supply management cost per property for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 management costs for the 20 LWUs shown ranges from $45 to $315. Results for the previous 5 years are also shown.
2. The Statewide median management cost is $164 per connected property. Refer also to note 33 of section 5.4.3 and Table 16.
3. For general notes see section 6.

Figure 66: Treatment cost - sewerage

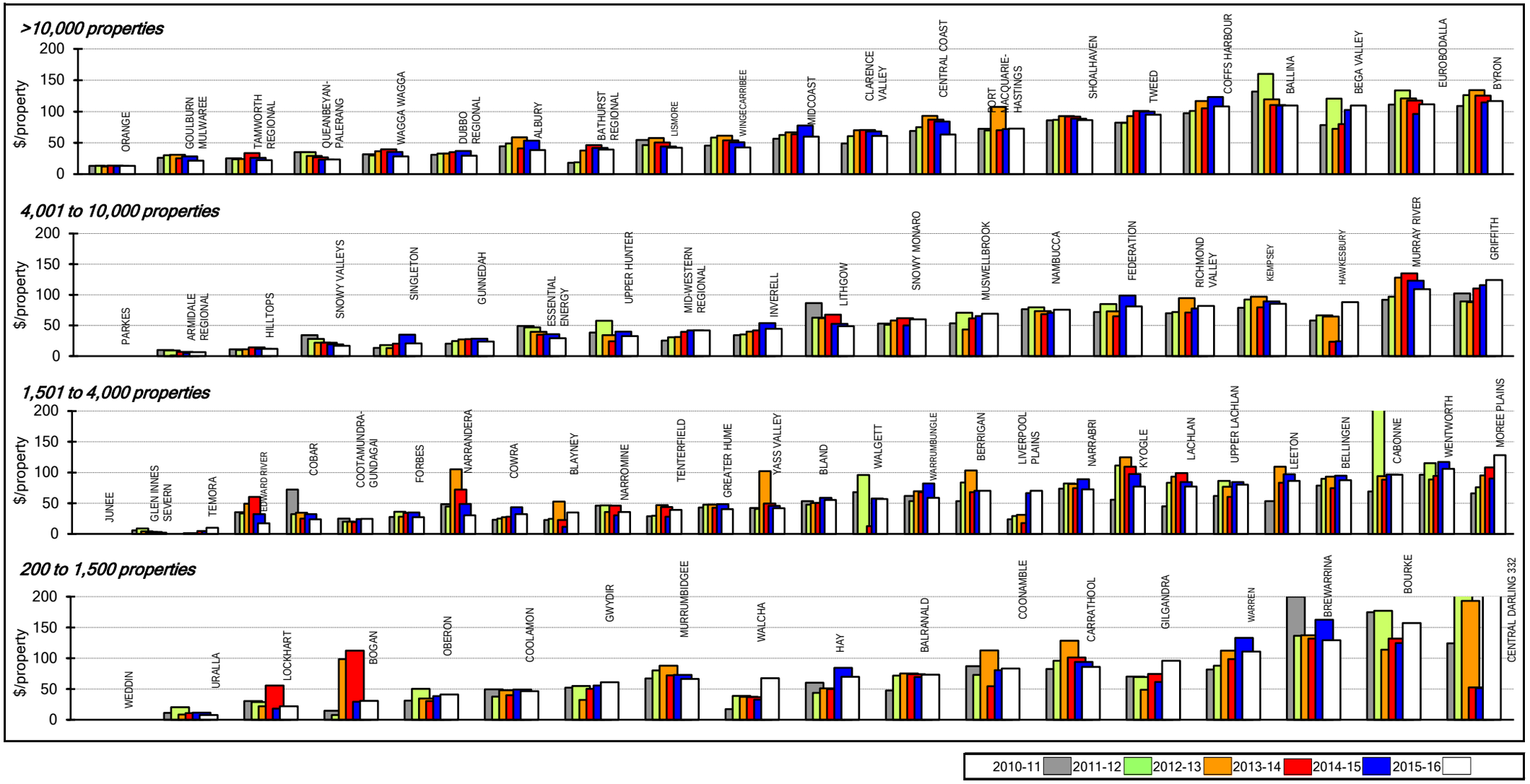


Parameter: $\frac{\text{Treatment Operation Expenses (S\_2f) + Treatment Chemical Cost (S\_2g) + Energy Cost (S\_2h)+ Treatment Maintenance Expenses (S\_2k)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$

Notes:

1. This figure shows ranked values of the 2015-16 sewerage treatment cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 sewerage treatment cost for the 20 LWUs shown ranges from $30 to $351 per connected property. Results for the previous 5 years are also shown.
2. The Statewide median sewage treatment cost is $159 per connected property. Refer also to note 34 of section 5.4.3 and Table 18.
3. For general notes see section 6.

Figure 67: Pumping cost - sewerage



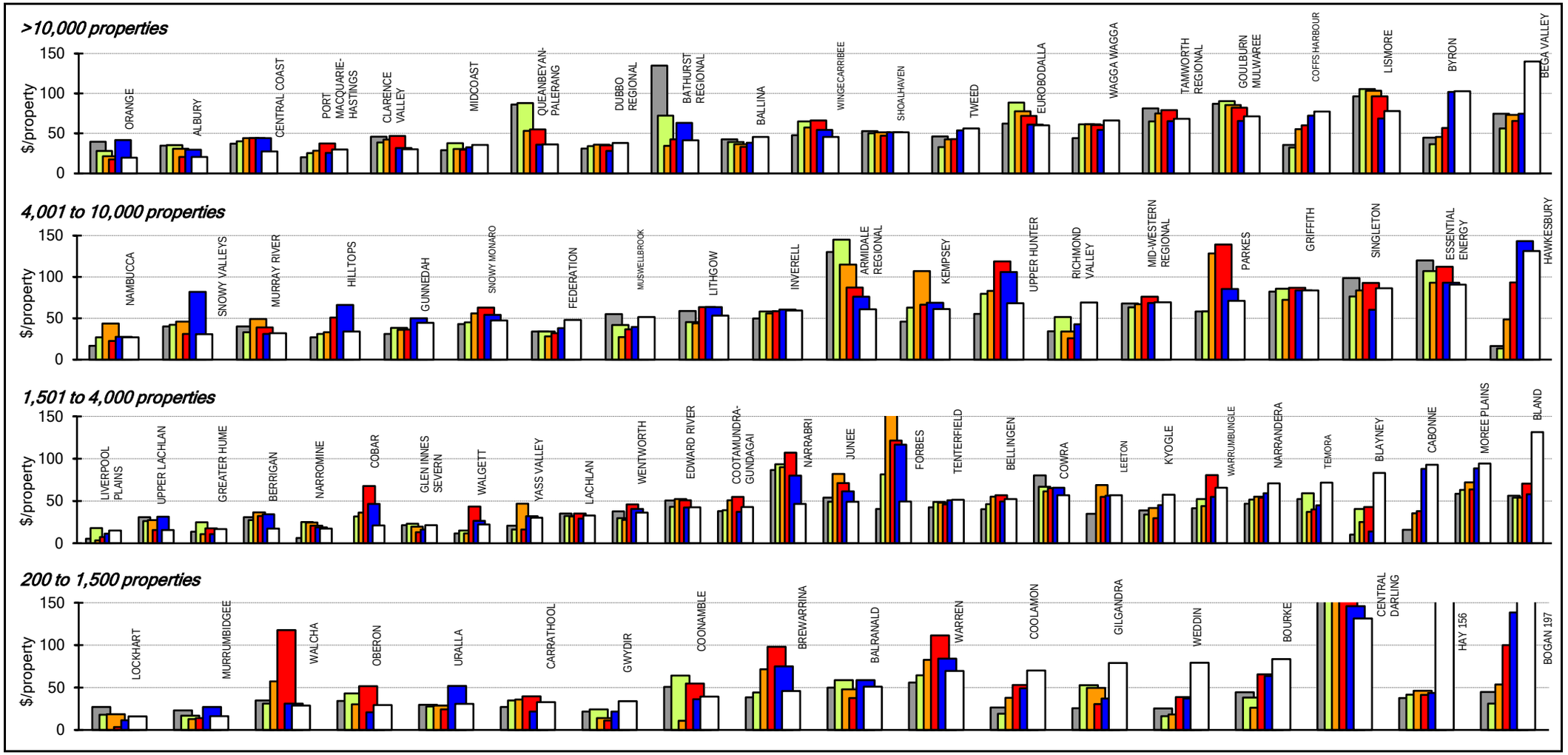
Parameter:

$$\frac{\text{Pumping station operation expenses (S\_2c) + energy cost (S\_2d) + treatment cost (S\_2e)}}{\text{[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment}}$$

Notes:

1. This figure shows ranked values of the 2015-16 sewerage pumping cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 sewerage pumping cost for the 20 LWUs shown ranges from $0 to $124 per connected property. Results for the previous 5 years are also shown.
2. The Statewide median pumping cost is $59 per connected property. Refer also to note 11 of section 5.2.4 and Table 18.
3. For general notes see section 6.

Figure 68: Sewer main cost - sewerage



Parameter: Sewer main operation cost (S_2a) + sewer main maintenance cost (S_2b)

[No. of residential assessments (SB13) + No. of non-residential assessments (SB14)] x No. of connected properties per assessment

Notes:

1. This figure shows ranked values of the 2015-16 sewer main cost for each Local Water Utility (LWU) in 4 groups based on the number of connected properties served – over 10,000, 4,001 to 10,000, 1,501 to 4,000 and 200 to 1,500. Each white bar represents one LWU. As an example, for the second graph (property range from 4,001 to 10,000), the 2015-16 sewer main cost for the 20 LWUs shown ranges from $27 to $131 per connected property. Results for the previous 5 years are also shown.
2. The Statewide median sewer main cost is $51 per connected property. Refer also to note 38 of section 5.4.3 and Table 18.
3. For general notes see section 6.

10. TABLES

Table 1: NSW water supply statewide performance indicators 2015-16

NWI No.	NSW No.	UTILITY CHARACTERISTICS	NSW Percentiles (% of properties)[1,4] 20% (1)	50% Median (2)	80% (3)	National Median[2] (4)	NSW Percentiles (% of LWUs)[3,4] 20% (5)	40% (6)	50% Median (7)	60% (8)	80% (9)
	3	Residential connected properties (% of total)	95	91	89		92	90	88	87	85
	4	New Residential Dwellings Connected to Water Supply (%)	1.7	1.0	0.8		1.5	1.0	0.8	0.7	0.3
A3	5	Properties Served per km of Main	51	33	23	34	34	28	25	23	18
	6	Rainfall (% of average annual rainfall)	118	104	91		121	106	100	97	90
W11	7	Total Urban Water Supplied (at Master Meters - ML)	29,000	6,900	3,100	9,770	5,700	3,100	2,600	1,800	900
	8	Peak Week to Average Consumption (%)	121	142	168		129	148	151	168	184
	9	Renewals Expenditure (% of current replacement cost of system assets)	1.4	0.6	0.3		1.4	0.8	0.6	0.5	0.3
	10	Employees (employees per 1000 properties)	1.0	1.5	1.9		1.4	1.6	1.8	1.9	2.9
		SOCIAL - Charges/Bills									
P1.3	12a	Residential Water Usage Charge (c/kL for 2015-16)	270	228	163	190	270	215	190	165	110
	12	Residential Water Usage Charge (c/kL for 2016-17)	285	230	170		282	224	194	171	114
P3	14a	Typical Residential Bill ($/assessment for 2015-16)	507	601	695	623	572	627	689	722	813
	14	Typical Residential Bill ($/assessment for 2016-17)	535	625	720		596	637	705	745	843
	15a	Typical Developer Charge ($/equivalent tenement for 2015-16)	9,500	5,900	3,100		8,500	5,900	5,400	4,600	2,900
	15	Typical Developer Charge ($/equivalent tenement for 2016-17)	9,000	5,600	3,100		8,900	6,300	5,400	4,600	2,900
F4	16	Residential Revenue from Usage Charges (% of residential revenue)	76	73	64	66	78	73	71	65	55
F5	17	Revenue per property - Water ($)	1,038	928	773	921	1,216	988	948	915	789
		SOCIAL - Health									
	18	Water Supply Coverage (% of Urban Population with reticulated WS)	99.8	99.2	97.3		99.6	98.3	97.3	96.3	91.8
	19	Physical Water Quality Compliance (%)	100	100	100		100	100	100	100	100
	19a	Chemical Water Quality Compliance (%)	100	100	98.9		100	100	100	100	100
	20	Microbiological (E. coli) Water Quality Compliance (%)	100	100	100		100	100	100	100	100
H3	20a	Percent Population with Microbiological Compliance	100	100	100	100	100	100	100	100	100
		SOCIAL - Levels of Service									
C9	25	Water Quality Complaints (per 1000 properties)	0.0	3	10	1.8	0	1	2	3	5
C10	26	Water Service Complaints (per 1000 properties)	0.5	4	30	0.5	1	3	9	14	35
C17	27	Incidence of unplanned interruptions (per 1000 properties)	10	32	100	90	4	10	15	21	53
C15	28	Average Duration of Interruption (minutes)	120	150	180	112	90	120	120	120	180
A8	30	Number of Main Breaks (per 100 km of main)	5	9	16	13	5	9	13	14	24
	31	Drought Water Restrictions (% of time)	0	0	0		0	0	0	0	25
	32	Total Days Lost (%)	0.4	3.5	5.3		0.0	1.1	2.6	3.5	4.9
		ENVIRONMENTAL									
W12	33	Average Annual Residential Supplied (kL/property)	151	162	248	181	155	186	231	264	501
	33a	Average Annual Residential Supplied - COASTAL (kL/property)	150	155	162		139	151	155	160	169
	33b	Average Annual Residential Supplied - INLAND (kL/property)	173	248	322		186	251	316	408	567
	33c	Peak Day Water Supplied (kL/d/connected property)	0.9	1.4	2.1		1.1	1.5	1.9	2.1	3.1
	33d	Total Urban Recycled Water Supplied (ML)	155	372	461		58	155	186	315	459
A10	34	Real Loss (leakage) (L/service connection/d)	40	70	100	76	50	70	80	90	120
W10.1/C4	34a	Non Revenue Water (NRW) (L/service connection/d)	56	92	133	88	70	102	118	142	210
	35	Energy Consumption (kWh/ML)	380	660	750		250	400	460	540	750
	36	Renewable Energy Consumption (% of Total Energy)	0	0	0		0	0	0	0	0
E12	36a	Net Greenhouse Gas Emissions - WS & Sge (net tonnes CO2 equivalents/1000 pro	330	390	450	402	230	330	370	400	470
		ECONOMIC - Financial									
	42	Current Replacement Cost per Assessment - Water ($)	20,100	17,400	13,000		20,300	18,500	17,400	16,700	13,000
F17	43	Economic Real Rate of Return - Water (%)	3.5	2.3	1.0	2.8	3.1	2.3	1.8	1.3	0.4
	44	Return on Assets - Water (%)	4.0	1.7	0.8		3.7	1.8	1.6	1.1	0.6
	44b	Ratio of OMA to Rates and Charges Revenue (%)	0.50	0.56	0.68		0.52	0.62	0.66	0.68	0.76
F9/C4	44a	Written Down Replacement Cost - Water ($/property)	14,200	10,700	7,900	9,140	13,500	10,900	10,200	9,500	7,700
F22	45	Net Debt to Equity - WS & Sge (%)	11	-3	-9	7	2	-5	-8	-10	-17
F23	46	Interest Cover - WS & Sge	>100	34	2	2	8	4	3	2	0
	47	Loan Payment - Water ($/property)	139	11	0		56	15	7	0	0
F30	47a	Net Profit After Tax Ratio - WS & Sge (%)	30	17	4	13	27	17	12	11	0
F24	47b	Net Profit After Tax - WS & Sge ($'000)	15,480	3,800	390	9,300	4,470	1,190	780	470	0
		ECONOMIC - Efficiency									
	48	Operating Cost (OMA) per 100 km of Main ($'000)	780	1,120	1,560		930	1,080	1,120	1,420	1,650
F11	49	Operating Cost (OMA) per property ($/property)	320	440	600	485	420	520	560	600	700
	50	Operating Cost (OMA) per kL (c/kL)	85	120	173		76	96	112	129	191
	51	Management Cost ($/property)	123	148	193		93	143	155	170	235
	52	Treatment Cost ($/property)	38	59	133		39	74	111	133	197
	53	Pumping Cost ($/property)	8	28	60		15	43	51	66	116
	54	Energy Cost ($/property)	5	17	53		7	19	36	44	62
	55	Water Main Cost ($/property)	47	71	105		57	71	89	95	140
F28	56	Capital Expenditure - Water Supply ($/property)	328	212	108	193	443	243	205	149	94

Notes:

1. Columns 1 to 3 above show the NSW performance indicator Statewide Percentiles calculated on a percentage of connected properties basis. This best reveals statewide performance by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
2. Column 4 shows the National Medians from the *National Performance Report 2015-16* (*NPR*). The *NPR* reports the performance indicators for 75 Australian urban water utilities providing reticulated water supply services to >10,000 properties [Note 14 of section 6]. The 7 bulk supply utilities are excluded.
3. Columns 5 to 9 above show the NSW performance indicator Statewide Percentiles calculated on a percentage of LWUs basis. To compare the performance of one LWU with other LWUs, the calculation of percentiles on a percentage of LWUs basis is the most appropriate.
4. 20% is the top 20% of properties, 40% is the top 40% of properties, 50% Median is the median of properties (Statewide), 60% is the bottom 40% of properties and 80% is the bottom 20% of properties.

Table 2: NSW sewerage statewide performance indicators 2015-16

NWI No.	NSW No.	UTILITY CHARACTERISTICS	NSW Percentiles (% of properties)[1,4] 20% (1)	50% Median (2)	80% (3)	National Median[2] (4)	NSW Percentiles (% of LWUs)[3,4] 20% (5)	40% (6)	50% Median (7)	60% (8)	80% (9)
	3	Residential connected properties (% of total)	96	93	90		93	91	89	88	86
	4	New Residential Dwellings Connected to Sewerage (%)	2.0	1.2	0.8		1.8	1.0	0.7	0.5	0.3
A6	5	Properties Served per km of Main	45	38	33	40	39	35	34	33	29
W18	6	Volume of Sewage Collected (ML)	33,400	4,900	1,400	5,610	3,300	1,100	800	500	300
	7	Renewals Expenditure (% of current replacement cost of system assets)	0.9	0.5	0.3		1.6	0.8	0.5	0.5	0.3
	8	Employees (per 1000 properties)	1.0	1.7	2.0		1.2	1.6	1.8	1.9	2.4
		SOCIAL - Charges/Bills									
P4.1	11a	Residential Access Charge ($/assessment for 2015-16)	519	697	804	641	473	518	595	664	777
	11	Residential Access Charge ($/assessment for 2016-17)	543	718	806		490	540	609	686	804
P6	12a	Typical Residential Bill ($/assessment for 2015-16)	519	697	806	703	473	518	595	664	777
	12	Typical Residential Bill ($/assessment for 2016-17)	543	718	828		490	540	609	686	804
	13a	Typical Developer Charge ($/equivalent tenement for 2015-16)	9,500	4,500	3,500		7,200	4,600	4,100	3,700	2,000
	13	Typical Developer Charge ($/equivalent tenement for 2016-17)	8,500	4,700	3,500		7,500	4,700	4,200	3,700	2,000
	14	Non-residential sewer usage charge (c/kL)	245	159	85		234	185	160	150	111
F6	15	Revenue per property - Sge ($)	1,264	1,095	728	1,032	1,095	815	741	683	560
		SOCIAL - Health									
	16	Sewerage Coverage (% of Urban Population with Reticulated Sge Service)	99.8	97.8	94.3		98	96	94	92	88
E3	17	Percent of sewage treated to a tertiary level (%)	100	94.6	15.4	85	100	100	96	93	74
	18	Percent of sewage volume treated that was compliant (%)	100	100	87		100	100	99	94	75
		SOCIAL - Levels of Service									
	21	Odour Complaints (per 1000 properties)	0.0	0.9	1.8		0.0	0.0	0.0	0.5	1.1
C11	22	Sewerage Service Complaints (per 1000 properties)	1	5	19	0.9	2	9	13	16	33
C16	23a	Average Sewerage Interruption (min)	60	108	180	101	60	90	95	115	120
	25	Total Days Lost	0.0	3.5	5.3		0.0	0.3	1.2	2.2	4.4
		ENVIRONMENTAL									
W19	26	Volume of Sewage Collected per property (kL)	250	234	195	202	250	221	204	193	171
W26	26a	Total recycled water supplied (ML)	1,730	740	100	1,580	630	200	80	50	0
W27	27	Recycled Water (% of effluent recycled)	42	11	3	17	42	16	10	4	0
E8	28	Biosolids Reuse (%)	100	100	0	90	100	0	0	0	0
	30	Energy Consumption - sewerage (kWh/ML)	680	810	1,090		400	620	690	770	970
	31	Renewable Energy Consumption (% of total energy consumption)	0	0	0		0	0	0	0	0
E12	32	Net Greenhouse Gas Emissions - WS & Sge (net tonnes CO2 equivalents/1000 pro	330	390	450	402	230	330	370	400	470
	33	90th Percentile Licence Limits for Effluent Discharge: BOD 20 mg/L; SS 30 mg/L; Total N 15 mg/L; Total P 1 mg/L									
	34	Compliance with BOD in Licence (%)	100	100	100		100	100	100	100	100
	35	Compliance with SS in Licence (%)	100	100	99		100	100	100	100	96
A14	36	Sewerage Main Breaks and Chokes (per 100 km of main)	13	38	65	20	12	23	29	41	68
	37a	Sewer Overflows (per 100 km of main)	2	14	30		0	2	5	8	25
E13	37b	Sewer Overflows Reported to Environmental Regulator (per 100 km of main)	0.0	0.9	3.0	0.8	0.0	0.0	0.0	0.5	1.6
	39	Non-residential percentage of sewage collected (%)	30	20	14		28	21	17	14	9
		ECONOMIC - Financial									
	43	Revenue from Non-residential and Trade Waste Charges (% of total rates & charge	26	19	15		26	22	20	18	12
	44	Revenue from Trade Waste Charges (% of total rates & charges)	3	1	0		3	2	1	0	0
	45	Current Replacement Cost of Fixed Sewerage Assets ($/assessment)	22,000	15,400	14,200		18,400	15,600	15,100	14,400	12,600
F18	46	Economic Real Rate of Return - sewerage (%)	4.3	2.5	1.0	2.9	3.1	1.7	1.3	1.1	0.0
	46a	Return on Assets - sewerage (%)	3.6	1.8	0.6		3.0	1.8	1.4	1.0	0.3
	46c	Ratio of OMA to Rates and Charges Revenue (%)	0.48	0.54	0.62		0.51	0.56	0.57	0.60	0.70
F10/C8	46b	Written Down Replacement Cost - sewerage ($/property)	15,500	11,200	8,400	9,240	12,700	9,800	9,500	8,400	7,400
F22	47	Net Debt to Equity - WS & Sge (%)	11	-3	-9	7	2	-5	-8	-10	-17
F23	48	Interest Cover - WS & Sge	>100	34	2	2	8	4	3	2	0
	48a	Loan Payment - sewerage ($/property)	158	83	10		91	29	6	0	0
F24	48b	Net Profit After Tax - WS & Sge ($'000)	15,480	3,800	390	9,300	4,470	1,190	780	470	0
		ECONOMIC - Efficiency									
	49	Operating Cost - sewerage (OMA) per 100 km of Main ($'000)	1,400	1,700	2,180		1,040	1,310	1,410	1,570	1,840
F12	50	Operating Cost - sewerage (OMA) per property ($/property)	390	470	530	429	330	400	440	470	510
	51	Operating Cost - sewerage (OMA) per kL (c/kL)	153	208	258		141	184	202	213	261
	52	Management Cost - sewerage ($/property)	121	164	191		66	128	154	168	206
	53	Treatment Cost - sewerage ($/property)	120	159	200		92	131	152	164	197
	54	Pumping Cost - sewerage ($/property)	28	59	88		27	42	57	70	88
	55	Energy Cost - sewerage ($/property)	25	34	50		15	26	29	31	44
	56	Sewer Main Cost ($/property)	30	51	71		30	47	53	61	78
F29	57	Capital Expenditure - sewerage ($/property)	314	186	128	212	303	207	153	127	47

Notes:

1. Columns 1 to 3 above show the NSW performance indicator Statewide Percentiles calculated on a percentage of connected properties basis. This best reveals statewide performance by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
2. Column 4 shows the National Medians from the *National Performance Report 2015-16* (*NPR*). The *NPR* reports the performance indicators for 74 Australian urban water utilities providing reticulated sewerage services to >10,000 properties [Note 14 of section 6].
3. Columns 5 to 9 above show the NSW performance indicator Statewide Percentiles calculated on a percentage of LWUs basis. To compare the performance of one LWU with other LWUs, the calculation of percentiles on a percentage of LWUs basis is the most appropriate.
4. 20% is the top 20% of properties, 40% is the top 40% of properties, 50% Median is the median of properties (Statewide), 60% is the bottom 40% of properties and 80% is the bottom 20% of properties.

Table 2A: NSW water supply and sewerage statewide performance indicators 2015-16

NWI No.	NSW No.	UTILITY CHARACTERISTICS	NSW Percentiles (% of properties)[1,4] 20% (1)	50% Median (2)	80% (3)	National Median[2] (4)	NSW Percentiles (% of LWUs)[3,4] 20% (5)	40% (6)	50% Median (7)	60% (8)	80% (9)
	1	Employees - WS & Sge (employees per 1000 properties)	2.0	3.2	3.9		3.0	3.0	4.0	4.0	5.0
		SOCIAL - Charges/Bills									
P8	2	Typical Residential Bill - WS & Sge ($/assessment for 2015-16)	1,026	1,298	1,501	1,390	1,045	1,145	1,284	1,386	1,590
	2a	Typical Residential Bill - WS & Sge ($/assessment for 2016-17)	1,078	1,343	1,548		1,086	1,177	1,314	1,431	1,647
	3	Typical Developer Charge - WS & Sge ($/equivalent tenement for 2015-16)	19,000	10,400	6,600		15,700	10,500	9,500	8,300	4,900
	3a	Typical Developer Charge - WS & Sge ($/equivalent tenement for 2016-17)	17,500	10,300	6,600		16,400	11,000	9,600	8,300	4,900
		SOCIAL - Levels of Service									
C12	4	Billing and account complaints - WS & Sge (per 1000 properties)	0.3	0.6	2.2	0.3	0.5	1.4	2.0	2.9	7.8
C13	5	Total Water and Sewerage complaints (no. per 1000 properties)	3	26	50	5	7	19	28	42	81
C18	6	Customer Restrictions for Non Payment of Bill - WS & Sge (per 1000 properties)	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	1.0
		ENVIRONMENTAL									
E12	7	Net Greenhouse Gas Emissions - WS & Sge (net tonnes CO2 equivalents/1000 pro	330	390	450	402	230	330	370	400	470
		ECONOMIC - Financial									
F1+F2	8	Total Revenue - WS & Sge ($'000)	75,200	37,000	12,000	54,900	29,000	10,200	7,300	4,900	2,600
F3	9	Total income for whole of utility- WS & Sge ($'000)	70,300	38,000	12,100	61,500	30,100	10,500	7,300	4,600	2,900
F5+F6	10	Total Revenue per property - WS & Sge ($/property)	2,300	2,020	1,500	1,950	2,310	1,800	1,690	1,600	1,350
F7	11	Total income for whole of utility - WS & Sge ($/property)	2,130	1,890	1,620	1,840	2,020	1,830	1,720	1,630	1,480
F8	12	Revenue from Community Service Obligations (%)	1.4	1.0	0.9	1.6	1.5	1.2	1.0	1.0	0.8
	13	Current Replacement Cost per Assessment - WS & Sge ($)	42,100	32,800	27,200		38,700	34,100	32,500	31,100	25,600
F19	14	Economic Real Rate of Return - WS & Sge (%)	3.7	1.8	1.4	2.6	2.9	1.8	1.6	1.4	0.4
	15	Return on Assets - WS & Sge (%)	3.6	1.8	0.6		3.2	2.1	1.5	1.1	0.3
	15a	Ratio of OMA to Rates and Charges Revenue (%)	0.51	0.55	0.64		0.53	0.60	0.62	0.64	0.70
F22	16	Net Debt to Equity - WS & Sge(%)	11	-3	-9	7	2	-5	-8	-10	-17
F23	17	Interest Cover - WS & Sge	>100	34	2	2.3	8	4	3	2	0
F24	18	Net Profit After Tax (NPAT) - WS & Sge ($'000)	15,480	3,800	390	9,300	4,470	1,190	780	470	0
F30	19	NPAT Ratio - WS & Sge (%)	30	17	4	13	27	17	12	11	0
		ECONOMIC - Efficiency									
F13	20	Operating Cost - WS & Sge (OMA) ($/property)	710	910	1,130	926	750	920	1,000	1,070	1,210
	21	Management Cost ($/property)	244	312	384		159	271	309	338	441
F16	22	Capital Expenditure - WS & Sge ($'000)	18,300	8,300	3,400	14,000	6,400	3,400	2,000	1,100	700
F28+F29	23	Capital Expenditure - WS & Sge ($/prop)	642	398	236	405	746	450	358	276	141

Notes

1. Columns 1 to 3 above show the NSW performance indicator Statewide Percentiles calculated on a percentage of connected properties basis. This best reveals statewide performance by giving due weight to larger LWUs and reducing the effect of smaller LWUs.
2. Column 4 shows the National Medians from the *National Performance Report 2015-16* (*NPR*). The *NPR* reports the performance indicators for 70 Australian urban water utilities providing reticulated water supply and sewerage services to >10,000 properties [Note 14 of section 6].
3. Columns 5 to 9 above show the NSW performance indicator Statewide Percentiles calculated on a percentage of LWUs basis. To compare the performance of one LWU with other LWUs, the calculation of percentiles on a percentage of LWUs basis is the most appropriate.
4. 20% is the top 20% of properties, 40% is the top 40% of properties, 50% Median is the median of properties (Statewide), 60% is the bottom 40% of properties and 80% is the bottom 20% of properties.
5. Bulk supply utilities and single service utilities are excluded.

Table 3: 2015-16 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: Complete Current 20 to 30-year SBP & FP (Yes/No)	(2) Pricing and Developer Charges (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	(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: Complete Current 20 to 30-year SBP & FP (Yes/No)	(2) Pricing and Developer Charges (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	(4) Integrated Water Cycle Management Strategy Commenced (Yes/No)	(7) Overall implementation of all 9 requirements (Note 3) (%)	(8) Proposed Dividend from Surplus $'000
	LWUs with >10,000 Properties																				
112	Central Coast	165.0	Yes	Yes*	Yes	Yes*	Yes	Yes	Yes*	100		Yes	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100	
3	Shoalhaven	70.2	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	1,443	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	1,276
4	Rous (Bulk Supplier) (NO SGE)	26.6	Yes*	Yes				Yes	Yes*	100											
5	MidCoast	77.2	Yes*	Yes	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
6	Tweed	66.8	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
7	Port Macquarie-Hastings (Unfiltered)	71.2	Yes	Yes	Yes	Yes*	Yes	Yes	Yes*	100	870	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
8	Riverina (Groundwater) (NO SGE)	32.8	Yes	Yes	Yes	Yes		Yes	Yes*	90											
9	Wagga Wagga (NO WS)	18.6										Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
11	Albury City	42.4	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
10	Coffs Harbour	53.4	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	Yes*	100	
13	Tamworth Regional	46.2	Yes*	Yes	Yes		Yes	Yes	Yes*	90	66	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	60
14	Clarence Valley	35.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
122	Dubbo Regional	39.2	Yes	Yes	Yes	Yes*	Yes	Yes	Yes*	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
119	Queanbeyan-Palerang (Reticulator)	33.3	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
15	Eurobodalla	40.2	Yes*	Yes	Yes	Yes**	Yes	Yes	Yes	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100	531
12	Fish River WS (Bulk Supplier, No Sge)	10.0		Yes*						67											
16	Wingecarribee	38.9	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
19	Orange	30.4	Yes*	Yes	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
21	Bathurst Regional	27.4	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
23	Bega Valley (Unfiltered)	28.7	Yes*	Yes*	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
24	Ballina (Reticulator)	30.1	Yes*	Yes	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
22	Lismore (Reticulator)	25.9	Yes*	Yes	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes		Yes	Yes	Yes*	Yes*	89	
25	Kempsey (Groundwater)	21.1	Yes*	Yes	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
27	Byron (Reticulator)	29.0	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
20	Goulburn Mulwaree	22.1	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
26	Essential Energy	31.2	Yes*	Yes*	Yes	Yes*	Yes	Yese	Yes*	100		Yes*	Yes*	Yes	Yes	Yes	Yese	Yes*	Yes*	100	
28A	Goldenfields (Reticulator) (NO SGE)	15.3	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100											
28B	Goldenfields (Bulk) (NO SGE)	6.0	Yes*	Yes				Yes	Yes*	100											
	% of LWUs 'Yes' (>10,000 connected properties)		96%	100%	100%	71%	96%	96%	96%	96%	Overall	100%	100%	100%	96%	100%	100%	100%	100%	100%	Overall
	LWUs with 4,001 - 10,000 Properties																				
111	Armidale Regional	15.1	Yes*	Yes	Yes	Yes*		Yes	Yes*	90		Yes*	Yes	Yes		Yes	Yes	Yes*	Yes*	89	
120	Snowy Monaro Regional (Unfiltered)	15.0	Yes*	Yes	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
30	Griffith	18.3	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
31	Lithgow	14.3	Yes	Yes	Yes	Yes	Yes		Yes*	90		Yes	Yes	Yes	Yes	Yes		Yes	Yes*	89	
32	Mid-Western Regional	13.2	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes		Yes		Yes*	78	
30A	Hawkesbury (NO WS)	6.8										Yes*	Yes*	Yes	Yes*	Yes	Yes*	Yes	Yes*	100	
116	Hilltops (Reticulator)	11.3	Yes	Yes	Yes		Yes	Yes	Yes*	90		Yes	Yes	Yes		Yes	Yes	Yes	Yes*	89	
33	Richmond Valley	13.2	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
35	Singleton	11.8	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	194	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	177
34	Nambucca (Groundwater)	10.4	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100	180	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
36	Parkes	12.2	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
41	Muswellbrook	9.5	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
37	Inverell	7.3	Yes*	Yes	Yes			Yes		70		Yes*	Yes	Yes			Yes			56	
121	Snowy Valleys	7.4	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
114	Federation	8.1	Yes*	Yes	Yes	Yes	Yes	Yes*	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes*	Yes	Yes*	100	
40	Central Tablelands (NO SGE)	5.7	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes+	100											
39	Cowra	10.5	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
38	Moree Plains (Groundwater)	10.3	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100	142	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	102
117	Murray River (Dual Supply)	6.5	Yes*	Yes	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
45	Upper Hunter	8.0	Yes*	Yes	Yes	Yes*	Yes	Yes	Yes*	100	15	Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	14

Table 3: 2015-16 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: Complete Current 20 to 30-year SBP & FP (Yes/No)	(2) Pricing and Developer Charges (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	(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: Complete Current 20 to 30-year SBP & FP (Yes/No)	(2) Pricing and Developer Charges (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	(4) Integrated Water Cycle Management Strategy Commenced (Yes/No)	(7) Overall implementation of all 9 requirements (Note 3) (%)	(8) Proposed Dividend from Surplus $'000
46	Narrabri (Groundwater)	7.2	Yes*	Yes	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes		Yes	Yes	Yes	Yes*	89	
44	Gunnedah (Groundwater)	8.2	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	Yes*	100	
47	Bellingen (Unfiltered)	5.5	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
48	Leeton	6.8	Yes*	Yes	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
% of LWUs 'Yes' (4,001 - 10,000 connected properties)			100%	100%	100%	74%	91%	96%	96%	96%	Overall	100%	100%	100%	83%	91%	96%	91%	96%	95%	Overall
LWUs with 1,501 - 4,000 Properties																					
115	Cootamundra-Gundagai (Reticulator)	5.1	Yes*	Yes	Yes		Yes	Yes		80		Yes*	Yes	Yes	Yes	Yes	Yes	Yes		89	
51	Forbes	6.0	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
53	Berrigan (Dual Supply)	5.3	Yes*	Yes	Yes			Yes	Yes*	80		Yes*	Yes	Yes			Yes		Yes*	67	
54	Edward River	5.1	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
55	Warrumbungle	4.6	Yes	Yes	Yes	Yes			Yes*	80		Yes		Yes	Yes	Yes		Yes	Yes*	78	
56	Yass Valley	8.7	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
60	Glen Innes Severn	3.5	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
59	Lachlan	5.0	Yes*	Yes	Yes	Yes	Yes	Yes*	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes*	Yes	Yes*	100	
61	Liverpool Plains	4.4		Yes	Yes		Yes	Yes	Yes*	80			Yes	Yes	Yes	Yes	Yes	Yes	Yes*	89	
74	Wentworth (Dual Supply)	3.9	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes		Yes	Yes	Yes	Yes*	89	
67	Cobar	4.1	Yes*	Yes	Yes	Yes	Yes	Yes	Yes+	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes+	100	
66	Cobar WB	3.3	Yes	Yes*						43											
69	Temora (NO WS)	0.8										Yes*	Yes	Yes	Yes					56	
62	Narromine (Groundwater)	2.9	Yes*	Yes	Yes	Yes	Yes	Yes	Yes+	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes+	100	
63	Narrandera (Groundwater)	3.0	Yes*	Yes	Yes	Yes	Yes		Yes*	90		Yes*	Yes	Yes	Yes			Yes	Yes*	78	
68	Tenterfield	3.6	Yes	Yes	Yes	Yes	Yes	Yes	Yes+	100		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes+	100	
73	Upper Lachlan	3.3	Yes	Yes	Yes	Yes		Yes	Yes*	90		Yes	Yes	Yes	Yes		Yes	Yes	Yes*	89	
78	Blayney (NO WS)	1.3										Yes*		Yes	Yes	Yes	Yes*	Yes	Yes+	89	
79	Walgett (Dual Supply)	2.8		Yes*	Yes		Yes		Yes*	70			Yes	Yes				Yes	Yes*	56	
70	Kyogle	3.0	Yes*	Yes	Yes		Yes	Yes	Yes*	90		Yes*	Yes	Yes	Yes	Yes	Yese	Yes	Yes*	100	
80	Greater Hume	3.5	Yes*	Yes	Yes	Yes	Yes	Yes	Yes*	100		Yes*	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
72	Bland (NO WS)	1.3										Yes*	Yes	Yes		Yes	Yes	Yes		78	
75	Coonamble (Groundwater)	2.1	Yes*	Yes	Yes	Yes	Yes	Yese		90		Yes*	Yes	Yes	Yes		Yese			67	
77	Junee (NO WS)	0.7										Yes*		Yes				Yes		44	
% of LWUs 'Yes' (1,501 - 4,000 connected properties)			90%	100%	95%	70%	80%	80%	85%	89%	Overall	91%	87%	100%	78%	70%	78%	87%	78%	86%	Overall
LWUs with 200 - 1,500 Properties																					
81	Gwydir	2.2	Yes*	Yes	Yes	Yes*	Yes		Yes*	90		Yes*	Yes	Yes	Yes	Yes		Yes	Yes*	89	
85	Uralla	1.6		Yes	Yes	Yes			Yes*	70			Yes	Yes	Yes	Yes			Yes*	67	
87	Bourke (Dual Supply)	2.5	Yes*	Yes*	Yes	Yes	Yes	Yes	Yes+	100		Yes*	Yes	Yes		Yes	Yese	Yes	Yes+	89	
84	Gilgandra (Groundwater)	1.8	Yes*	Yes	Yes	Yes	Yes	Yese		90		Yes*	Yes	Yes	Yes	Yes	Yese	Yes		89	
86	Hay (Dual Supply)	2.0	Yes*	Yes	Yes	Yes		Yese	Yes*	90		Yes*		Yes	Yes		Yese	Yes	Yes*	78	
83	Oberon (Reticulator)	2.8	Yes	Yes	Yes	Yes			Yes*	80		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes*	100	
118	Murrumbidgee (Groundwater)	1.3	Yes*	Yes	Yes	Yes	Yes			70		Yes*	Yes	Yes		Yes		Yes		67	
92	Carrathool (Groundwater)	2.1		Yes	Yes	Yes	Yes			70			Yes	Yes						33	
89	Bogan	3.5	Yes*	Yes	Yes	Yes	Yes	Yese	Yes+	100		Yes*	Yes	Yes	Yes	Yes	Yese	Yes	Yes+	100	
91	Cabonne	3.0	Yes*	Yes	Yes	Yes	Yes	Yes	Yes+	100		Yes*	Yes*	Yes	Yes	Yes	Yes	Yes	Yes+	100	
99	Coolamon (NO WS)	0.5										Yes*	Yes	Yes			Yes			56	
96	Warren (Dual Supply)	1.2	Yes*	Yes*	Yes	Yes		Yese	Yes+	90		Yes*		Yes	Yes	Yes	Yese	Yes	Yes+	89	
95	Weddin (NO WS)	0.5										Yes*	Yes	Yes			Yes*	Yes*	Yes+	78	
98	Walcha	1.0	Yes*	Yes*	Yes	Yes	Yes		Yes*	90		Yes*	Yes	Yes	Yes	Yes		Yes	Yes*	89	
100	Balranald (Dual Supply)	1.3	Yes*	Yes	Yes	Yes	Yes			80		Yes*		Yes	Yes	Yes				56	
102	Lockhart (NO WS)	0.4										Yes	Yes	Yes	Yes	Yes		Yes	Yes+	89	
103	Central Darling (Dual Supply)	0.9		Yes*	Yes	Yes		Yese	Yes*	80			Yes*	Yes	Yes		Yese		Yes*	67	
105	Brewarrina (Dual Supply)	1.5	Yes*	Yes	Yes	Yes	Yes	Yese	Yes+	100		Yes*	Yes	Yes			Yese	Yes	Yes+	78	
% of LWUs 'Yes' (200 - 1,500 connected properties)			80%	100%	100%	100%	67%	53%	73%	87%	Overall	83%	83%	100%	67%	67%	61%	72%	72%	78%	Overall

Table 3: 2015-16 best-practice management implementation

WATER UTILITY (sorted on connected properties)	WATER SUPPLY & SEWERAGE REVENUE ($M)	WATER SUPPLY — IMPLEMENTATION OF BPM OUTCOMES (see Note 1)								
		(1) Strategic Business Plan Complete Current 20 to 30-year SBP & FP *(Yes/No)*	(2) Pricing and Developer Charges (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	(6) Integrated Water Cycle Management Strategy Commenced *(Yes/No)*	(7) Overall implementation of all 10 requirements (Note 2) *(%)*	(8) Proposed Dividend from Surplus $'000
TOTAL 'YES' for large LWUs (>$10M Revenue)[6]	38	39	37	28	35	37	38	26		
% of Large LWUs (39 WS LWUs and 35 SGE LWUs)	97%	100%	100%	72%	90%	95%	97%	67%		
TOTAL 'YES' for remainder of LWUs (<$10M Revenue)[6]	40	45	44	35	35	34	37	21		
% of Small LWUs (45 WS LWUs and 51 SGE LWUs)	89%	100%	100%	78%	78%	76%	82%	47%		
TOTAL 'YES' for all LWUs	78	84	81	63	70	71	75	47		
% all LWUs	93%	100%	100%	78%	86%	85%	89%	56%		

Overall Implementation for all WS Businesses 93%

WATER UTILITY (sorted on connected properties)	WATER SUPPLY & SEWERAGE REVENUE ($M)	SEWERAGE — IMPLEMENTATION OF BPM OUTCOMES (see Note 1)									
		(1) Strategic Business Plan Complete Current 20 to 30-year SBP & FP *(Yes/No)*	(2) Pricing and Developer Charges (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	(4) Integrated Water Cycle Management Strategy Commenced *(Yes/No)*	(7) Overall implementation of all 9 requirements (Note 3) *(%)*	(8) Proposed Dividend from Surplus $'000
TOTAL 'YES' for large LWUs (>$10M Revenue)[6]	35	35	35	32	34	34	34	35	30		
% of Large LWUs (39 WS LWUs and 35 SGE LWUs)	100%	100%	100%	91%	97%	97%	97%	100%	86%		
TOTAL 'YES' for remainder of LWUs (<$10M Revenue)[6]	46	45	51	38	37	39	42	40	22		
% of Small LWUs (45 WS LWUs and 51 SGE LWUs)	90%	88%	100%	75%	73%	76%	82%	78%	43%		
TOTAL 'YES' for all LWUs	81	80	86	70	71	73	76	75	52		
% all LWUs	94%	93%	100%	81%	83%	85%	88%	87%	60%		

Overall Implementation for all SGE Businesses 90%

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: (1), (2a), (2b), (2c), (2d), (2e) and (6) shown in the table above. (3) and (4) are not shown as they form part of the IWCM Strategy. (5) is not shown as all LWUs currently report.

3 There are 9 outcomes which must be implemented for sewerage: (1), (2a), (2b), (2c), (2d), (2e), (2f) and (4) shown in the table above. (3) is not shown as all LWUs currently report.

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 2017 are included in the results reported.

5 As shown above, 1 LWU has completed their 30-year IWCM Strategy, financial plan and report in accordance with the July 2014 IWCM Check List (shown as 'Yes' in columns (6) and (4) above) for water supply and sewerage respectively. 67 LWUs need to complete their IWCM Strategy and are shown as 'Yes*' above. 12 LWUs need to complete the conditions of approval for their IWCM Strategy. The IWCM 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 Central Coast and Essential Energy, whose prices are determined by IPART. Yes** is shown for Eurobodalla which received 'deemed compliance' for its usage charge of $3.52/kL, which is the second highest in NSW. This is due to Eurobodalla having a low average annual residential demand 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 8% 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*. 34 LWUs (72%) with 4,000 or more properties have met this requirement, as have 29 LWUs (85%) 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 the strategic business plan and financial plan for these 69 LWUs are now over 4 years old. Most of these LWUs need 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). Refer to section 4.

9 Yes* for requirement (2a) for water supply or for sewerage indicates that the LWU has significantly increased their 2016/17 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:
96% for LWUs with >10,000 properties; 96% for LWUs with 4,001 - 10,000 properties; 89% for LWUs with 1,501 - 4,000 properties and 87% for LWUs with 200 - 1,500 properties respectively. The overall level of implementation for water supply for all LWUs was 93%.

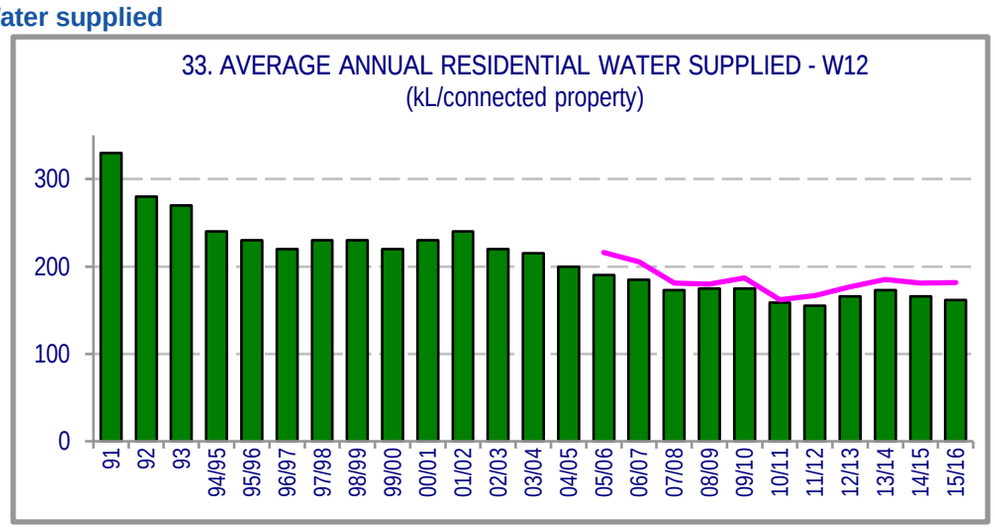
13 As shown above, the overall levels of implementation of the outcomes of the Best-Practice Management Guidelines for sewerage (for all 9 outcomes) were:
100% for LWUs with >10,000 properties; 95% for LWUs with 4,001 - 10,000 properties; 86% for LWUs with 1,501 - 4,000 properties and 78% for LWUs with 200 - 1,500 properties respectively. The overall level of implementation for sewerage for all LWUs was 90%.

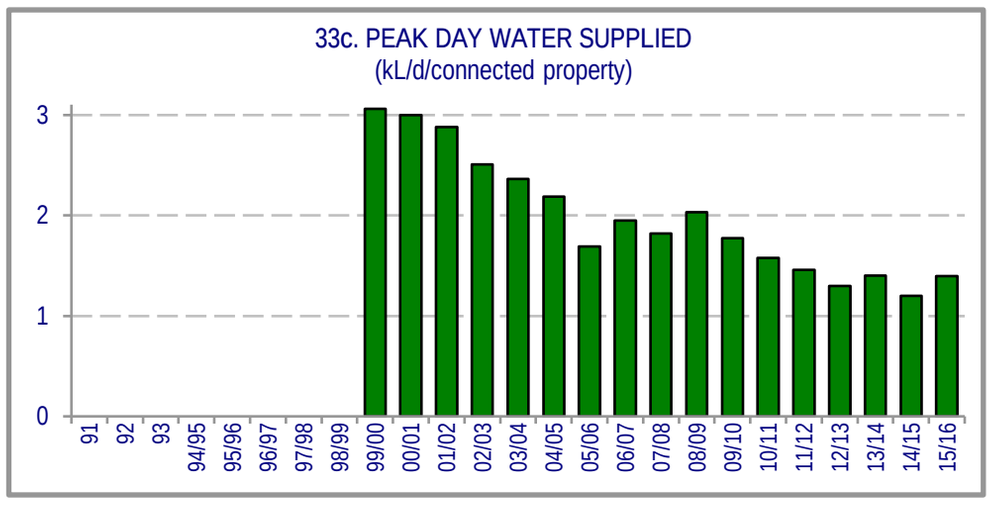
14 The overall implementation of outcomes for water supply and sewerage was 92%.

Table 4: Trends in statewide performance indicators - 1991 to 2015-16

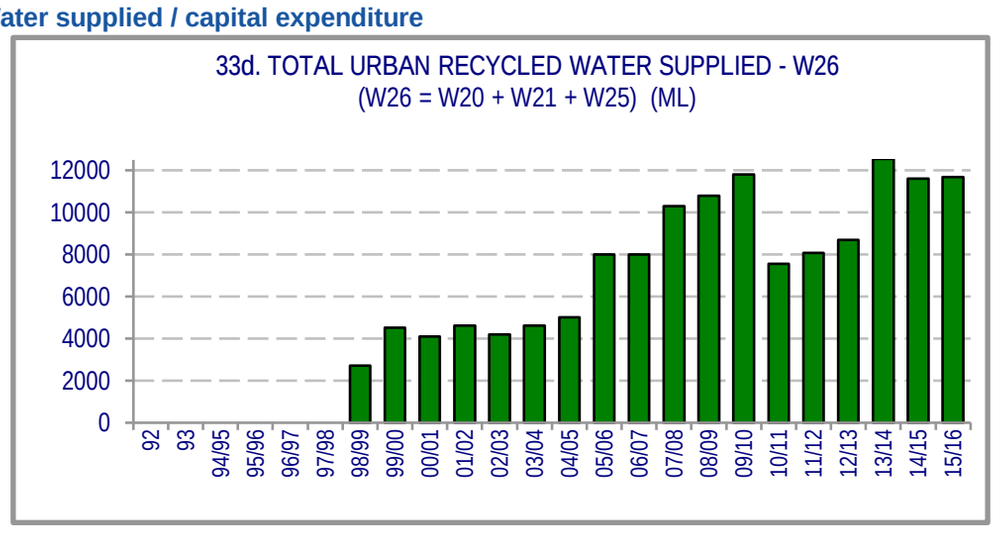
Water supply

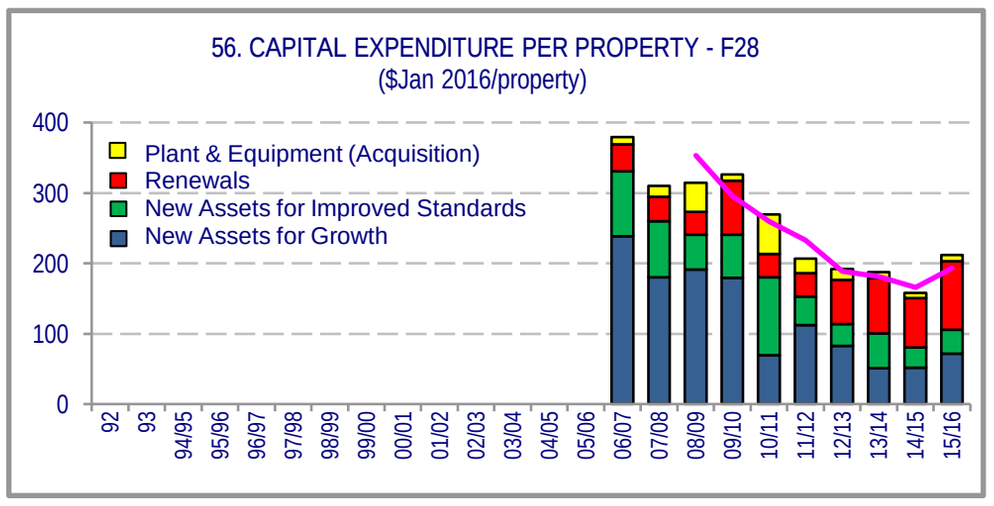
Water supplied



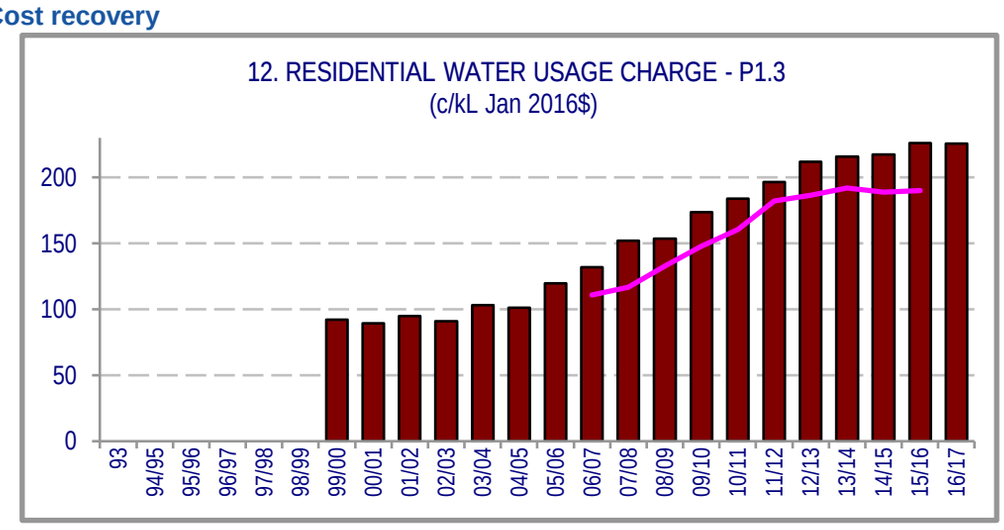


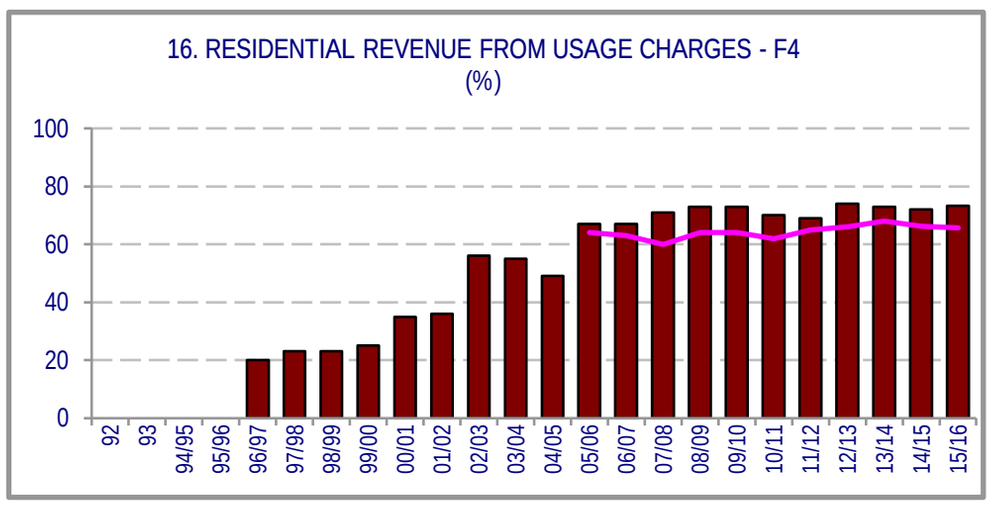
Water supplied / capital expenditure

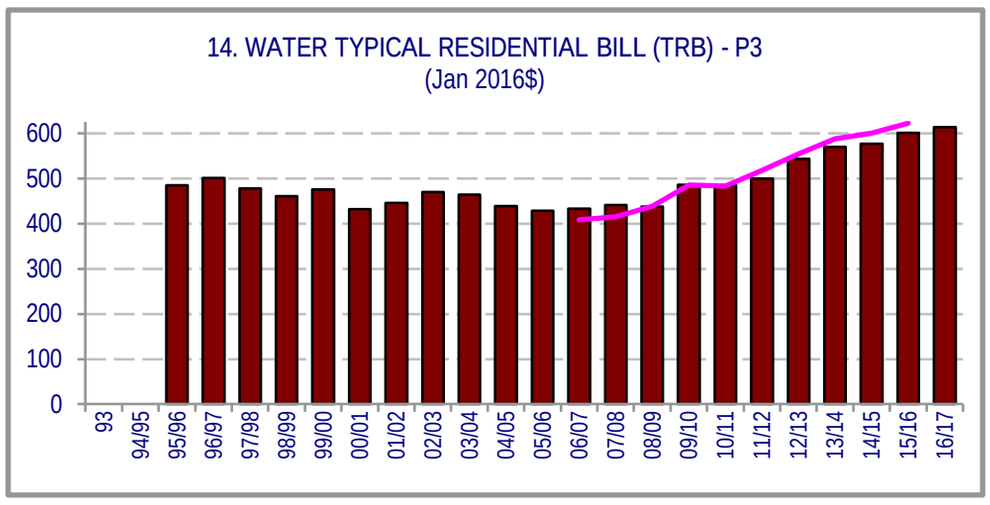


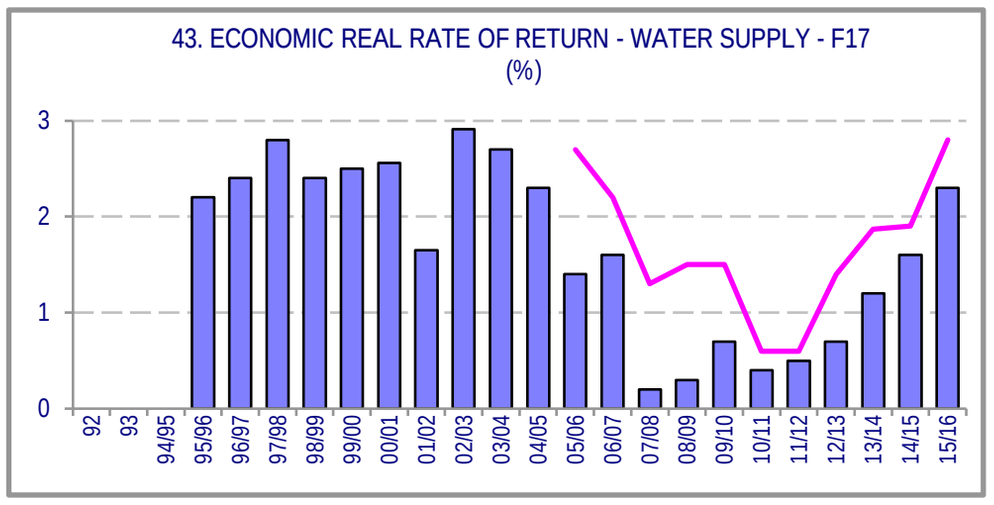


Cost recovery

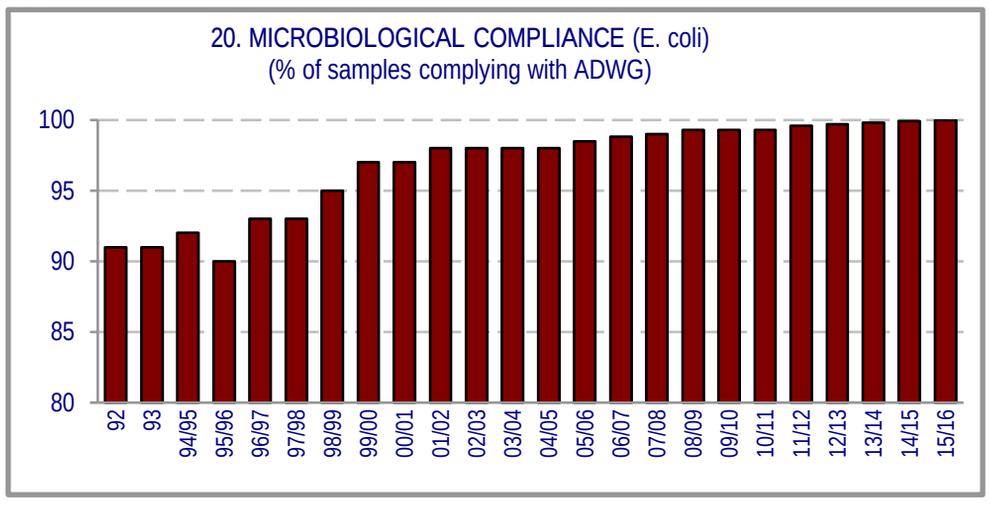


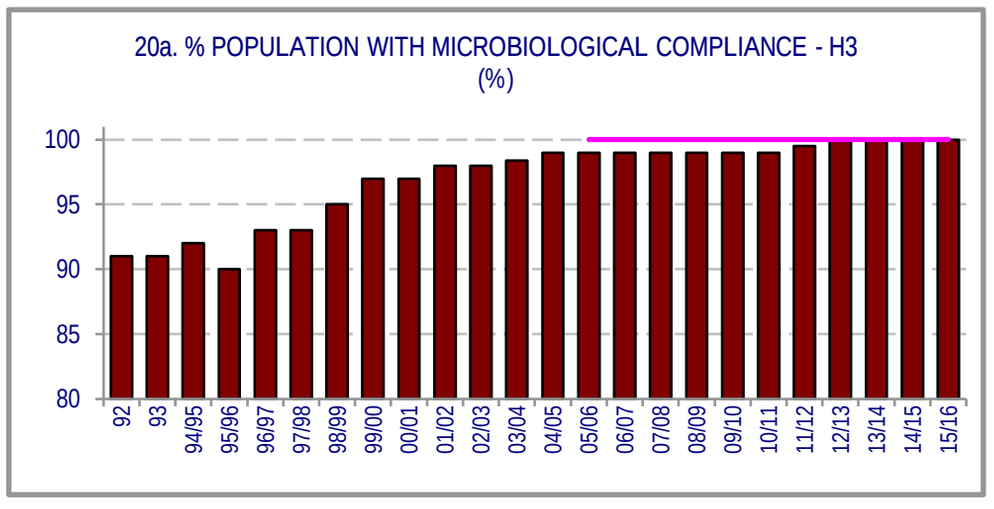






Health





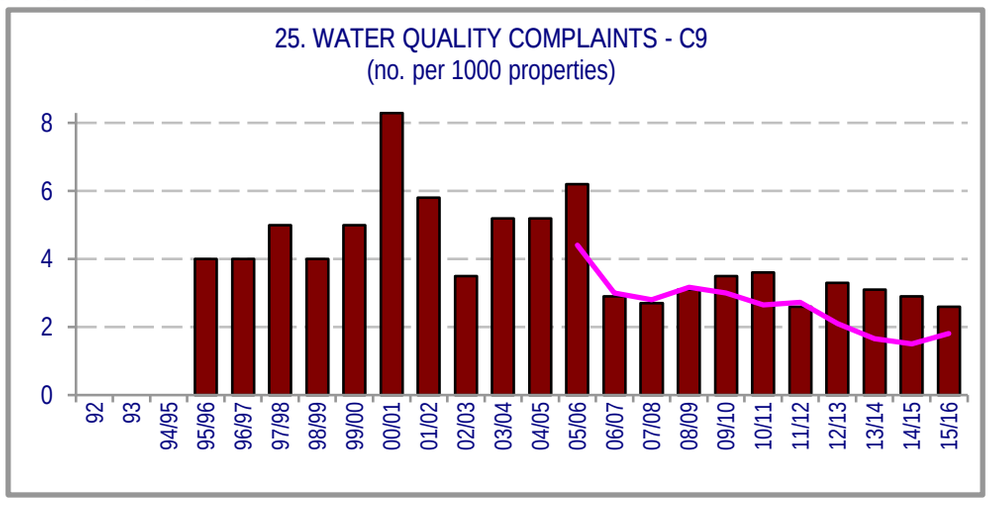
Water Supply Notes:

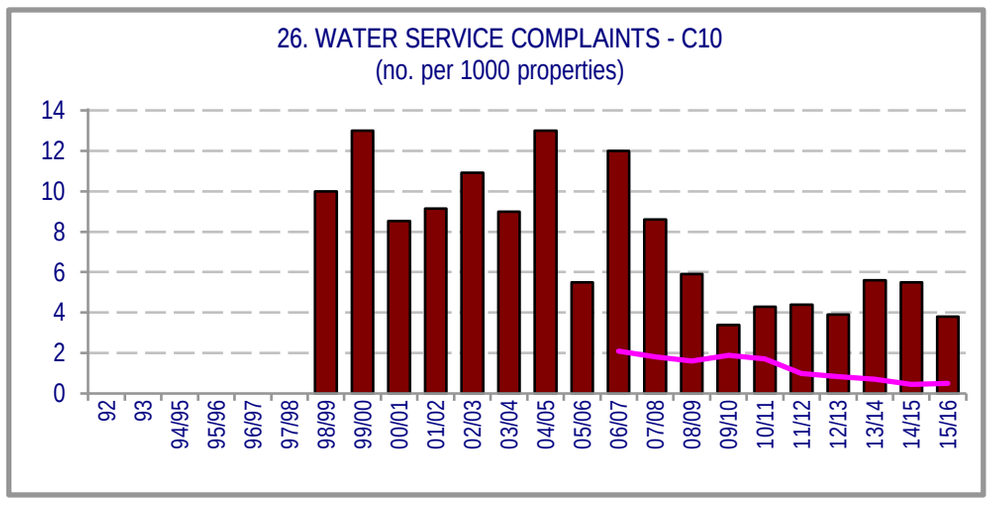
1. Costs are in Jan 2016$.
2. The figure numbers (eg. 33. Average Annual Residential Water Supplied) correspond to the indicator number in the TBL reports and in Table 1.
   Where there is an equivalent NWI indicator (eg. W12), this is shown in the title.
3. The figures show NSW Statewide medians (note 4 of section 6, ie. based on % of connected properties), except for figure 20 which is based on the total number of samples tested, figure 20a which is % of the 1.85m regional NSW population served by a potable water supply, figure 31 which is % of utilities, figure 33d which is total volume of recycled urban water supplied for regional NSW and figures 56, 49 and 49a which pro-rate the breakdown of the median on the basis of each year's expenditure by all LWUs.
4. The National Median for each financial year is the median value of the results published in the National Performance Report for Urban Water Utilities (www.bom.gov.au).

Table 4: Trends in statewide performance indicators - 1991 to 2015-16

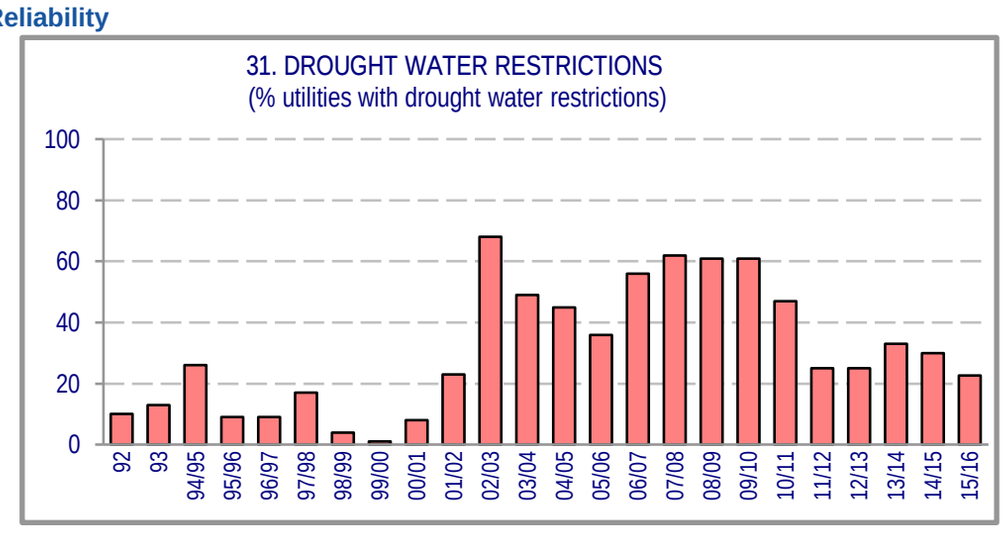
Water supply (continued)

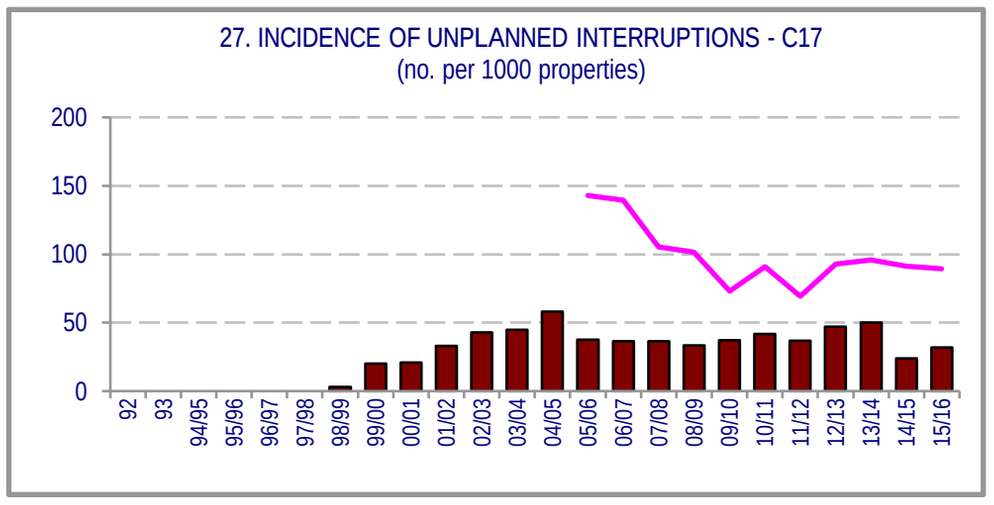
Customer service

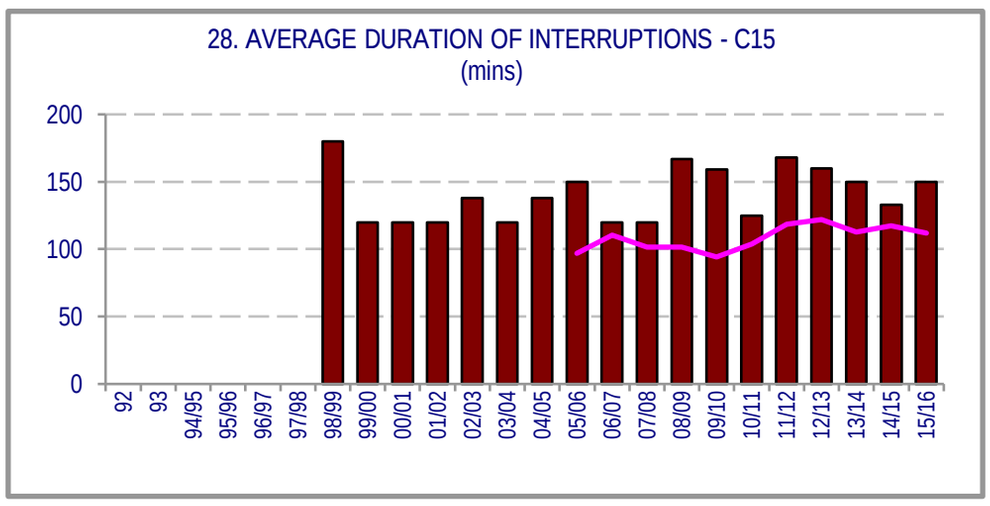


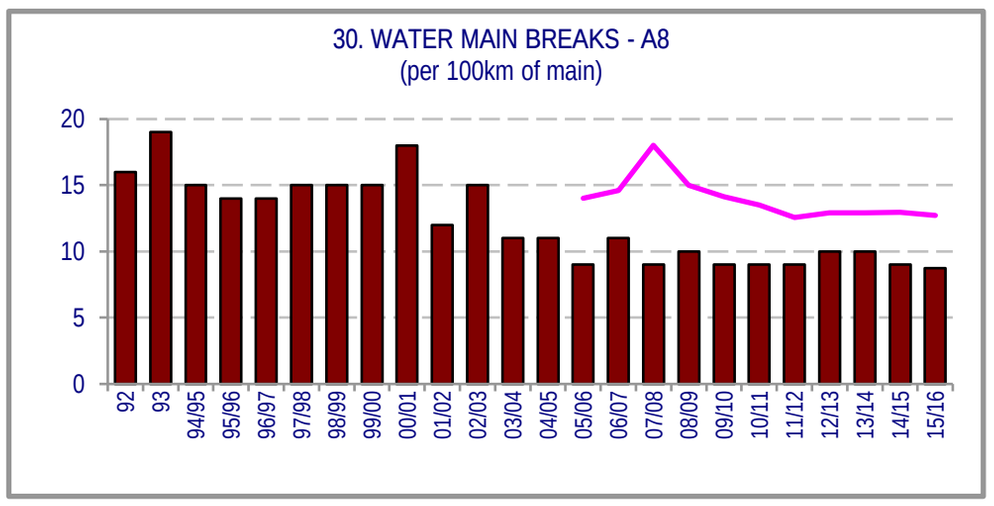


Reliability

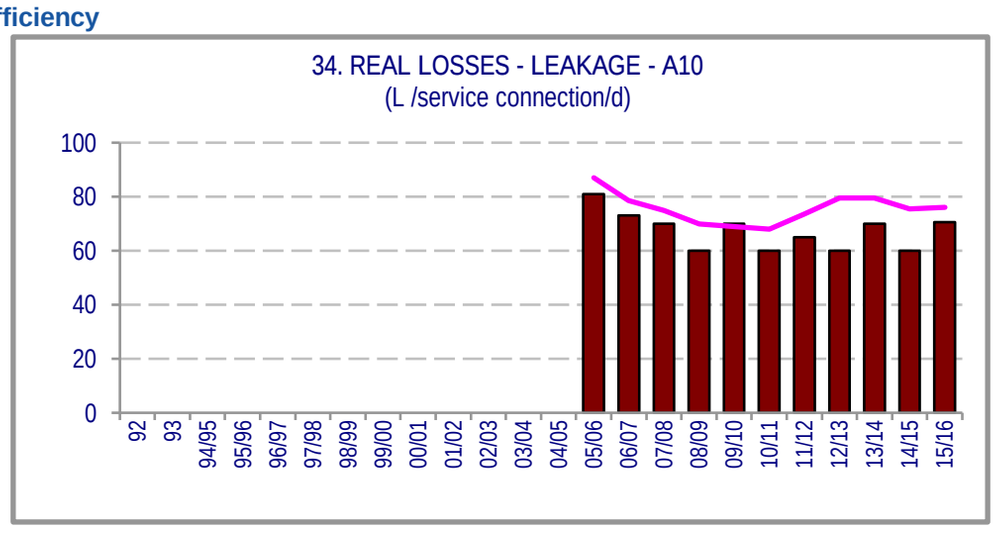


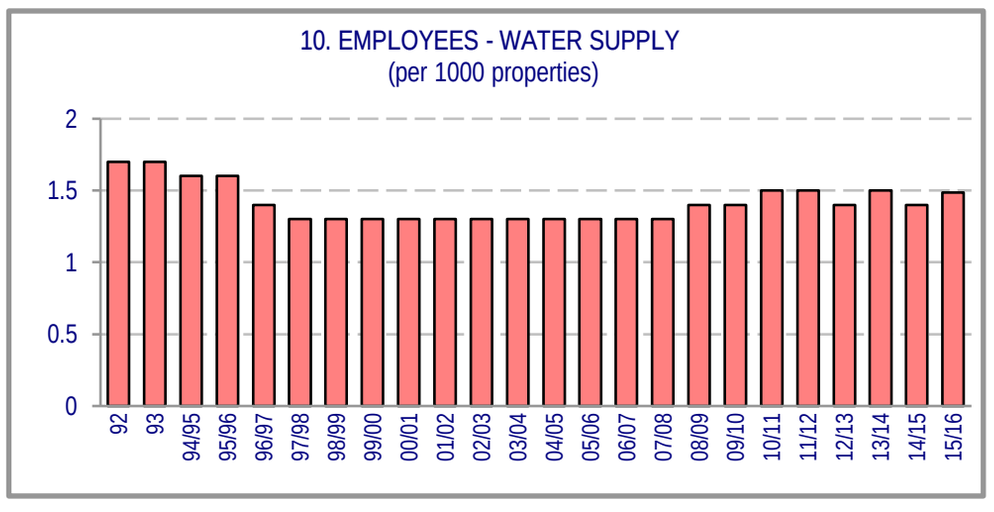


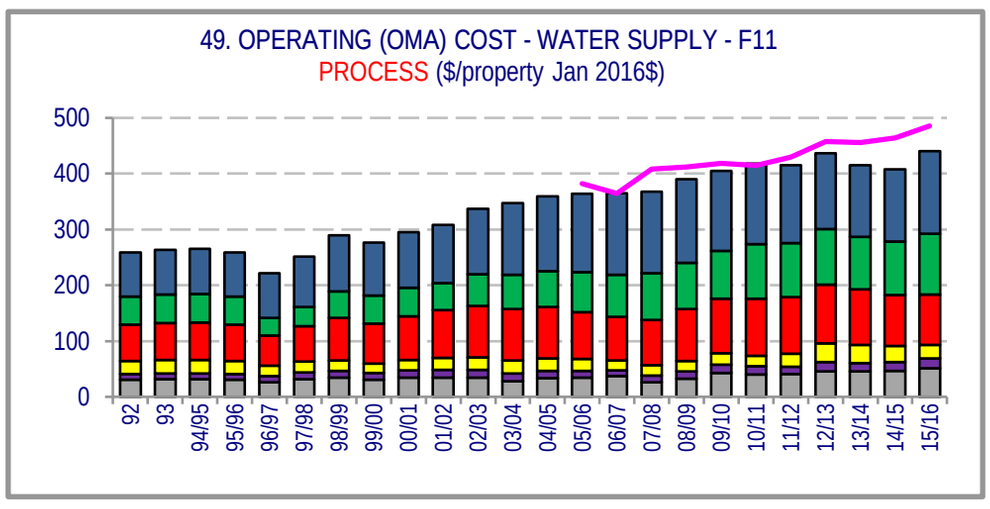




Efficiency







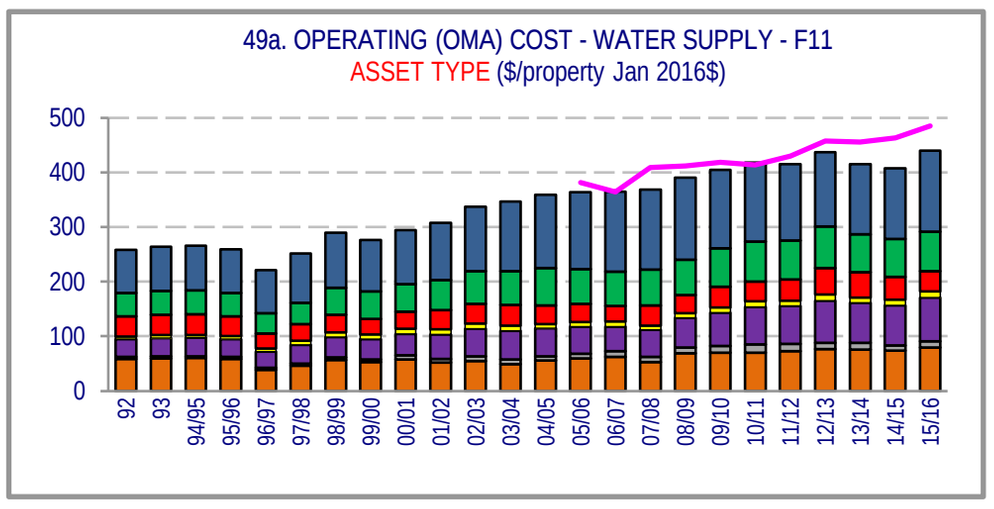
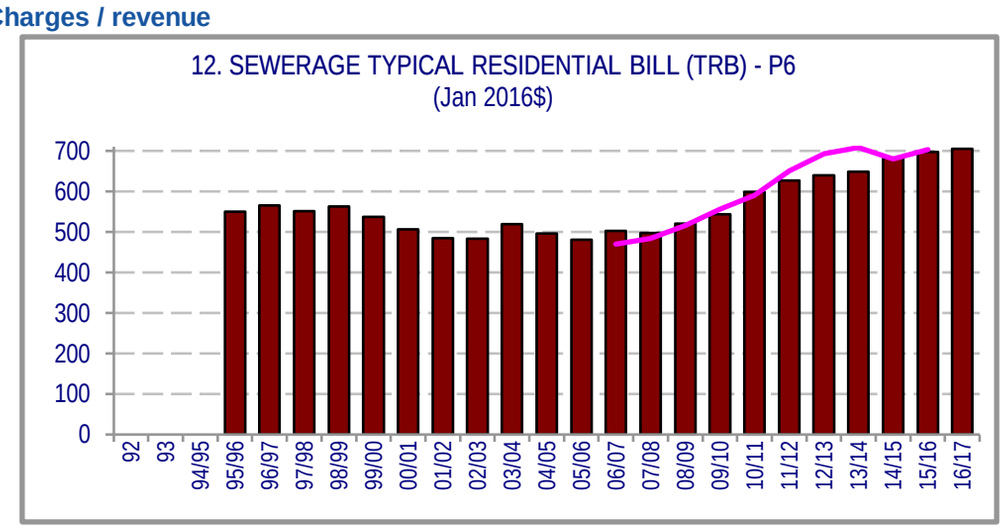
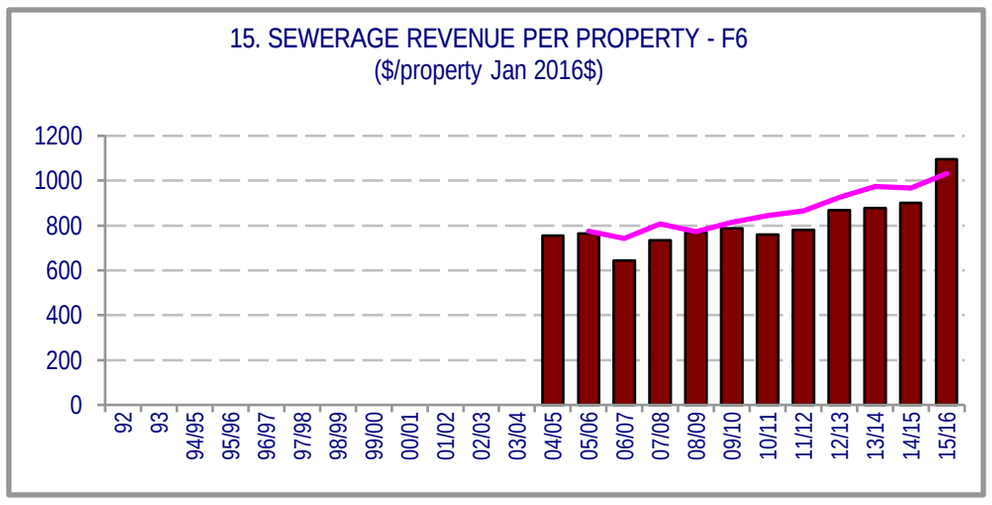


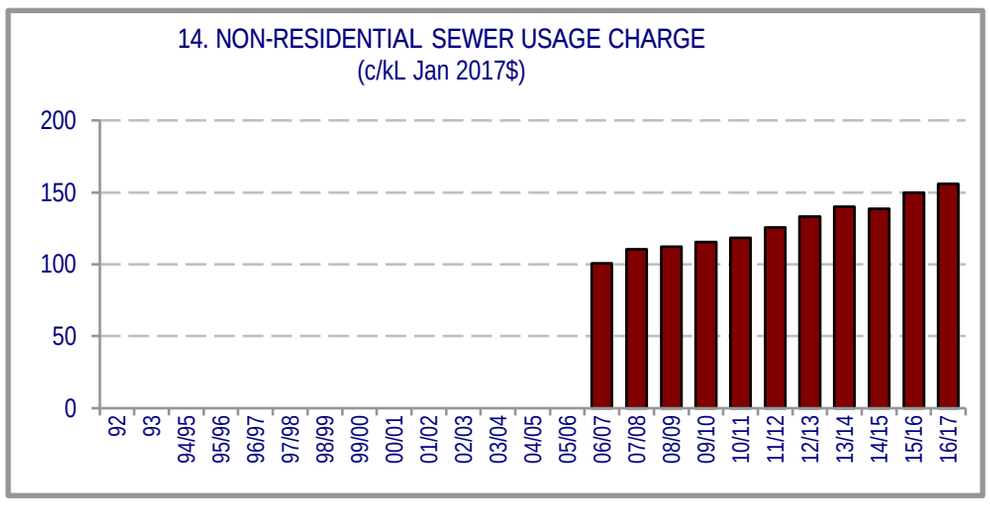
Table 4: Trends in statewide performance indicators - 1991 to 2015-16

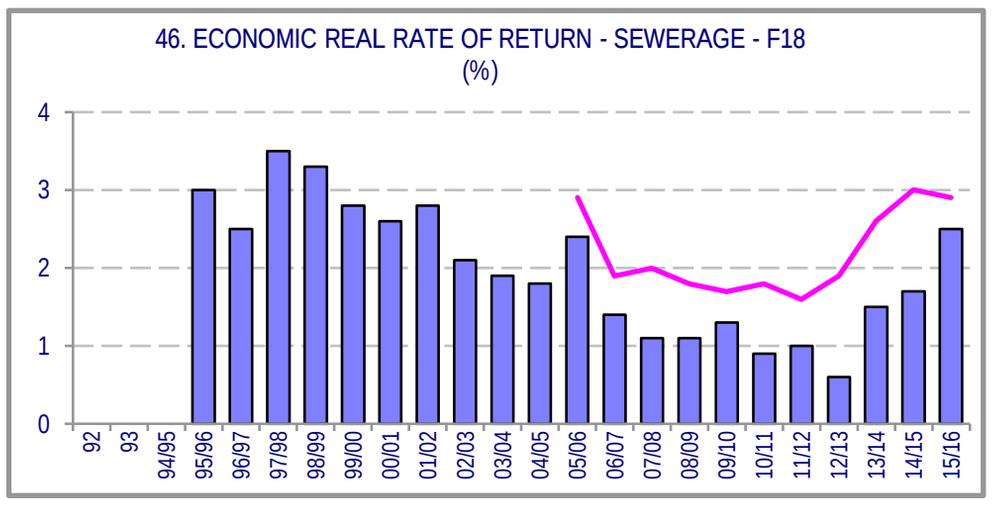
Sewerage

Charges / revenue

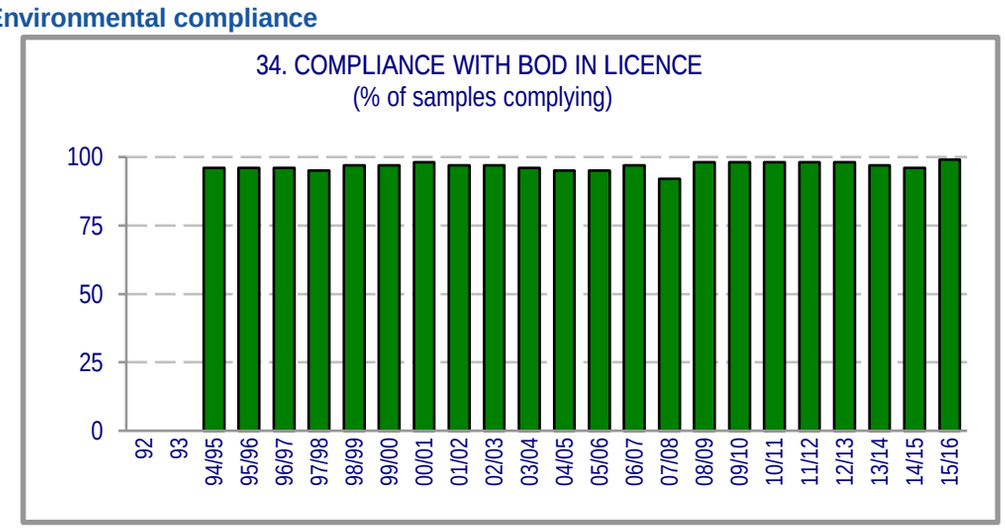


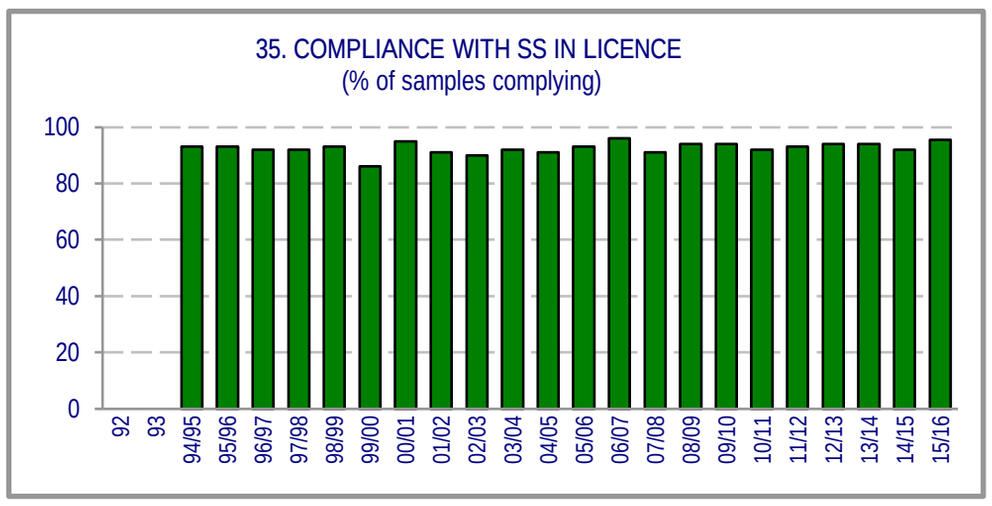


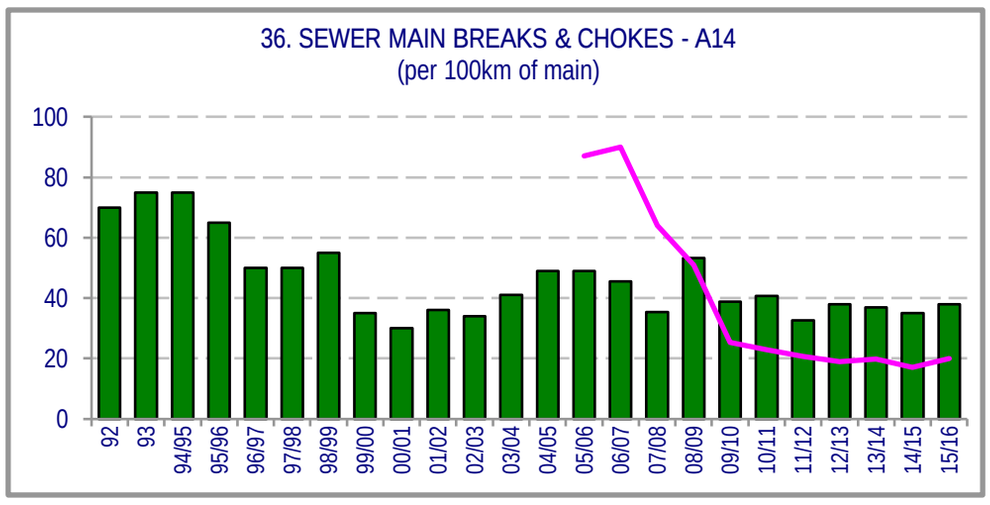


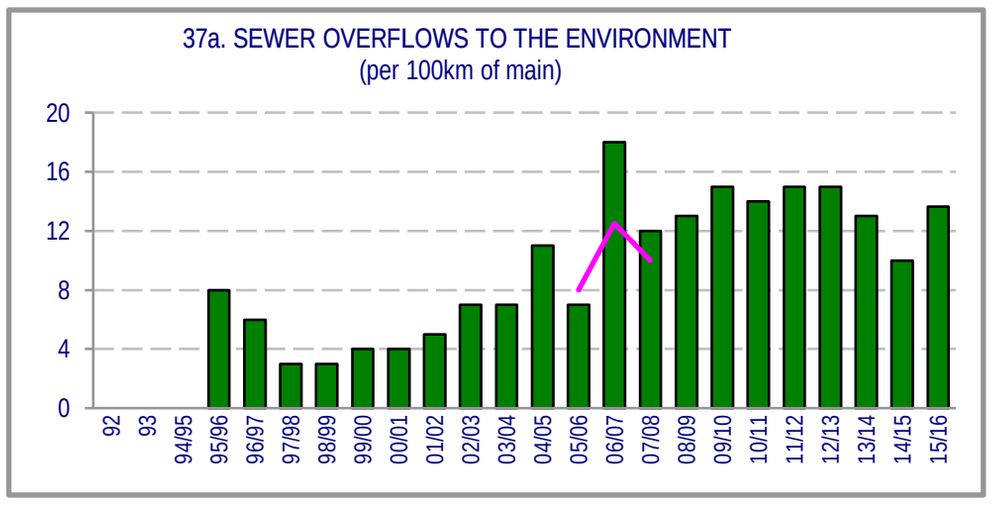


Environmental compliance

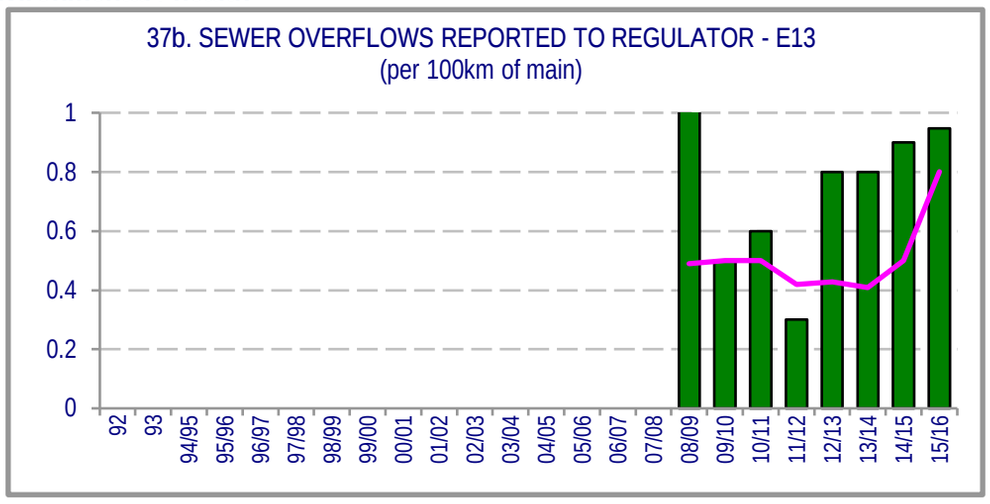


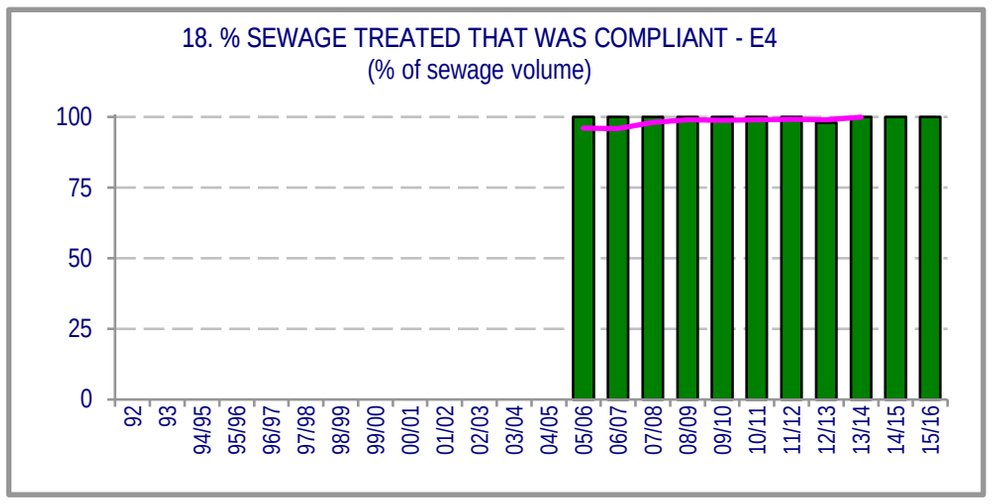






Environmental / health





Sewerage Notes:

1 Costs are in Jan 2016$ except for figure 14, which is in Jan 2017$.

2 The figure numbers (eg. 12. Sewerage Typical Residential Bill) correspond to the indicator number in the TBL reports and in Table 2.
Where there is an equivalent NWI indicator (eg. P6), this is shown in the title.

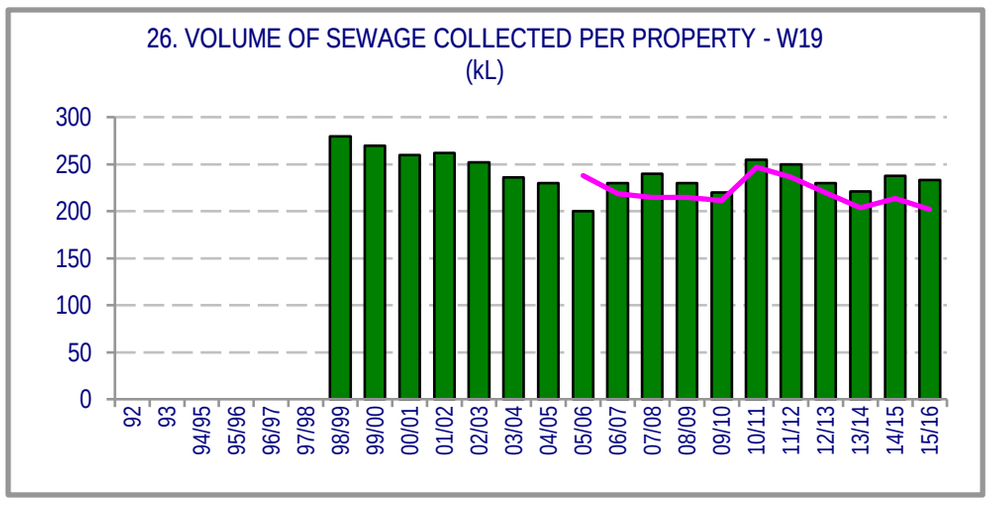
3 The figures show NSW Statewide medians (note 4 of section 6, ie. based on % of connected properties), except for figures 34 and 35 which are % of samples tested, figure 26a which is the total volume of water recycled in regional NSW, figure 27 which is % of the total volume recycled in regional NSW as a percentage of the total volume of sewage collected and figures 56, 50 and 50a which pro-rate the breakdown of the median on the basis of each year's expenditure by all LWUs.

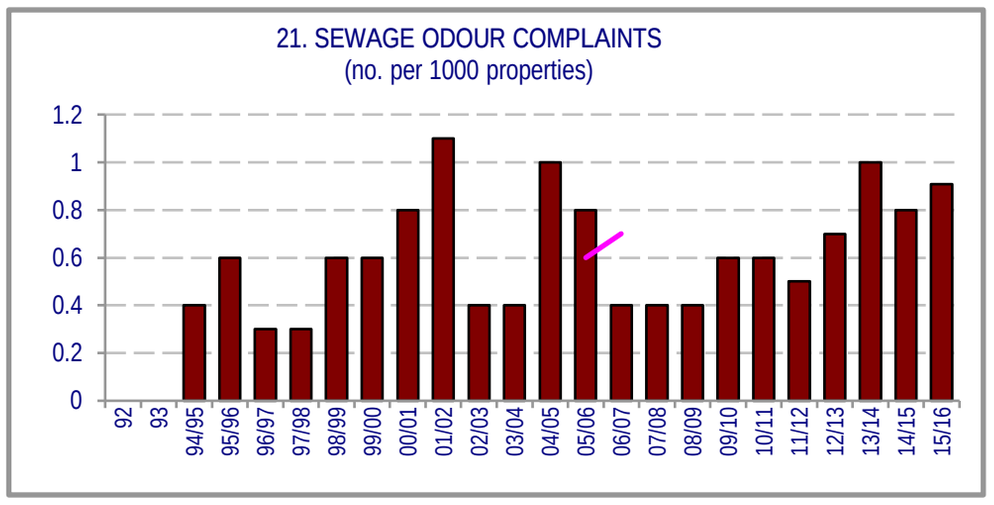
4 The National Median for each financial year is the median value of the results published in the National Performance Report for Urban Water Utilities (www.bom.gov.au).

Table 4: Trends in statewide performance indicators - 1991 to 2015-16

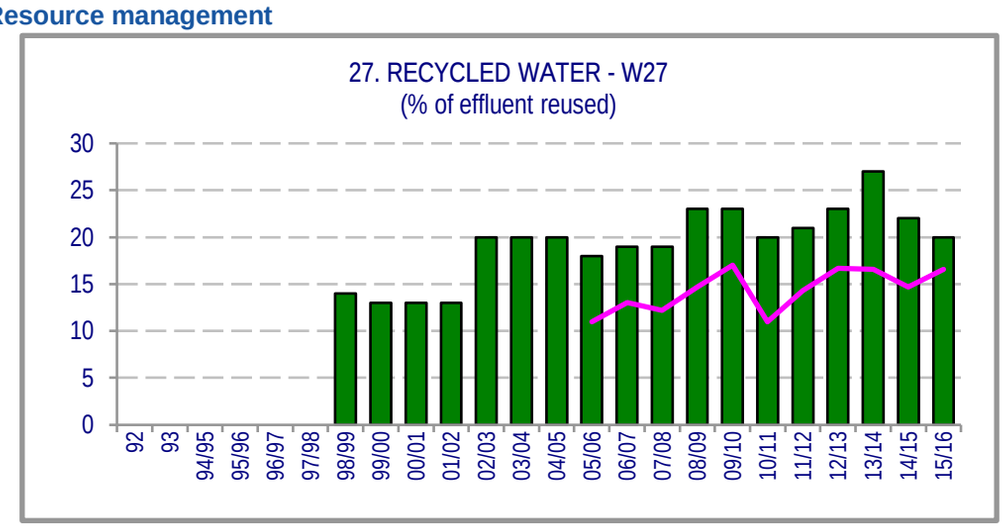
Sewerage (continued)

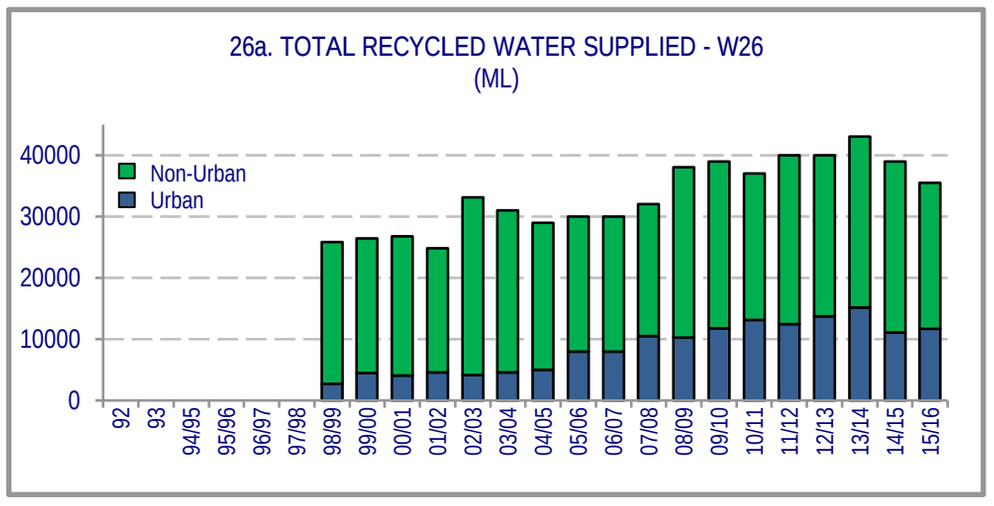
Customer service

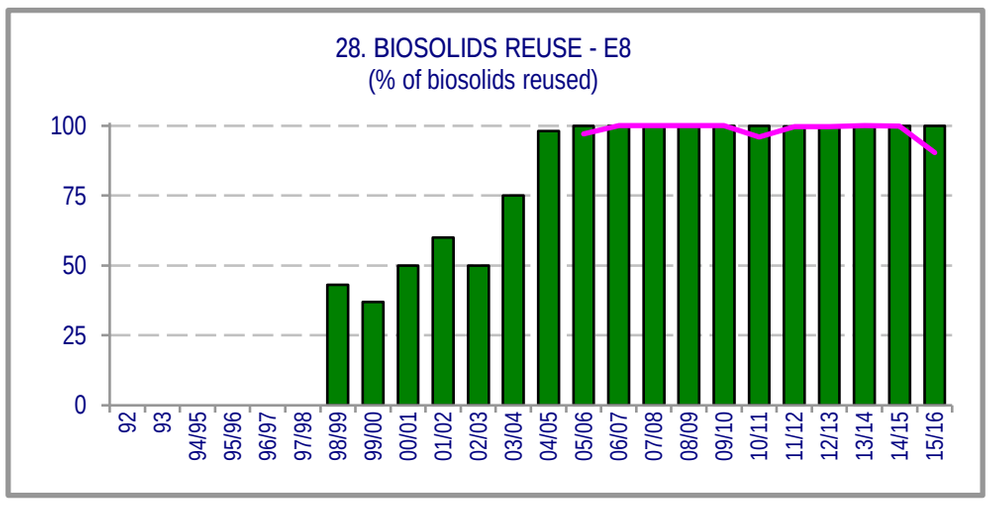




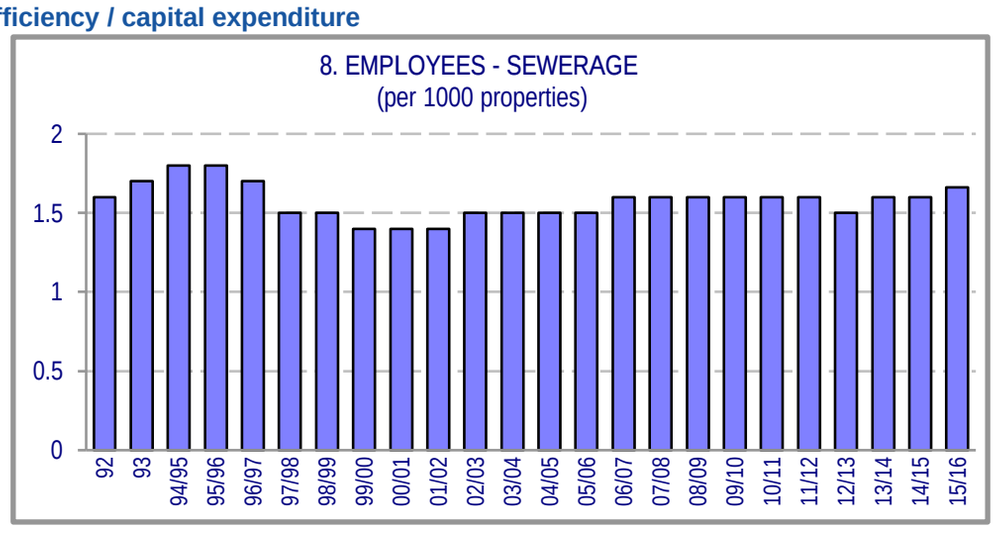
Resource management

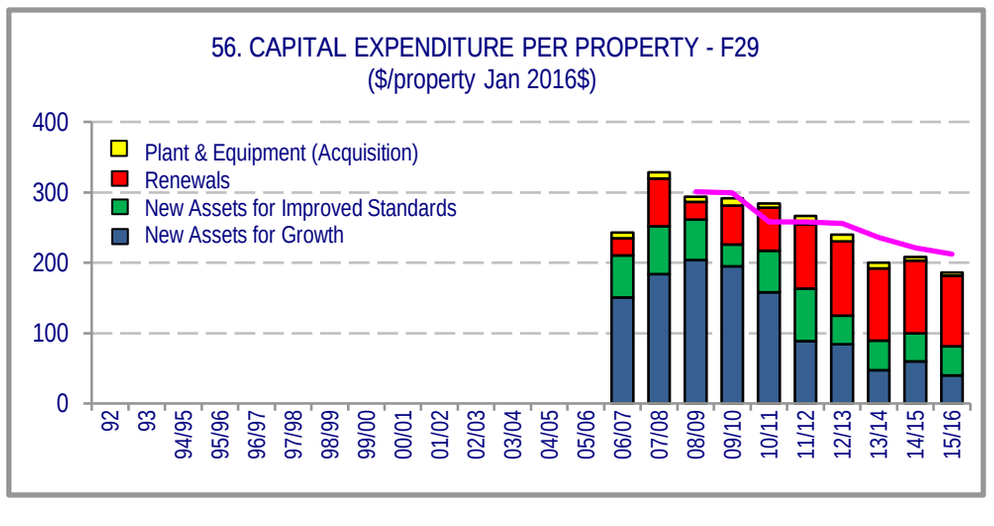


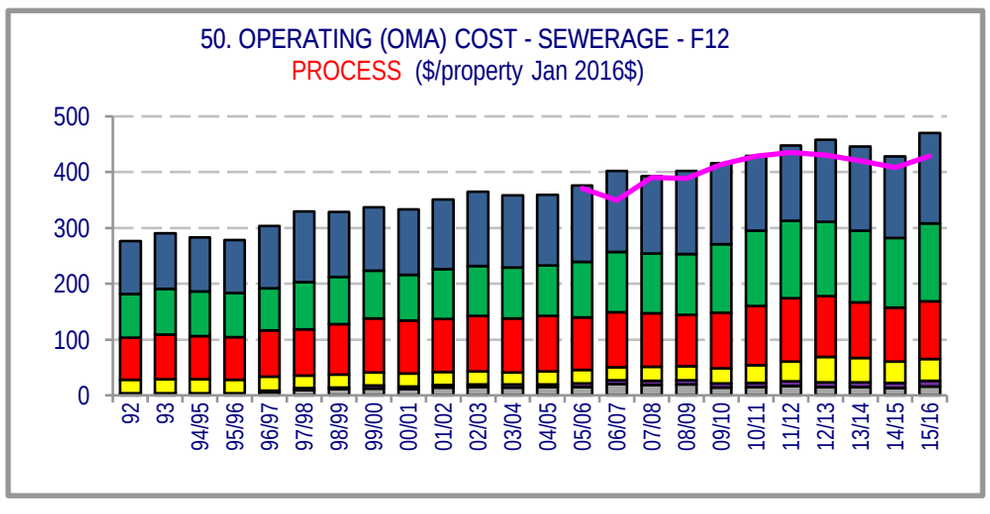




Efficiency / capital expenditure







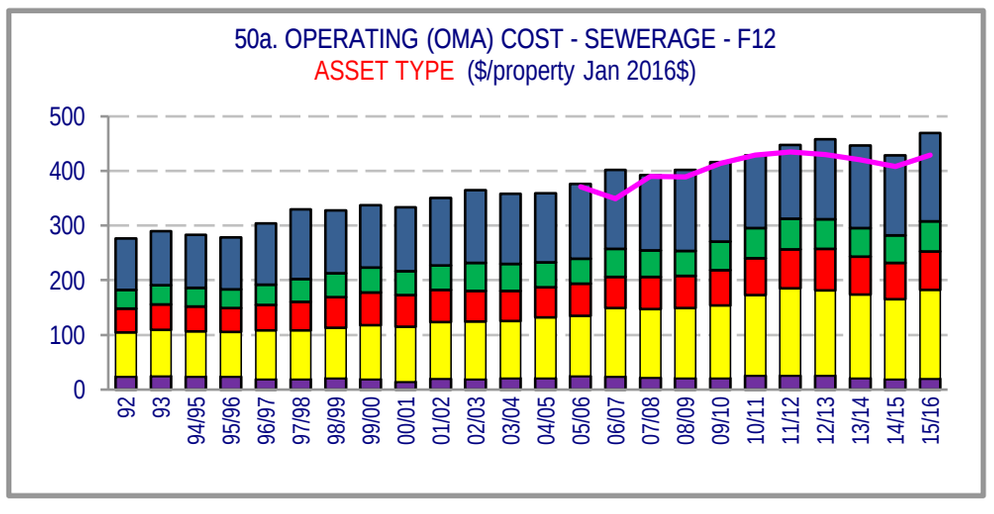
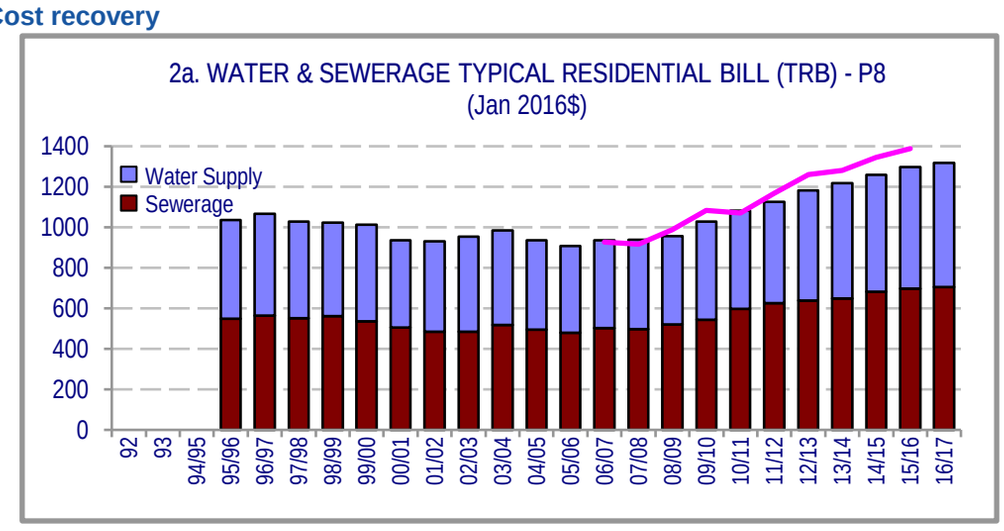
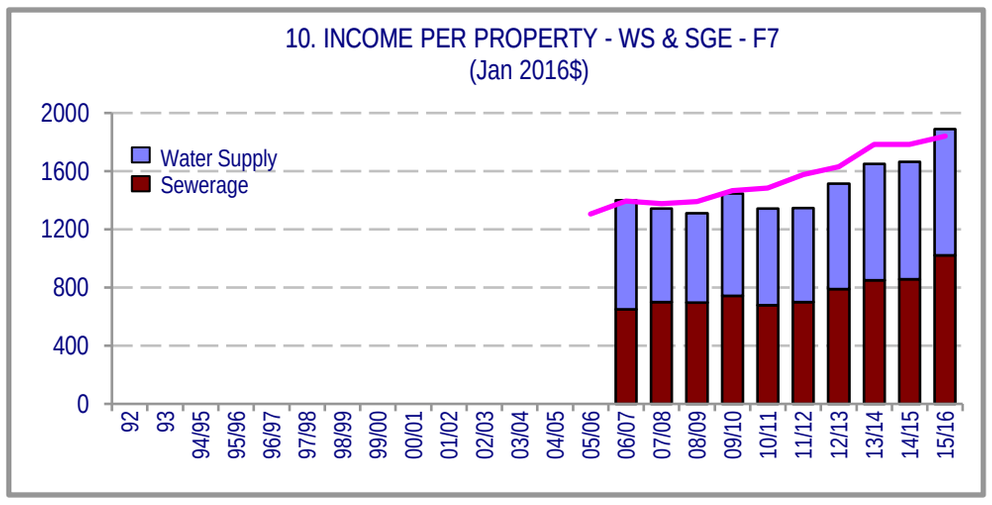


Table 4: Trends in statewide performance indicators - 1991 to 2015-16

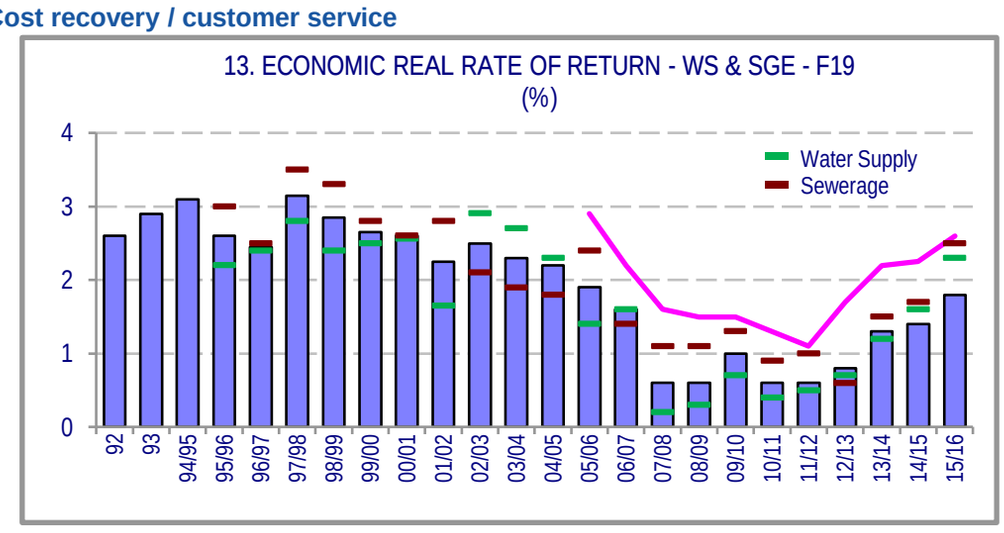
Water supply & sewerage

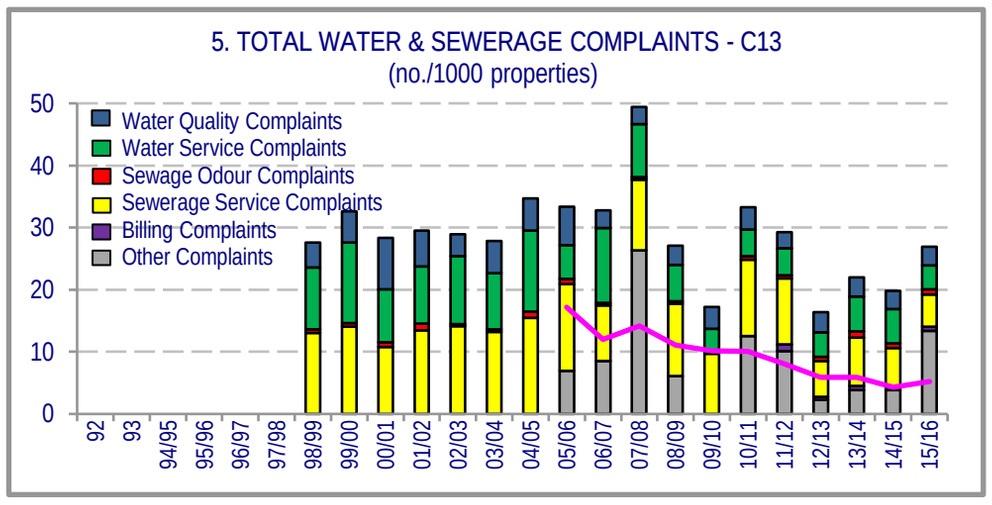
Cost recovery



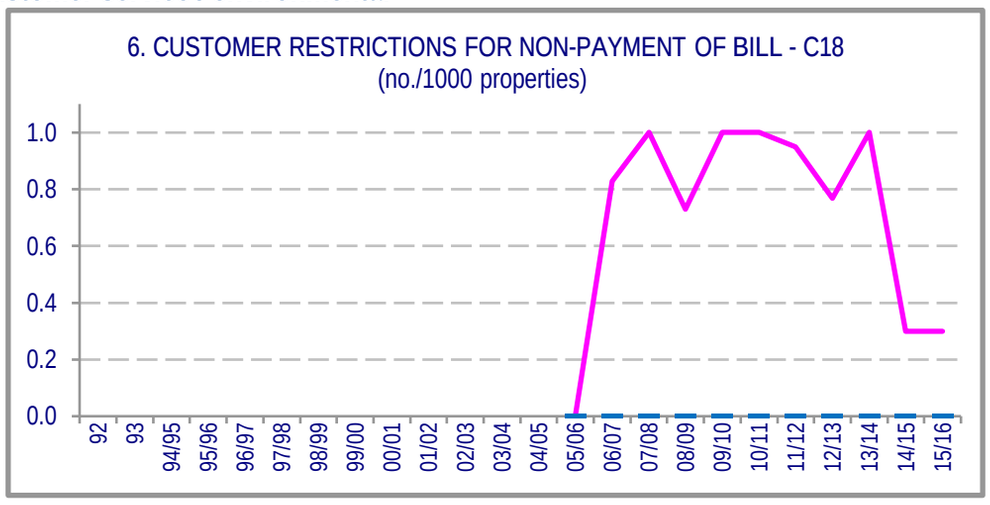


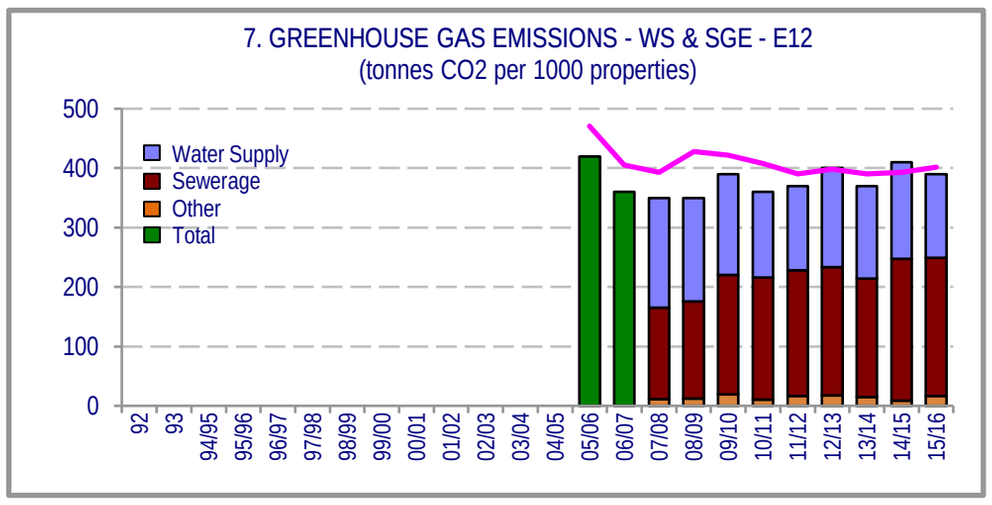
Cost recovery / customer service



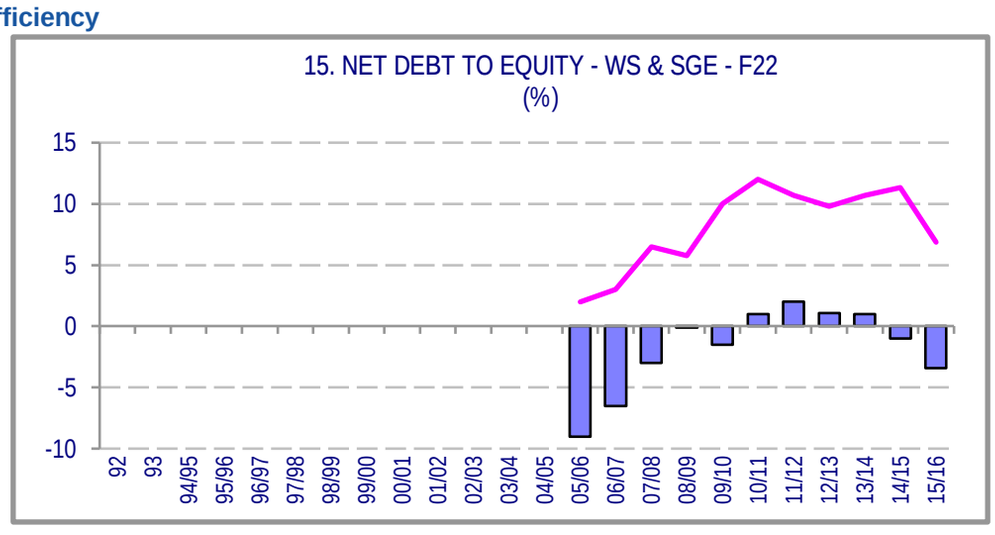


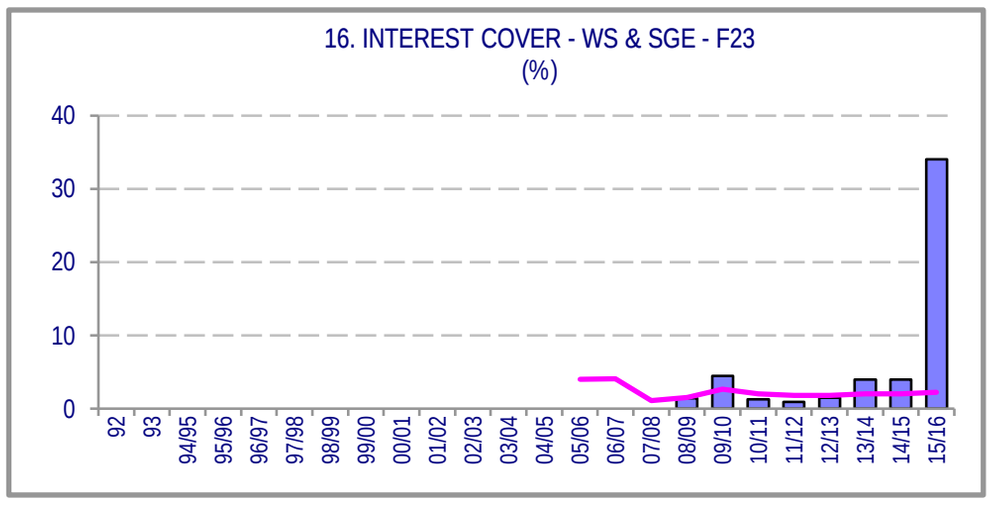
Customer service / environmental

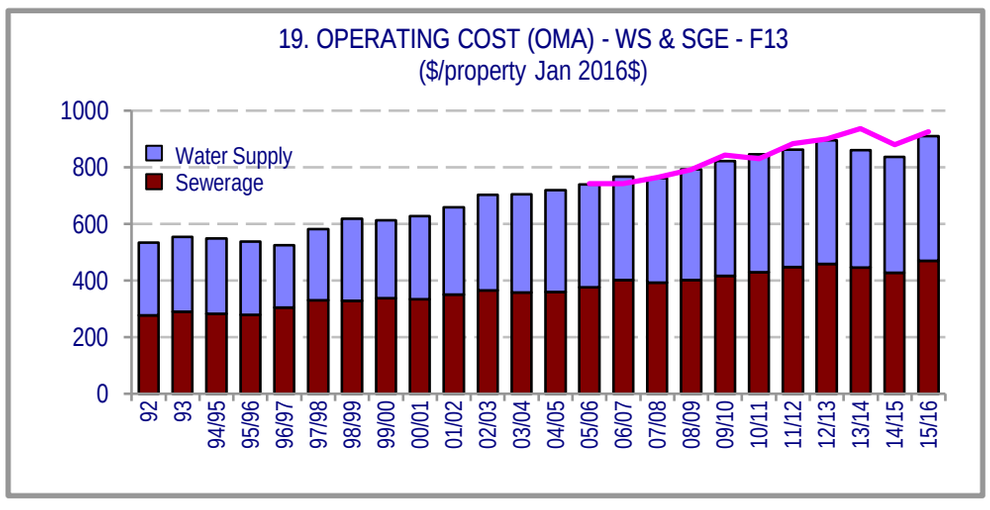


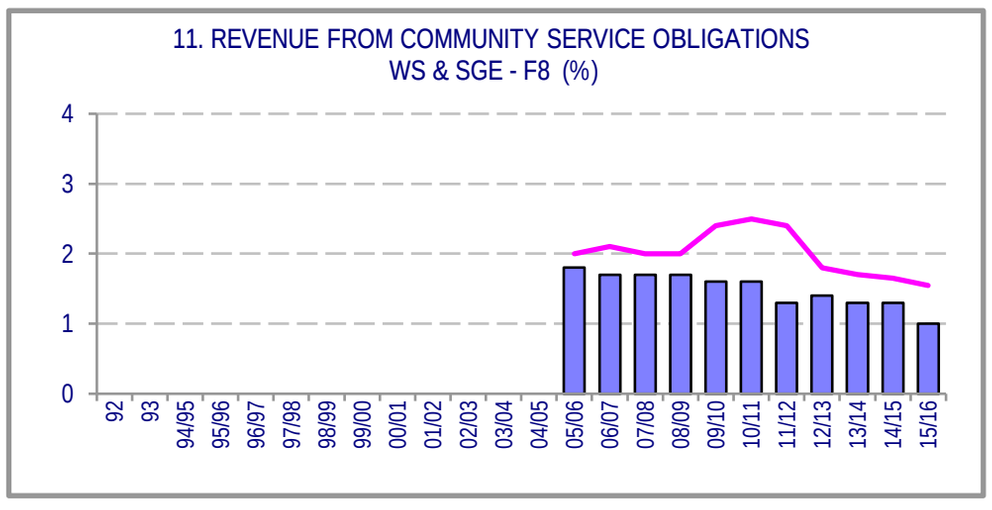


Efficiency









Water Supply and Sewerage Notes:

1 Costs are in Jan 2016$.

2 The figure numbers (eg. 2a Water & Sewerage Typical Residential Bill) correspond to the indicator number shown in Table 2A. The equivalent NWI indicator (eg. P8) is shown in the title.

3 The figures show NSW Statewide medians (ie. based on % of connected properties).

4 The National Median for each financial year is the median value of the results published in the National Performance Report for Urban Water Utilities (www.bom.gov.au).

LEGEND

National Medians ——

Table 5: 2015-16 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		Implementation
					WS	SGE	WS & SGE			E.coli Compliance		Chemical Compliance		WS	WS	WS	WS & SGE					SGE		WS & SGE										
		(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)	WS ($/prop)	SGE ($/prop)	WS (%)	SGE (%)	WS ($/prop)	SGE ($/prop)	WS & SGE (%)
		(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)
	Sydney Water	1,899,000	538,900	81	560	609	1,169			Yes	100	Yes	100	0.4	136	26	3	201	76		58	8	43,342	2,745	103	347	648	3.0	2.0			399	289	
	Hunter Water	242,000	72,400	96	387	632	1,019			Yes	100	Yes	100	1.7	137	27	5	166	104		43	8	5,373	325	91	377	88	3.0	1.8			249	335	
	Water NSW																										0							
LWUs with > 10,000 Properties																																		
112	Central Coast	137,800	29,000	67	523	641	1,164	6,400	34,000	Yes	100	Yes	100	17	198	17		155	30	100	38	3	895	165.0	8	447	60.6	1.6	1.2	Y*	Y*	259	238	100
3	Shoalhaven	47,480	14,400	76	328	772	1,100	14,900	27,400	Yes	100	Yes	100	0.2	202	8	2	150	70	100	13	18	1,551	70.2	-4	480	21.7	1.2	3.4	Y	Y	278	466	100
4	Rous (BS) (NO SGE)	41,420	1,100					9,250		Yes	100	Yes	100	0.1		8								26.6	2		11.3	3.0		Y		258		100
5	MidCoast	39,740	9,390	69	621	970	1,591	15,800	35,900	Yes	100	Yes	94	4		2	8	139	70	98	8	13	944	77.2	21	379	14.3	0.3	2.5	Y	Y	463	509	95
6	Tweed	32,580	9,100	75	604	782	1,386	19,400	43,200	Yes	100	Yes	100	5	112	8	48	165	90	89	1	9	696	66.8	-2	267	8.5	2.2	1.5	Y	Y	420	514	100
7	Port Macquarie-Hastings (UF)	30,380	6,880	70	619	769	1,388	13,200	32,800	Yes	100	Yes	100	5	121	3	32	158	40	100	27	4	340	71.2	-9	654	18.9	4.1	4.3	Y	Y	390	484	100
8	Riverina (GW) (NO SGE)	31,710	16,860	76	627			5,920	13,700	Yes	100	Yes	91	3	206	19	6	333	120					32.8	-2	1,104	35.0	5.7		Y		236		90
11	Albury	25,360	8,240	76	418	703	1,121	7,120	31,300	Yes	100	Yes	100	2	137	4	7	223	60	33	76	54	2,503	42.4	-9	342	8.4	2.8	5.2	Y	Y	276	398	100
10	Coffs Harbour	25,060	6,180	76*	590	806	1,396	19,800	42,700	Yes	100	Yes	100	0	120	7	0	167	50	100	97	19	1,113	53.4	11	227	5.5	2.3	0.8	Y	Y	388	583	100
13	Tamworth Regional	22,010	10,150	60	619	777	1,396	6,670	32,200	Yes	100	Yes	100	0		9	56	251	90	84	20	73	4,071	46.2	-4	266	5.7	2.6	4.2	Y	Y	518	398	95
14	Clarence Valley	21,530	5,790	76*	480	1,076	1,556	13,000	42,800	Yes	100	Yes	100	10	120	12	60	158	40	88	40	14	385	35.6	12	1,180	18.5	0.9	2.8	Y	Y	329	478	100
122	Dubbo Regional	20,700	10,500	71	866	712	1,578	10,300	31,300	Yes	100	Yes	100	0.3	165	6	24	322	90	78	46	65	2,599	39.2	-4	713	14.3	5.1	2.5	Y	Y	437	344	100
119	Queanbeyan-Palerang (R)	20,820	4,780	71*	901	533	1,434	11,240	24,800	Yes	100	Yes	100	0	180	8	37	163	110	98	33	2	100	33.3	-16	397	7.9	0.9	0.5	Y	Y	567	394	100
15	Eurobodalla	19,720	3,610	58	695	886	1,581	22,000	41,100	Yes	100	Yes	100	0.4	214	13	2	117	50	100	23	5	195	40.2	-3	705	13.2	1.3	2.4	Y	Y	425	536	100
12	Fish River WS (UF,BS) (NO SGE	23,500	3,750							Yes	100	Yes	100	0										*10.0*			0.0			Y*				67
16	Wingecarribee	19,350	5,090	71	489	756	1,245	14,900	29,400	Yes	100	Yes	100	9	117	12	90	186	120	100	10	5	232	38.9	-8	347	6.0	3.5	4.9	Y	Y	387	423	100
19	Orange	18,020	6,610	64	631	452	1,083	12,200	34,400	Yes	100	Yes	100	2	135	9	126	173	60	67	42	42	2,051	30.4	-13	656	11.7	3.5	1.9	Y	Y	365	380	95
21	Bathurst Regional	16,070	7,860	79	576	503	1,079	10,660	33,400	Yes	100	Yes	100	9	120	15	89	235	70	87	162	0	0	27.4	-12	476	7.6	1.4	1.5	Y	Y	603	443	100
23	Bega Valley (UF)	14,420	3,710	64	568	1,136	1,704	19,300	45,800	Yes	100	Yes	100	4	177	5	8	135	50	89	20	17	401	28.7	-3	399	5.4	-1.2	0.2	Y*	Y	598	850	95
24	Ballina (R)	15,240	4,120	65	545	864	1,409	8,000	23,700	Yes	100	Yes	100	0	120	4	1	168	160	100	21	11	500	30.1	15	315	4.6	1.6	2.9	Y	Y	463	627	95
22	Lismore (R)	14,020	3,090	68	735	808	1,543	13,900	36,900	Yes	100	Yes	100	0	214	36	0	155	40	100	28	0	5	25.9	-2	620	8.3	2.5	1.4	Y	Y	492	478	89
25	Kempsey (GW)	12,470	3,690	56	594	850	1,444	17,400	47,700	Yes	100	Yes	100	1	155	5	3	149	90	87	25	5	96	21.1	7	579	6.4	0.7	0.9	Y	Y	444	575	95
27	Byron (R)	11,450	3,040	71	584	1,121	1,705	16,700	26,200	Yes	100	Yes	100	1	120	7	5	169	90	94	21	11	367	29.0	11	355	4.0	3.1	6.0	Y	Y	471	662	100
20	Goulburn Mulwaree	11,290	3,270	73*	663	749	1,412	7,840	43,500	Yes	100	Yes	100	20	180	15	100	162	40	100	45	84	1,730	22.1	-8	490	5.4	1.1	6.1	Y	Y	384	347	100
26	Essential Energy	10,530	5,710	57	722	518	1,240			Yes	100	Yes	100	0.3		21	3	233	80	100	122	52	669	31.2		1,383	14.4			Y*	Y*	1289	317	100
28A	Goldenfields (R) (NO SGE)	10,290	6,050	78	779			7,430	19,900	Yes	100	Yes	100	0	240	13	1	280	90					15.3	-16	348		3.9		Y		834		100
28B	Goldenfields (BS) (NO SGE)	19,780	440							Yes	100	Yes	100			0								6.0	-15			0.3		Y		151		100
	Totals or Medians (% of LWUs basis excl NO SGE suppliers) for >10,000 Properties	*628,000*	*192,410*		*611*	*775*	*1,402*	*13,000*	*33,700*					*2*	*155*	*8*	*8*	*166*	*70*	*98*	*28*	*12*	*21,440*	*1,116*	*-3*	*462*	*318*	*2.2*	*2.5*	*26*	*22*	*431*	*472*	*100*
LWUs with 4,001 - 10,000 Properties																																		
111	Armidale Regional	10,140	3,610	72	714	379	1,093	9,750	32,800	Yes	100	Yes	100	3	130	19	7	207	90	99	82	33	827	15.1	-9	305	3.1	0.6	2.4	Y	Y	530	269	89
120	Snowy Monaro Regional (UF)	9,930	2,460	47*	689	930	1,619	14,800	38,600	Yes	100	Yes	100	4	120	18	50	151	50	63	19	4	64	15.0	-11	489	4.7	2.4	2.1	Y	Y	353	419	95
30	Griffith	8,360	7,320	83*	734	774	1,508	10,030	40,100	Yes	100	Yes	100	0.7	90	16	90	585	110	98	106	9	247	18.3	0	257	2.0	1.4	1.7	Y	Y	713	611	100
31	Lithgow	8,100	1,700	78	658	878	1,536	4,860	25,300	Yes	100	Yes	100	12				160	*30*	99	60	0	0	14.3	9	274	2.1	2.0	3.3	Y	Y	592	499	89
32	Mid-Western Regional	8,230	2,260	80	663	739	1,402	12,300	28,200	Yes	100	Yes	100	6	210	4	61	185	50	85	68	4	54	13.2	-5	229	1.8	2.2	1.0	Y	Y	502	472	89
116	Hilltops (R)	7,320	1,800	63	738	720	1,458	6,350	30,000	Yes	100	Yes	100	5	120	19	34	171	40	100	89	18	190	11.3	-4	531	3.0	1.8	2.9	Y	Y	325	277	89
33	Richmond Valley	7,210	2,810	74	437	918	1,355	13,100	30,000	Yes	100	Yes	100	0		3	0	150	100	98	-	16	377	13.2	3	537	3.7	1.0	2.0	Y	Y	501	644	100

Table 5: 2015-16 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		Implementation
					WS	SGE	WS & SGE			E.coli Compliance		Chemical Compliance		WS	WS	WS	WS & SGE		WS			SGE		WS & SGE		WS & SGE		WS	SGE	WS	SGE			
		(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)
35	Singleton	6,740	3,770	75*	501	495	996	8,620	20,600	Yes	100	Yes	100	2	330	9	39	258	60	100	45	0	0	11.8	-37	890	5.8	5.0	3.3	Y	Y	470	328	100
34	Nambucca (GW)	6,420	1,490	78	533	612	1,145	22,100	37,700	Yes	100	Yes	100	3	120	5	14	139	70	79	12	4	49	10.4	5	152	0.9	1.8	1.1	Y	Y	324	440	100
36	Parkes	5,990	4,990	81	679	436	1,115	15,400	42,800	Yes	100	Yes	100	3	120	11	72	283	140	70	28	18	155	12.2	-26	3,273	18.3	3.0	3.3	Y	Y	638	321	100
41	Muswellbrook	5,840	3,010	71*	581	595	1,176	13,690	29,200	Yes	100	Yes	100	13	299	26	22	254	70	39	11	90	863	9.5	-21	881	5.1	0.3	1.3	Y	Y	612	406	100
37	Inverell	5,790	1,930	48	601	476	1,077	15,000	30,500	Yes	100	Yes	100	0.3	60	2	12	186	50	99	32	0	0	7.3	-7	235	1.3	2.3	0.9	Y	Y	518	279	63
121	Snowy Valleys	5,660	1,990	77*	557	651	1,208	9,000	31,300	Yes	100	Yes	100	4	120	4	26	203	80	94	25	18	213	7.4	1	1,282	6.7	0.2	0.0	Y	Y	388	489	100
114	Federation	5,630	3,100	82	543	685	1,228	3,030	19,900	Yes	100	Yes	100	1	120	14	47	277	220	94	27	2	26	8.1	-11	437	2.4	1.5	1.9	Y	Y	469	415	100
40	Central Tablelands (NO SGE)	5,520	1,890	71*	662			8,700	21,100	Yes	100	Yes	100	5	90	8		196	110					5.7	-8	151	0.8	1.1		Y		612		100
39	Cowra	5,320	3,410	78*	857	804	1,661	13,100	36,300	Yes	100	Yes	100	3	180	2	88	248	120	100	180	0	0	10.5	4	235	1.1	2.3	3.1	Y	Y	748	492	100
38	Moree Plains (GW)	4,600	4,010	82*	1,372	650	2,022	11,600	32,100	Yes	100	Yes	100	6	60	49	140	696	160	100	46	46	655	10.3	2	799	3.3	4.7	1.1	Y	Y	734	499	100
117	Murray River (DS)	4,620	1,980	43	657	397	1,054	4,460	23,500	Yes	100	Yes	100	0.4	90	6	24	338	50	100	22	14	133	*6.5*	-13	253	1.1	3.3	1.1	Y	Y	457	306	95
45	Upper Hunter	4,600	2,640	72*	705	501	1,206	8,680	30,400	Yes	100	Yes	100	0.7	60	41	68	254	360	94	13	31	294	8.0	-11	715	3.2	2.3	-0.5	Y	Y	664	467	100
46	Narrabri (GW)	4,450	3,000	55	617	697	1,314	8,780	36,300	Yes	100	Yes	100	12	120	57	81	316	280	100	38	51	398	7.2	-24	803	3.4	3.1	0.0	Y	Y	542	454	89
44	Gunnedah (GW)	4,040	2,890	75	615	505	1,120	15,900	31,400	Yes	100	Yes	99	2	150	21	26	408	80	100	17	81	542	8.2	-24	497	2.0	4.8	4.8	Y	Y	478	230	100
47	Bellingen (UF)	4,100	1,230	78	370	882	1,252	11,100	33,400	Yes	100	Yes	100	2	120	5	8	155	70	94	29	0	0	5.5	-17	1,085	3.4	-0.2	0.4	Y	Y	390	656	100
48	Leeton	4,130	2,670	66	701	519	1,220	9,700	32,400	Yes	100	Yes	100	0	120	13	3	424	150	100	15	0	0	6.8	-21	289	1.0	2.0	1.1	Y	Y	539	489	95
Totals or Medians (% of LWUs basis) for 4,001 - 10,000 Properties		*143,000*	*65,940*		*658*	*651*	*1,224*	*10,030*	*31,350*					*3*	*120*	*12*	*34*	*248*	*80*	*98*	*29*	*12*	*5,087*	*236*	*-10*	*493*	*80*	*2.0*	*1.5*	*23*	*22*	*518*	*447*	*100*
LWUs with 1,501 - 4,000 Properties																																		
115	Cootamundra-Gundagai (R)	4,040	1,260	59	615	398	1,013	9,450	22,100	Yes	100	Yes	100	2	90	92	102	153	60	100	101	91	742	5.1	-14	300	1.1	1.0	1.6	Y	Y	339	267	84
51	Forbes	3,750	2,680	79	631	660	1,291	11,000	34,600	Yes	100	Yes	100	1	90	25	95	408	280	100	64	35	253	6.0	-18	385	1.4	0.4	2.5	Y	Y	615	365	100
53	Berrigan (DS)	3,570	3,070	41	841	501	1,342	7,850	22,600	Yes	100	Yes	100	6	60	19	78	461	100	100	89	76	629	5.3	-22	102	0.4	2.8	1.8	Y	Y	563	286	73
54	Edward River	3,630	2,700	62	798	789	1,587	7,750	29,200	Yes	100	Yes	100	1	90	77	19	553	120	100	28	11	54	5.1	-11	76	0.3	1.4	1.9	Y	Y	429	367	100
55	Warrumbungle	3,310	1,230	54	791	469	1,260	2,910	33,200	Yes	95	Yes	100	1	115	42	40	231	240	80	45	25	83	4.6	-8	144	0.4	0.5	-1.0	Y	N	678	512	79
56	Yass Valley	3,300	950	57	988	620	1,608	18,800	35,700	Yes	100	Yes	100	1	240	8	40	186	90	100	36	0	0	8.7	26	0		3.6	10.4	Y	Y	455	435	100
60	Glen Innes Severn	2,960	550	53	597	473	1,070	5,860	18,300	Yes	100	Yes	100	0	180	0	18	145	40	100	47	0	0	3.5	6	380	1.1	1.6	2.9	Y	Y	437	258	100
59	Lachlan	2,850	2,630	83	2,069	545	2,614	13,600	54,400	Yes	100	Yes	100	0	100	7	15	734	350	63	45	22	116	5.0	-14	398	1.1	-0.5	-1.1	Y	Y	813	436	100
61	Liverpool Plains	2,570	900	39	953	516	1,469	14,000	38,300	Yes	100	Yes	100	8	30	14	132	205	100	18	12	0	0	4.4	-11	1,503	3.9	2.5	1.8	Y	Y	559	301	84
74	Wentworth (DS)	2,340	1,740	54	826	720	1,546	9,080	38,700	Yes	100	Yes	100	0	35	5	45	669	*20*	100	15	0	0	3.9	-17	427	0.8	3.5	1.4	Y	Y	497	305	94
67	Cobar	2,260	1,230	77	919	330	1,249	2,110	21,000	Yes	100	Yes	100	21			41	405	60	100	0	0	0	4.1	-17	0		2.5	1.0	Y	Y	1181	197	100
66	Cobar Water Board (BS) (NO SGE)		2,290																					3.3				-0.9		Y*				43
62	Narromine (GW)	2,160	1,150	73	689	565	1,254	8,410	22,400	Yes	100	Yes	100	1	60	16	5	423	100	100	9	0	0	2.9	-26	1,219	2.6	4.4	1.1	Y	Y	511	383	100
63	Narrandera (GW)	2,090	2,190	65*	784	518	1,302	2,800	21,600	Yes	100	Yes	100	0	110	24		501	150	29	-	1		3.0	-27	474	0.8	2.6	1.2	Y	Y	452	412	84
68	Tenterfield	1,980	400	51*	754	877	1,631	12,000	38,600	Yes	100	Yes	100	0	180	19	76	139	30	57	153	16	51	3.6	0	580	1.1	0.9	0.5	Y	Y	566	504	100
73	Upper Lachlan	2,010	390	54	810	752	1,562	7,850	33,300	Yes	100	Yes	100	0	120	9	8	141	30	100	9	9	50	3.3	-11	347	0.6	0.7	1.3	Y	Y	604	476	89
79	Walgett (DS)	1,930	1,190	34*	1,195	454	1,649		26,800	Yes	42	Yes	100	3		45	4	522	*60*	75	10	0	0	2.8	-19	28	0.1	-2.5	3.1	Y*	Y	1096	200	63
70	Kyogle	1,900	430	43	550	662	1,212	5,510	29,400	Yes	100	Yes	100	2	90	7	21	137	30	100	5	10	38	3.0	-1	2,027	3.9	1.4	1.3	Y	Y	631	510	95
80	Greater Hume	1,900	710	62*	813	504	1,317	7,190	34,200	Yes	100	Yes	100	0	90	5	19	264	100	100	4	13	57	3.5	-7	495	1.1	-0.1	0.7	Y	Y	500	326	100
75	Coonamble (GW)	1,680	1,180	71*	704	479	1,183		37,400	Yes	100	Yes	100	0	60	16	71	584	60	50	7	21	54	2.1	-24	270	0.4	0.7	0.0	Y	Y	437	255	78
Totals or Medians (% of LWUs basis excl bulk suppliers) for 1,501 - 4,000 Properties		*50,000*	*28,870*		*798*	*518*	*1,317*	*7,850*	*33,200*					*1*	*90*	*16*	*40*	*405*	*90*	*100*	*21*	*10*	*2,127*	*83.1*	*-14*	*380*	*21*	*1.2*	*1.3*	*20*	*18*	*559*	*365*	*95*

Table 5: 2015-16 NSW water utility performance summary

		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		Implementation
WATER UTILITY					WS	SGE	WS & SGE			E.coli Compliance		Chemical Compliance		WS	WS	WS	WS & SGE		WS			SGE		WS & SGE										
		(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)			($/prop)	($/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)
LWUs with 200 - 1,500 Properties																																		
81	Gwydir	1,470	810	49	757	500	1,257	4,000	24,000	Yes	100	Yes	100	3	180	12	4	294	110	81	76	3	9	2.2	-6	252	0.4	2.6	2.3	Y	Y	570	365	89
85	Uralla	1,490	340	59	721	540	1,261	1,460	17,900	Yes	100	Yes	100	4	120	13	15	189	20	75	43	0	0	1.6	-12	31	0.0	0.5	0.1	Y	Y	445	342	68
87	Bourke (DS)	1,400	1,670	78	1,221	673	1,894	1,760	31,000	Yes	100	Yes	100	0	60	110	153	1,157	80	100	18	0	0	2.5	-14	1,480	1.8	-2.3	2.0	Y*	Y	833	369	94
84	Gilgandra (GW)	1,330	920	71	804	602	1,406		38,000	Yes	100	Yes	100	7	75	33	97	567	140	100	68	85	221	1.8	-9	685	0.9	-0.1	0.5	Y	Y	390	393	89
86	Hay (DS)	1,350	1,010	54	751	664	1,415		34,300	Yes	100	Yes	100	4	120	13	70	527	210	100	65	0	0	2.0	-17	374	0.5	0.4	-1.2	Y	N	581	650	84
83	Oberon (R)	1,300	710	73	755	590	1,345	3,160	25,000	Yes	100	Yes	100	0	120	8	12	152	100	100	18	0	0	2.8	-10	79	0.1	4.4	3.3	Y	Y	955	422	90
118	Murrumbidgee (GW)	1,280	1,240	62*	507	375	882	2,450	28,600	Yes	100	Yes	100	1		8	2	1,045	*100*	0	6	0	0	1.3	-19	749	1.0	0.9	-0.7	Y	Y	412	267	68
92	Carrathool (GW)	1,170	1,320	50*	804	425	1,229	1,790	27,100	Yes	100	Yes	100	2	60	10	69	534	270	100	48	0	0	2.1	2	963	1.1	3.1	1.6	Y	Y	876	191	52
89	Bogan	1,110	730	59	1,320	540	1,860		42,100	Yes	100	Yes	100	0	211	60	182	419	200	25	0	37	60	3.5	-15	426	0.5	2.4	0.0	Y	Y	1886	565	100
91	Cabonne	1,170	350	61	606	487	1,093	13,000	55,500	Yes	100	Yes	100	0.9	120	13	8	197	80	61	16	26	79	3.0	-3	1,206	1.9	-0.1	-0.9	Y	Y*	593	589	100
96	Warren (DS)	940	790	50	766	500	1,266		29,900	Yes	100	Yes	100	10	120	267	94	630	100	77	294	0	0	1.2	-17	705	0.7	-0.6	-2.9	Y*	N	547	451	89
98	Walcha	920	200	63*	572	460	1,032		27,500	Yes	100	Yes	100	0	120	7	12	133	60	25	23	0	0	1.0	-7	163	0.1	-1.4	0.3	Y*	Y	697	404	89
100	Balranald (DS)	880	1,000	60	1,087	269	1,356	1,330	32,300	Yes	73	Yes	100	0	45	31	10	1,038	60	100	-	0	0	1.3	-8	73	0.1	2.0	-5.0	Y	N	622	266	68
103	Central Darling (DS)	730	390	81	1,381	488	1,869		75,300	Yes	100	Yes	100	69	60	18	420	638	30	100	113	0	0	0.9	-4	234	0.2	-2.2	-0.2	Y*	Y*	1011	466	73
105	Brewarrina (DS)	470	880	74	2,055	774	2,829		49,100	Yes	100	Yes	100	0	15	74	42	1,629	*110*	84	13	0	0	1.5	-17	1,393	0.7	0.6	1.0	Y	Y	1479	531	89
Totals or Medians (% of LWUs basis) for 200 - 1,500 Properties		*17,000*	*12,360*		*766*	*500*	*1,345*	*2,120*	*31,000*					*1*	*120*	*13*	*42*	*534*	*100*	*84*	*33*	*0*	*369*	*28.7*	*-10*	*426*	*9.8*	*0.5*	*0.1*	*15*	*12*	*622*	*404*	*89*
LWUs without Water Supply																																		
9	Wagga Wagga	27,710	250			454		3,760	13,500								38			100	72	96	5,679	18.6	5	146	4.1		0.9		Y		405	100
30A	Hawkesbury	7,660	7			666		8,610	21,500								15			100	34	7	142	6.8	-1	80	0.6		-0.8		Y*		691	100
69	Temora	2,160	61			326			9,100								19			83	73	19	61	0.8	-5	325	0.7		1.3		Y		219	56
72	Bland	1,840	270			685		2,120	11,800								13			100	41	92	270	1.3	-3	44	0.1		2.9		Y		418	78
77	Junee	1,670	100			365		1,350	12,000								1			67	56	25	104	0.7	-13	0	0.0		-0.6		N		269	44
78	Blayney	1,950	300			545		3,950	15,700								14			100	32	62	301	1.3	-18	175			-0.8		N		489	89
95	Weddin	1,010				512		3,730	11,900								72			100	210	0	0	0.5	-11	63	0.1		2.3		Y		331	78
99	Coolamon	1,010				410		4,500	17,000								6			100	9	42	75	0.5	-11	128	0.1		-0.1		Y		327	56
102	Lockhart	870	2			490		1,320	13,800								21			58	0	1	2	0.4	-27	0			-0.1		Y		325	89
Totals or Medians (% of LWUs basis) for LWUs without WS		*38,000*	*990*			*490*		*3,745*	*13,500*								*15*			*100*	*41*	*25*	*6,634*	*31.1*	*-11*	*80*	*5.6*		*-0.1*		*6*		*331*	*78*
Statewide Totals & Medians		Total 838,000 WS Connected Properties	Total 300,000 ML (notes 6 and 15)	Median 73% (notes 7 and 10)	Median $601 per assmnt (note 7)	Median $697 per assmnt (note 7)	Median $1,298 per assmnt (note 7)	Median $10,400 per ET (note 7)	Total $28,100M Median $32,800 per assmnt (note 6)	100% of LWUs (82 of 82 LWUs) complied with E.coli guidelines. (note 12)		100% of LWUs (82 of 82 LWUs) complied with chemical guidelines (note 11)		Median 3 Quality Complaints per 1000 props	Median 150 (mins) (note 7)	Median 9 Breaks per 100km (note 7)	Median 26 no. per 1000 props	Median 162kL /connected prop (notes 7 and 15)	Median 70L /connctn / day	Median 100% of Sge treated was compliant (note 13)	Median 38 Breaks & chokes / 100km	70% of LWUs reused effluent 20% of effluent was recycled	Total 35,500 ML (note 16)	Total $1,490 million (note 6)	Median -3% (note 8)	Median $398 per property (note 8)	Total $440 million (note 8)	Median 2.3% (note 8)	Median 2.5% (note 8)	100% of WS LWUs had full cost recovery (note 8)	93% of SGE LWUs had full cost recovery (note 8)	Median $440 per property (note 8)	Median $470 per property (note 8)	92% Overall implementation of BPM (note 14)

Notes

1. This table shows the key 2015-16 performance indicators for NSW water utilities. More detailed indicators are shown in Tables 6 to 18 and Figures 1 to 68.
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 2015-16, 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 96 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
   - 92 regional Local Water Utilities (LWUs).

   The 92 LWUs comprise:
   - 88 local government councils (under *Local Government Act 1993*),
   - 4 LWUs (Central Coast Council, Cobar WB, Fish River WS, Essential Energy) under the *Water Management Act 2000* .

   Of the 92 LWUs,
   - 84 were responsible for water supply (including 3 for bulk supply - Cobar WB, Fish River WS and Rous Water)
   - 86 were responsible for sewerage.
   - 78 were responsible for both water supply and sewerage, 6 for water supply only and 8 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 838,000 (col (1)).
   - *Total annual urban water supplied* was 300,000 ML (column (2)).
   - *Total revenue* for water supply and sewerage was $1,490M (column (23)).
   - *Total current replacement cost (CRC)* of WS and SGE assets was $28,100M, with a median of $32,800 per assessment (column (8)).
7. Statewide medians (regional LWUs):
   - *Residential revenue from water usage charges* - Median is 73% (column (3)), which has increased from 20% to 73% over the past 21 years due to LWU tariff reform and strong pricing signals to encourage efficient water use.
   - *Typical residential bill (TRB)* for water and sewerage - $1,298/assessment for 2015-16 (column (6)).
     The water supply TRB was $601 (column (4)) and the sewerage TRB was $697 (column (5)).
   - *Typical developer charge* for water and sewerage - $10,400/ET for 2015-16 (column (7) and Tables 5 and 6).
   - *Water quality complaints* - 3 per 1000 properties (column (13)).
   - *Average duration of unplanned interruptions* for water supply - 150 minutes (column (14)).
   - *Water main breaks* - 9 breaks per 100km of main (column (15)).
   - *Total water supply and sewerage complaints* - 26 per 1000 properties (column (16)).
   - *Average annual residential water supplied* - 162 kL/connected property (col (17)). This has decreased by 51% since 1991.
   - *Real water loss* - 70 L/connection/day (column (18)).
   - *Median sewage volume that was compliant* - 100% (column (19)).
   - *Median sewerage main breaks and chokes* - 38 per 100km of main (column (20)).
8. Statewide medians (financial):
   The financial results for the amalgamated LWUs are for the period 1 July 2015 to 12 May 2016 and have been excluded from median calculations.
8. Statewide medians (financial) continued from left:
   - *Economic real rate of return (ERRR)* for water supply and sewerage was 1.8%.
     The water supply ERRR was 2.3% and the sewerage ERRR was 2.5% (columns (27) and (28)).
     All LWUs are achieving full cost recovery for water supply and 93% for sewerage (columns (29) and (30)).
     The remaining 6 sewerage utilities which are not achieving full cost recovery need to do so. Refer also to Tables 5 and 6.
   - *Net debt/equity* for water and sewerage was -3% (column (24)).
   - *Operation, maintenance & administration cost (OMA)* for water supply was $440 and sewerage was $470 (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 Appendix H.
   - *Management cost* for water supply and sewerage - $312/connected property.
     Water supply management cost was $148 and sewerage management cost was $164 per connected property.
   - *Capital expenditure* for water supply and sewerage - $398/property (column (25)).
     The total capital expenditure for water supply and sewerage was $440M (column (26)).
9. Category 1 Businesses - 63 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* .
   62 such LWUs are responsible for water supply and 49 such LWUs are responsible for sewerage.
10. Pay-for-use water supply tariff - All of the 81 LWUs providing a reticulated water supply have a pay-for-use water supply tariff (Table 6) (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 - 99% of the 3,700 physical samples and 99.8% of the 3,100 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).
    All LWUs complied with physical quality. 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 21,600 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 99.8% and 99.2% of the urban population in regional NSW complied with the microbiological and chemical requirements of the *2011 ADWG respectively* (columns (10) and (12)).
13. Compliance with EPA Discharge Licence for Sewerage
    - *BOD* - 99% of the 4,290 sampling days for NSW LWUs achieved 100% compliance with the 90-percentile limit of their EPA licence for BOD (Biochemical Oxygen Demand). 90% of LWUs complied with the EPA licence for BOD.
    - *SS* - 96% of the 4,290 sampling days for NSW LWUs achieved 100% compliance with the 90-percentile limit of their EPA licence for SS (Suspended Solids). 84% of LWUs complied with their EPA licence for SS.
      14 LWUs had no EPA discharge licence limit.
14. Best-Practice implementation - overall the LWUs have implemented 92% of the outcomes required by the NSW Best-Practice Management Framework (column (33)).
15. Total Urban Water Supplied of 300,000 ML (column (2)) comprises 270,000 ML potable water, 19,800 ML non-potable water and 11,700 ML recycled water. Similarly, the average annual residential water supplied (column (17)) includes non-potable & recycled water.
16. Reuse of recycled water comprised 35,500 ML which is 20% of the volume of sewage collected and was carried out by 70% of utilities, mostly for agricultural purposes (columns (21) and (22)).
17. National Water Initiative (NWI) Indicators - The 31 NSW water utilities with over 10,000 connected properties (3 metropolitan utilities and 28 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 2015-16.*
    Refer also to Note 12 of section 6.
18. The performance indicators for Sydney and Hunter Water Corporations and Water NSW were obtained from the *National Performance Report 2015-16 for Urban Water Utilities* (www.bom.gov.au).

Table 5A: Water supply and sewerage indicators - financial

	WATER UTILITY	FINANCIAL																																	
		Operating Cost (OMA) WS & SGE ($/property) (23) F13		Operating Cost (OMA) WS & Sge ($M) (23a)		Income per Property ($/property) WS & Sge (24) F7		Total Income WS & Sge ($M) (24a) F3		Revenue from Rates and Charges WS & Sge ($M) (24d)		Capital Expenditure (Assets, Renewals, WS & Sge ($ per prop) (24b) F28 + F29		Return on Assets WS & Sge (%) (24c)		Ratio of OMA to Rates and Charges Revenue WS & Sge (%) (24e)		Economic Real Rate of Return WS & Sge (%) (25) F19			Net Debt to Equity WS & Sge (%) (26) F22		Interest Cover WS & Sge (27) F23		Dividend Payable WS & Sge ($'000) (28) F20		Dividend Payout Ratio WS & Sge (%) (29) F21		CSOs WS & Sge ($'000) (30) F25		% Revenue from CSOs WS & Sge (%) (31) F8		Net Profit after Tax NPAT WS & Sge ($'000) (32) F24		NPAT Ratio WS & Sge (%) (32a) F30	
		14/15	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*
	Sydney Water Corporation	686	689	1,249	1,294	1,429	1,476	2,641	2,803			333	347					1.6	1.7	2.0	96	103	2	2	259,812	389,232	129	71	162769	165,869	6	6	520,686	548,014	19	20
	Hunter Water Corporation	587	584	147	138	1,322	1,340	312	325			483	377					2.4	2.0	2.2	78	91	2	2	37,425	37,300	54	96	14236	14,431	5	4	40,438	39,052	13	12
	Water NSW																																			
LWUs with > 10,000 Properties																																				
112	Central Coast	684	498	91.4	67.7	1,350	1,196	182.7	164.8	161.8	139.2	476	447	0.3	1.0	0.56	0.49	0.3	0.7	1.4	7	8.2	2	3					2616	2,164	1.4	1.3	6,039	25,125	3	15
3	Shoalhaven	776	744	34.0	32.8	1,497	1,482	70.6	70.3	57.3	59.4	513	480	2.9	2.5	0.59	0.55	1.6	2.9	2.4	-1	-3.7	>100	>100	2709	2,718	13	13	1053	1,051	1.5	1.5	20,773	20,533	29	29
5	MidCoast	1,020	972	37.6	36.5	1,772	1,877	68.6	74.6	64.6	70.2	185	379	0.2	0.0	0.58	0.52	1.7	1.7	1.3	22	21.1	1	1					931	944	1.4	1.3	-2,760	-5,165	-4	-7
6	Tweed	943	934	29.6	29.7	1,862	1,889	60.0	61.5	48.3	54.6	225	267	1.0	1.4	0.61	0.54	2.0	1.4	1.8	0	-1.6	3	5					745	750	1.2	1.2	6,521	8,778	11	14
7	Port Macquarie-Hastings	878	874	25.5	25.5	1,683	2,278	51.2	69.2	43.4	47.1	540	654	1.5	4.1	0.59	0.54	2.2	1.3	4.2	-8	-9.3	>100	63	860	870	17	5	729	725	1.4	1.0	5,070	17,849	10	26
11	Albury City	670	673	16.5	16.7	1,393	1,621	35.8	41.1	31.8	35.7	166	342	3.0	4.2	0.52	0.47	2.9	2.9	3.9	-6	-9.0	>100	>100					323	326	0.9	0.8	9,875	15,476	28	38
10	Coffs Harbour	1,014	971	24.6	23.5	1,994	2,125	50.0	53.3	42.6	43.6	586	227	-0.3	0.3	0.58	0.54	0.8	0.8	1.4	13	11.1	1	1					505	509	1.0	1.0	-3,274	1,261	-7	2
13	Tamworth Regional	942	916	19.6	19.4	1,881	2,086	40.8	45.9	34.1	37.7	428	266	2.3	3.3	0.57	0.51	2.9	2.6	3.5	-4	-3.7	10	17		126		1	403	395	1.0	0.9	6,561	13,899	16	30
14	Clarence Valley	851	807	15.1	14.1	1,515	1,629	32.5	35.1	28.2	31.3	1,693	1,180	0.3	0.8	0.54	0.45	1.3	1.2	1.7	11	11.7	1	2					446	449	1.4	1.3	900	4,470	3	13
122	Dubbo Regional	845	781	16.8	15.7	2,093	1,880	42.9	38.9	34.4	32.2	1,116	713	4.2	3.6	0.49	0.49	2.9	4.3	3.8	-3	-3.8	44	27					252	221	0.6	0.6	15,620	13,188	36	34
119	Queanbeyan-Palerang	1,297	961	25.3	24.9	1,829	1,598	35.8	33.3	30.8	30.6	268	397	1.6	1.1	0.82	0.81	1.7	1.2	0.6	-16	-16.1	100	>100					185	187	0.5	0.6	3,095	2,939	9	9
15	Eurobodalla	906	961	17.0	18.2	1,779	2,025	34.8	39.9	33.1	34.4	349	705	1.2	1.8	0.51	0.53	0.7	1.3	1.8	-1	-2.8	8	34	530	531	12	7	390	392	1.1	1.0	4,352	8,100	12	20
16	Wingecarribee	810	809	14.0	14.4	1,512	1,961	29.0	38.0	23.9	26.0	345	347	2.1	4.2	0.59	0.55	1.4	2.3	4.3	-4	-7.6	15	100					357	366	1.2	1.0	6,966	15,460	24	41
19	Orange	748	746	12.7	13.0	1,811	1,687	31.7	30.4	20.3	23.0	1,259	656	4.1	3.4	0.63	0.57	2.4	3.5	2.9	-12	-13.1	>100	>100					259	264	0.8	0.9	13,597	11,377	43	37
21	Bathurst Regional	980	1,046	15.5	16.8	1,744	1,705	27.4	27.4	22.1	24.2	825	476	2.2	1.6	0.70	0.70	1.8	2.0	1.4	-12	-12.1	>100	>100					216	218	0.8	0.8	4,858	3,710	18	14
23	Bega Valley	1,284	1,448	16.8	19.0	1,856	1,990	26.7	28.7	24.8	26.1	619	399	-0.1	-0.6	0.68	0.73	-0.1	-0.1	-0.5	-3	-3.4	0	0					272	278	1.0	1.0	-487	-2,231	-2	-8
24	Ballina	1,141	1,090	18.4	18.3	1,125	1,973	16.2	30.1	23.6	25.1	579	315	0.9	1.1	0.78	0.73	1.1	2.3	2.5	17	15.4	2	2					305	314	1.9	1.0	-10,138	2,754	-63	9
22	Lismore	948	970	14.6	15.1	1,516	1,789	21.7	25.1	22.5	23.6	454	620	0.8	1.7	0.65	0.64	0.2	0.8	1.7	-2	-2.4	14	>100					210	243	1.0	1.0	617	3,789	3	15
25	Kempsey	1,040	1,019	11.5	10.8	1,643	1,628	20.6	20.3	18.4	19.2	594	579	0.3	0.1	0.62	0.56	-0.2	0.9	0.8	8	7.3	1	1					258	262	1.3	1.3	-694	-1,008	-3	-5
27	Byron	1,162	1,133	14.0	14.0	2,237	2,538	25.1	29.1	21.7	22.5	111	355	1.7	3.6	0.65	0.62	3.3	3.3	5.2	14	10.6	2	3					156	169	0.6	0.6	2,755	6,398	11	22
20	Goulburn Mulwaree	756	731	8.3	8.1	1,889	1,987	21.1	22.4	19.3	20.0	763	490	2.1	2.3	0.43	0.41	2.4	2.3	2.6	-6	-7.9	10	9					47	184	0.2	0.8	5,794	6,728	27	30
26	Essential Energy	1,357	1,607	14.0	16.7	1,994	2,964	21.0	31.2	20.4	19.3	619	1,383			0.69	0.86													455	450	2.2	1.4	676	106	3	0
	Totals for >10,000 Properties				*471*				*1,011*		*845*												*4 LWUs paid a dividend*											*19 of 22 LWUs had a +ve NPAT*			
LWUs with 4,001 - 10,000 Properties																																			
111	Armidale Regional	705	799	7.0	8.0	1,588	1,494	15.9	15.1	14.4	12.6	571	305	2.0	1.5	0.49	0.64	1.0	1.7	1.2	-7	-9.0	100	>100					152	151	1.0	1.0	4,764	3,618	30	24
120	Snowy Monaro Regional	841	772	7.9	7.2	1,467	1,491	14.5	14.8	13.5	14.0	475	489	1.4	2.5	0.58	0.51	0.5	1.1	2.3	-10	-11.4	100	>100					108	110	0.7	0.7	2,058	3,783	14	26
30	Griffith	1,292	1,324	10.1	10.3	1,982	2,197	16.8	18.4	16.1	16.8	159	257	0.6	1.2	0.63	0.61	1.0	1.0	1.5	2	-0.2	3	5					127	127	0.8	0.7	1,674	3,229	10	18
31	Lithgow	1,188	1,091	9.3	8.5	1,628	1,767	13.2	14.3	12.9	13.5	262	274	0.4	2.3	0.72	0.63	1.8	1.3	2.9	10	8.7	1	5					175	183	1.3	1.3	239	-499	2	-3
32	Mid-Western Regional	902	974	7.0	7.6	1,647	1,606	13.4	13.2	11.6	12.2	188	229	2.1	1.3	0.61	0.62	2.2	2.4	1.6	-4	-4.9	7	7					113	119	0.8	0.9	2,343	1,620	18	12
116	Hilltops	1,134	602	7.6	6.8	1,440	1,540	10.5	11.3	10.1	10.6	216	531	0.4	2.2	0.75	0.64	1.0	0.7	2.4	-4	-4.2	2	16					238	137	2.3	1.2	-114	1,859	-1	16
33	Richmond Valley	1,133	1,144	8.2	8.4	1,736	1,685	12.4	12.2	12.6	12.6	348	537	1.3	1.1	0.65	0.66	1.6	1.8	1.6	3	2.6	4	3					161	161	1.3	1.3	1,366	955	11	8
35	Singleton	796	798	5.1	5.0	1,227	1,759	8.3	11.9	7.6	8.4	171	890	2.8	6.4	0.67	0.60	1.9	0.4	4.4	-37	-36.7	>100	>100		370		7	72	78	0.9	0.7	1,972	5,421	24	46

Table 5A: Water supply and sewerage indicators - financial

	WATER UTILITY	FINANCIAL																													
		Operating Cost (OMA) WS & SGE ($/property) (23) F13		Operating Cost (OMA) WS & Sge ($M) (23a)		Income per Property ($/property) WS & Sge (24) F7		Total Income WS & Sge ($M) (24a) F3		Revenue from Rates and Charges WS & Sge ($M) (24d)		Capital Expenditure (Assets, Renewals, WS & Sge ($ per prop) (24b) F28 + F29		Return on Assets WS & Sge (%) (24c)		Ratio of OMA to Rates and Charges Revenue WS & Sge (%) (24e)		Economic Real Rate of Return WS & Sge (%) (25) F19			Net Debt to Equity WS & Sge (%) (26) F22		Interest Cover WS & Sge (27) F23		Dividend Payable WS & Sge ($'000) (28) F20		Dividend Payout Ratio WS & Sge (%) (29) F21		CSOs WS & Sge ($'000) (30) F25		% Revenue from CSOs WS & Sge (%) (31) F8		Net Profit after Tax NPAT WS & Sge ($'000) (32) F24		NPAT Ratio WS & Sge (%) (32a) F30	
		14/15	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*
34	Nambucca	769	764	4.6	4.6	1,622	1,603	10.3	10.3	8.7	9.2	1,861	152	0.9	0.6	0.53	0.50	1.3	1.7	1.5	7	5.4	2	2					125	157	1.2	1.5	1,481	952	14	9
36	Parkes	957	959	5.5	5.7	1,732	2,021	10.3	12.1	8.9	9.6	2,030	3,273	3.3	4.1	0.62	0.59	1.0	1.8	3.1	-29	-26.3	>100	>100					107	108	1.0	0.9	3,334	4,843	32	40
41	Muswellbrook	1,001	1,018	5.8	5.9	1,543	1,622	9.0	9.5	8.0	8.6	673	881	1.5	2.0	0.73	0.69	2.5	0.5	0.8	-21	-20.5	>100	>100					66	68	0.7	0.7	1,314	2,036	15	21
37	Inverell	829	797	4.4	3.5	1,192	1,263	6.9	7.3	6.1	6.7	97	235	0.8	2.1	0.72	0.52	0.8	0.8	1.8	-6	-7.4	>100	>100					130	127	1.9	1.7	756	2,365	11	32
121	Snowy Valleys	1,046	877	5.7	4.8	1,519	1,191	8.6	6.7	8.1	7.2	764	1,282	0.1	-0.1	0.70	0.66	1.1	0.2	0.1	-1	0.7	2	1					108	98	1.3	1.5	-407	-897	-5	-13
114	Federation	898	884	4.9	4.9	1,761	1,431	9.6	8.1	8.8	7.5	464	437	3.2	1.9	0.56	0.66	2.3	3.2	1.7	-11	-10.8	57	>100					104	112	1.1	1.4	2,101	1,313	22	16
39	Cowra	1,188	1,240	5.5	5.7	1,893	1,971	10.1	10.5	8.7	9.1	551	235	1.3	1.5	0.64	0.63	1.3	2.4	2.6	6	4.0	2	2					112	111	1.1	1.1	291	489	3	5
38	Moree Plains	1,042	1,234	4.5	5.4	2,118	2,235	9.7	10.3	8.7	10.1	517	799	3.4	2.7	0.52	0.53	2.6	4.1	3.3	3	2.3	6	5	386	244	15	11	43	44	0.4	0.4	2,635	2,122	27	21
117	Murray River	885	763	3.9	3.4	1,489	1,416	6.7	6.5	6.0	5.7	329	253	2.0	2.6	0.65	0.60	1.5	1.7	2.3	-11	-13.1	100	>100					86	88	1.3	1.3	1,289	-21	19	0
45	Upper Hunter	1,112	1,131	4.8	5.0	2,103	1,720	9.3	7.9	7.2	7.5	925	715	3.5	1.5	0.67	0.67	0.5	3.2	1.3	-12	-11.1	>100	>100	30	29	1	2	81	80	0.9	1.0	2,832	1,176	31	15
46	Narrabri	912	996	3.8	4.2	1,546	1,620	6.8	7.2	6.5	6.5	407	803	1.9	2.2	0.59	0.65	3.2	1.0	1.2	-24	-23.6	>100	>100					66	66	1.0	0.9	1,147	1,395	17	19
44	Gunnedah	759	708	3.2	2.9	1,678	1,925	7.3	7.8	5.8	6.4	655	497	4.8	5.6	0.55	0.45	3.2	4.0	4.8	-22	-23.8	>100	>100					77	75	1.1	1.0	3,109	3,798	43	49
47	Bellingen	1,053	1,046	3.6	3.6	1,307	1,342	5.3	5.5	4.9	5.2	1,838	1,085	0.9	0.8	0.73	0.69	0.9	0.0	0.1	-18	-16.9	>100	>100					89	97	1.7	1.8	532	583	10	11
48	Leeton	1,056	1,028	4.0	3.9	1,425	1,636	5.8	6.8	5.6	6.4	718	289	0.7	2.7	0.71	0.60	-0.5	-0.1	1.6	-19	-21.0	0	>100					69	72	1.2	1.1	21	1,192	0	18
	Totals for 4,001 - 10,000 Props				*125*				*228*		*206*												*No. of LWUs paying dividend is 3*										*19 of 22 LWUs had a +ve NPAT*			
	LWUs with 1,501 - 4,000 Properties																																			
115	Cootamundra-Gundagai	987	606	3.8	3.5	1,341	1,264	5.4	5.1	5.2	4.9	152	300	1.0	1.6	0.74	0.72	1.7	0.9	1.4	-15	-14.3	100	>100					78	96	1.5	1.9	505	696	9	14
51	Forbes	1,136	981	4.0	3.5	1,423	1,599	5.3	6.0	5.1	5.8	265	385	0.0	1.8	0.78	0.60	-0.5	-0.4	1.4	-16	-18.0	0	>100					68	69	1.3	1.2	16	1,184	0	20
53	Berrigan	780	850	2.8	3.1	1,382	1,475	4.9	5.3	4.4	4.8	54	102	2.7	3.3	0.62	0.64	1.9	2.1	2.5	-19	-22.2	>100	>100					92	91	1.9	1.7	836	1,030	17	20
54	Edward River	956	796	3.2	2.8	1,500	1,403	5.2	5.1	5.1	4.9	180	76	1.6	2.1	0.63	0.56	1.9	1.2	1.7	-8	-10.5	>100	>100	192	21			72	68	1.4	1.3	916	1,325	17	26
55	Warrumbungle	1,105	1,189	3.3	3.5	1,187	1,386	3.9	4.6	3.7	4.3	179	144	-0.8	0.3	0.89	0.83	-0.6	-1.1	-0.2	-8	-7.5	0	0					100	68	2.5	1.5	-462	15	-12	0
56	Yass Valley	872	890	2.5	2.6	1,823	2,624	5.9	8.7	4.7	5.2	0	0	2.2	5.0	0.53	0.50		3.5	6.2	18	26.1	3	6					48	49	0.8	0.6	981	2,871	17	33
60	Glen Innes Severn	677	695	2.0	2.0	1,074	1,191	3.3	3.5	3.1	3.4	668	380	0.9	1.5	0.63	0.60	1.5	1.5	2.1	6	5.5	3	4					72	76	2.2	2.2	200	445	6	13
59	Lachlan	1,249	1,249	3.5	3.4	1,580	1,741	4.5	5.0	4.4	4.9	950	398	-1.0	0.1	0.78	0.70	-1.5	-1.5	-0.7	-14	-14.4	0	0					40	39	0.9	0.8	-755	-58	-17	-1
61	Liverpool Plains	906	860	2.3	2.0	1,378	1,706	3.8	4.4	3.7	4.2	326	1,503	1.0	2.5	0.61	0.48	1.5	0.8	2.2	-8	-10.5	>100	>100					57	58	1.5	1.3	719	1,781	19	41
74	Wentworth	784	803	1.6	1.7	1,655	1,728	3.8	4.0	3.6	3.7	279	427	3.6	2.8	0.45	0.45	3.6	3.6	2.6	-15	-16.8	>100	>100					37	36	1.0	0.9	1,204	876	31	22
67	Cobar	1,271	1,378	2.7	3.0	2,214	1,820	5.0	4.1	3.6	3.7	0	0	7.9	2.4	0.76	0.81	-0.9	7.6	1.9	-15	-16.7	>100	>100					25	26	0.5	0.6	1,620	490	32	12
62	Narromine	1,077	894	2.2	1.9	1,283	1,347	2.7	2.9	2.7	2.8	488	1,219	1.6	2.9	0.80	0.67	1.9	0.7	2.2	-29	-26.3	>100	>100					41	41	1.5	1.4	299	782	11	27
63	Narrandera	989	864	1.9	1.6	1,356	1,433	2.8	3.0	2.8	2.9	523	474	4.0	3.2	0.69	0.57	3.8	2.5	1.8	-27	-27.1	>100	>100					44	44	1.6	1.5	621	520	22	17
68	Tenterfield	1,098	1,070	2.0	2.1	1,687	1,828	3.4	3.6	3.2	3.4	668	580	0.5	0.4	0.64	0.61	1.6	0.8	0.7	1	0.0	2	3					49	53	1.5	2	163	131	5	4
73	Upper Lachlan	1,055	1,080	1.9	1.9	1,422	1,634	2.8	3.3	2.7	3.1	349	347	0.1	1.1	0.70	0.62	1.8	-0.1	0.9	-10	-11.4	0	>100					37	36	1.3	1	-53	394	-2	12
79	Walgett	675	1,296	1.3	2.4	1,621	1,578	3.1	3.0	2.3	2.7	1,038	28	4.9	-1.2	0.53	0.90	-6.5	4.5	-0.4	-17	-19.2	>100	0					21	23	0.7	1	1,493	-479	48	-16
70	Kyogle	1,169	1,141	2.0	2.0	1,250	1,555	2.4	3.0	2.4	2.5	310	2,027	0.1	1.0	0.82	0.81	-0.2	0.4	1.4	0	-1.4	1	4					52	53	2.2	2	-102	352	-4	12
80	Greater Hume	848	826	2.2	2.3	1,689	1,856	3.1	3.5	3.0	3.3	168	495	0.2	0.7	0.73	0.69	-0.2	0.0	0.4	-7	-7.3	0	>100					51	48	1.6	1	104	331	3	9
75	Coonamble	673	692	1.0	1.0	1,032	1,238	1.7	2.1	1.7	2.0	177	270	-0.1	0.9	0.61	0.52	-0.6	-0.8	0.4	-22	-23.7	0	>100					22	23	1.3	1.1	-70	165	-4	8
	Totals for 1,501 - 4,000 Props				*46*				*80*		*73*												*No. of LWUs paying dividend is 0*										*17 of 19 LWUs had a +ve NPAT*			

Table 5A: Water supply and sewerage indicators - financial

	WATER UTILITY	FINANCIAL																																	
		Operating Cost (OMA) WS & SGE ($/property) (23) F13		Operating Cost (OMA) WS & Sge ($M) (23a)		Income per Property ($/property) WS & Sge (24) F7		Total Income WS & Sge ($M) (24a) F3		Revenue from Rates and Charges WS & Sge ($M) (24d)		Capital Expenditure (Assets, Renewals, WS & Sge ($ per prop) (24b) F28 + F29		Return on Assets WS & Sge (%) (24c)		Ratio of OMA to Rates and Charges Revenue WS & Sge (%) (24e)		Economic Real Rate of Return WS & Sge (%) (25) F19			Net Debt to Equity WS & Sge (%) (26) F22		Interest Cover WS & Sge (27) F23		Dividend Payable WS & Sge ($'000) (28) F20		Dividend Payout Ratio WS & Sge (%) (29) F21		CSOs WS & Sge ($'000) (30) F25		% Revenue from CSOs WS & Sge (%) (31) F8		Net Profit after Tax NPAT WS & Sge ($'000) (32) F24		NPAT Ratio WS & Sge (%) (32a) F30	
		14/15	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*
LWUs with 200 - 1,500 Properties																																			
81	Gwydir	862	935	1.2	1.3	1,404	1,492	2.1	2.2	2.0	2.1	0	252	2.2	2.2	0.58	0.60	5.9	2.9	2.5	-5	-5.7	4	10.0					44	44	2.1	2	225	192	11	9
85	Uralla	749	787	1.0	1.1	1,038	1,095	1.5	1.6	1.4	1.6	59	31	0.9	0.8	0.67	0.67	-0.3	0.5	0.4	-11	-12.1	>100	>100					30	31	2.0	2	208	190	14	12
87	Bourke	1,472	1,202	2.0	1.6	1,961	1,847	2.7	2.6	2.4	2.4	0	1480	1.6	0.3	0.82	0.67	-0.1	1.0	-0.2	-13	-14.4	>100	0					11	13	0.4	1	294	39	11	2
84	Gilgandra	787	783	1.0	1.0	1,241	1,364	1.7	1.8	1.7	1.8	274	685	0.5	0.4	0.62	0.57	0.7	0.1	0.2	-12	-9.3	>100	>100					26	26	1.6	1	-36	-91	-2	-5
86	Hay	1,078	1,231	1.4	1.6	1,576	1,516	2.1	2.0	2.0	2.0	159	374	1.2	-0.2	0.69	0.82	0.1	0.9	-0.4	-17	-17.1	>100	0.0					24	22	1.1	1	259	-33	12	-2
83	Oberon	1,236	1,378	1.6	1.8	1,767	2,168	2.3	2.8	2.2	2.8	189	79	2.1	3.8	0.71	0.64	-1.0	1.9	3.7	-7	-10.1	>100	>100					21	22	0.9	1	595	757	26	27
118	Murrumbidgee	806	679	1.0	0.9	1,025	997	1.3	1.3	1.3	1.2	188	749	0.1	0.7	0.80	0.69	-1.0	-0.8	0.0	-20	-18.5	0	>100					22	22	1.7	2	-40	75	-3	6
92	Carrathool	1,178	1,067	1.4	1.2	1,874	1,835	2.3	2.1	2.2	1.8	214	963	2.4	2.3	0.61	0.65	0.8	2.6	2.7	2	1.6	15	8					15	14	0.7	1	474	473	21	22
89	Bogan	2,042	2,450	2.3	2.6	2,535	3,153	3.0	3.5	2.5	2.5	0	426	1.4	2.1	0.94	1.06	0.4	0.9	1.6	-15	-15.1	>100	>100					17	17	0.6	1	282	432	9	12
91	Cabonne	1,245	1,183	2.0	2.1	2,180	2,540	2.6	3.0	2.3	2.7	1154	1206	-0.8	-0.4	0.87	0.79	-0.7	-1.0	-0.6	-4	-3.0	0	0					37	37	1.5	1.2	-500	-501	-20	-17
96	Warren	982	998	0.9	0.9	1,237	1,246	1.2	1.2	1.1	1.1	497	705	-0.4	-0.8	0.76	0.77	-2.1	-1.2	-1.5	-19	-17.4	0	0					18	18	1.5	2	-73	-134	-6	-11
98	Walcha	1,052	1,100	0.9	1.0	1,048	1,121	1.0	1.0	0.9	1.0	143	163	-0.9	-0.8	0.98	0.95	-0.5	-1.2	-1.0	-7	-6.8	0	0					18	19	1.9	2	-188	-169	-20	-16
100	Balranald	819	888	0.7	0.8	1,481	1,580	1.3	1.4	1.3	1.3	0	73	0.4	-1.4	0.55	0.59	0.2	0.7	-1.4	-7	-8.2	2	0					13	14	1.0	1	77	-198	6	-14
103	Central Darling	1,142	1,477	0.8	0.9	2,931	1,421	2.2	1.0	0.8	0.9	0	234	2.4	-1.9	0.91	0.98	4.2	2.6	-2.0	-2	-4.1	>100	0.0					0	0	0.0	0	695	-537	32	-52
105	Brewarrina	2,222	2,010	1.1	1.0	3,164	3,132	1.5	1.5	1.4	1.4	231	1393	-0.2	0.9	0.75	0.67	6.2	0.0	0.8	-17	-16.5	0	>100					4	4	0.3	0	-97	-2	-7	0
	Totals for 200 - 1,500 Props				*20*				*29*		*27*												*No. of LWUs paying dividend is 0*										*7 of 15 LWUs had a +ve NPAT*			
LWUs with a single service (WS or Sge)																																			
4	Rous (Bulk Supplier) (NO SGE)	268	258	11.0	10.7	554	655	22.8	27.1	17.4	18.2			1.3	2.5	0.63	0.59	1.7	1.8	3.0	5	2.2	4	6					10	10	0.0	0.0	2,523	7,219	11	27
8	Riverina (Groundwater) (NO SGE)	277	236	8.3	7.7	1,019	1,036	30.4	32.8	25.0	26.0	397	1104	7.9	5.9	0.33	0.29	5.3	7.5	5.7	-9	-1.8	>100	>100					194	219	0.6	0.7	11,244	14,051	37	43
12	Fish River WS (Bulk Supplier, NO SGE)																																		
28A	Goldenfields (Reticulator) (NO SGE)	664	834	6.8	6.8	1,437	1,484	14.8	15.3	13.7	13.8		348	4.0	4.5	0.50	0.50	2.3	3.6	3.9	-13	-16.3	>100	>100					97	96	0.7	0.6	5,909	6,290	40	41
28B	Goldenfields (Bulk) (NO SGE)	152	151	2.9	3.0	286	303	5.5	6.0	5.2	5.6			0.5	0.8	0.56	0.54	0.9	0.0	0.3	-15	-15.3	>100	>100					0	0	0.0	0.0	322	617	6	10
40	Central Tablelands (NO SGE)	626	612	3.4	3.4	956	1,023	5.2	5.6	4.8	5.0	154	151	0.1	1.1	0.72	0.68	1.0	0.1	1.1	-6	-8.4	4	>100					57	56	1.1	1.0	74	532	1	9
9	Wagga Wagga (NO WS)	418	405	11.4	11.2	721	672	19.6	18.6	14.8	15.7	161	146	0.5	0.1	0.77	0.71	0.3	1.3	0.9	5	4.8	2	1					159	159	0.8	0.9	1,052	73	5	0
30A	Hawkesbury (NO WS)	563	691	4.3	5.3	755	889	5.8	6.8	5.6	6.4	46	80	-0.3	-0.8	0.77	0.83	-0.4	-0.3	-0.8	1	-1.4	0	0					40	40	0.7	0.6	-252	-722	-4	-11
69	Temora (NO WS)	179	219	0.4	0.5	348	384	0.8	0.8	0.7	0.7	0	325	1.7	1.6	0.57	0.66	0.0	1.5	1.3	-8	-4.6	>100	>100					26	24	3.5	2.9	184	178	24	21
72	Bland (NO WS)	359	418	0.7	0.8	693	729	1.3	1.3	1.3	1.3	0	44	3.4	3.0	0.53	0.58	2.6	3.3	2.9	-2	-3.4	>100	>100					20	21	1.6	1.6	381	329	30	25
77	Junee (NO WS)	260	269	0.4	0.4	425	414	0.7	0.7	0.7	0.7	56	0	0.3	-0.1	0.63	0.66	-0.8	-0.2	-0.6	-16	-13.4	0	0					19	16	2.7	2.3	36	-10	5	-1
78	Blayney (NO WS)	363	489	0.7	1.0	617	690	1.2	1.3	1.1	1.3	184	175	0.4	-0.2	0.62	0.74	1.2	-0.2	-0.8	-17	-18.1	0	0					13	13	1.1	1.0	74	-37	6	-3
95	Weddin (NO WS)	334	331	0.3	0.3	504	536	0.5	0.5	0.4	0.5	0	63	2.0	2.4	0.74	0.65	1.8	1.9	2.3	-9	-10.9	>100	>100					16	16	3.4	3.0	101	137	21	25
99	Coolamon (NO WS)	271	327	0.3	0.3	505	524	0.5	0.5	0.4	0.5	109	128	0.6	0.3	0.64	0.70	-0.7	0.2	-0.1	-11	-11.4	>100	0					13	13	2.5	2.5	12	-30	2	-6
102	Lockhart (NO WS)	213	325	0.2	0.3	463	494	0.4	0.4	0.4	0.4	0	0	1.5	0.3	0.48	0.69	-0.2	1.0	-0.1	-26	-26.8	>100	0					9	11	2.2	2.6	72	-28	18	-7

NOTE:

1. The 2015-16 financial results for the amalgamated LWUs are for the period 1 July 2015 to 12 May 2016 (see Appendix L).

Table 5B: Water supply & sewerage - levels of service, environmental, main sources of water supply

	WATER UTILITY	LEVELS OF SERVICE						ENVIRONMENTAL								MAIN SOURCES OF WATER SUPPLY						
		Billing Complaints WS & Sge			% of calls Answered by Operator within 30 seconds			Greenhouse Gas Emissions								Surface Water Supply			Groundwater			
								Water		Sewerage		Other		Total		Major Sources of Water	Storage Dams	Bulk Raw Water Supplier	>50% of Supply from Grnd Water	No. Bores	Bulk Supplier	Coastal (C) or Inland (I)
		(per 1000 properties)			(%)			(tonnes CO2 per 1000 properties)		(tonnes CO2 per 1000 properties)		(tonnes CO2 per 1000 properties)		(tonnes CO2 per 1000 properties)							(potable water)	
		(33) C12			(34) C14			(35a) E9		(35b) E10		(35c) E11		(35d) E12		(36)	(37)	(38)	(39)	(40)	(41)	(41a)
		13/14	14/15	15/16	13/14	14/15	15/16	14/15	15/16	14/15	15/16	14/15	15/16	14/15	15/16							
	Sydney Water	2	1	1	83	79	73	63	60	126	110	-102	-24	84	144							
	Hunter Water	2	2	2	71	70	71	103	106	105	56	17	21	220	181							
LWUs with > 10,000 Properties																						
112	Central Coast							167	135	287	250	14	19	461	397	Wyong R, Ourimbah Ck, Mooney Mooney Ck, Mangrove Ck and two-way transfers from/to Hunter Water.	Mangrove Ck (190GL), Mooney Ck (4.6GL), Mardi (7.4GL)	GW JWA		34		C
3	Shoalhaven	0	0	0	96	96	98	180	174	282	306	6	8	437	454	Porters Ck, Kangaroo R & Shoalhaven R to supply Berry & Kangaroo Valley down to Lake Tabourie.	Danjera (7.8GL), Porters Ck (1.9GL), Bamarang (3.8GL), Flat Rock Ck (570ML)					C
5	MidCoast	1	1	1				226	166	263	194	25	32	490	371	Manning R to Bootawa Dam to supply Manning, from Crawford & Karuah R to supply Bulahdelah & Stroud, a bore and Barrington R to supply Gloucester and Barrington.	Bootawa (2.28GL)			15		C
6	Tweed	0	1		56	48	49	155	148	264	313	6	6	413	453	Tweed R to supply Murwillumbah, Tweed Heads & the Tweed Coast villages including Bogangar & Mooball.	Clarrie Hall (16GL)					C
7	Port Macquarie-Hastings	0	0	0	75	84	98	178	125	260	279	0	0	416	385	Hastings R to supply Port Macquarie, Wauchope and the Camden Haven areas.	Cowarra (10GL), Port Macquarie (2.5GL)			1		C
11	Albury City	0	0	1	26	30	63	236	273	168	204	1	9	393	477	Murray River to supply Albury.		Water NSW				I
10	Coffs Harbour	0	0	0	99	99	99	109	105	363	332	35	37	487	456	Nymboida R (via Shannon Ck Dam) & Orara R to Karangi Dam to supply Coffs Harbour.	Karangi (5.6GL), Woolgoolga (270ML)				Clarence Valley	C
13	Tamworth Regional	0	0	0				186	194	228	252	0	0	393	423	Peel R & Dungowan Ck to supply Tamworth; Manilla R, Barraba Ck & Connors Ck Dam to supply Barraba; Namoi R & Manilla R to supply Manilla.	Dungowan (5.7GL), Connors Ck (360ML)	Water NSW		14		I
14	Clarence Valley	2	2	2				69	30	74	215			119	177	Nymboida R to supply Grafton, Maclean, Yamba, Iluka, and other villages	Shannon Creek (30GL)					C
122	Dubbo Regional	1	0	1	89	87	93	293	303	205	200	4	2	488	492	Macquarie River and groundwater (21ML/d) to supply Dubbo. Macquarie River to supply Wellington.		Water NSW		9		I
119	Queanbeyan-Palerang	2	2	2				27	26	163	210	6	7	195	233	Queanbeyan is a reticulator, with 98% a fully treated bulk water supply. Shoalhaven R to supply Braidwood, Molonglo R to dam to supply Captain's Flat & groundwater (4.8ML/d) to supply Bungendore.	Captains Flat (820ML), Braidwood (80ML)			5	ICON Water	I
15	Eurobodalla	0	0	0		100	72	136	127	205	205	35	16	359	335	Tuross R, Buckenboura R & Moruya R to supply Batemans Bay, Moruya, Narooma & Tuross Hd.	Deep Creek (4.9GL)			5		C
16	Wingecarribee	0	0	0	79	53	66	162	192	337	316	30	35	469	492	Wingecarribee Dam & Bundanoon Ck to supply Mittagong, Berrima, Bowral, Moss Vale, Exeter, Bundanoon, Burrawang, Robertson & other villages.	Bundanoon, Medway (3.3GL)	Water NSW				C
19	Orange	8					65	204	285	207	241	5	4	405	515	Spring Ck, Suma Pk, Gosling Ck to supply Orange. Blackmans Swamp Ck and Ploughmans Ck emergency stormwater harvesting (1,300ML/a).	Suma Pk (18.1GL), Spring Ck (4.43GL), Gosling Ck (650ML)			6		I
21	Bathurst Regional	0	0	0				158	219	177	197			337	416	Macquarie R and Campbell R to supply Bathurst.	Ben Chifley (30.4GL), Winburndale (1.8GL)			2		I
23	Bega Valley	0	0	0	79	87	45	107	98	239	345	32	31	342	422	Towamba R (aquifer), Tantawanglo Ck, Bega R (aquifer), Bemboka R, Brogo R, Illawambra Ck, Couria Ck.	Yellow Pinch (3GL), Ben Boyd (800ML), Tilba (135ML)		Yes	11		C
24	Ballina		0	0			100	13	10	384	373		23	390	385	Council is a reticulator. 93% of supply is fully treated bulk supply. 7% from Richmond R & g/water (1.2ML/d).	Marom (66ML)			2	Rous	C
22	Lismore	2	0	0	80	80	77	27	26	220	213	10	9	233	229	Lismore Council is a reticulator with a fully treated bulk water supply.	Nimbin (25ML)				Rous	C
25	Kempsey	0	0	0	48	45	42	162	150	151	151	43	32	323	292	Macleay R and g/water (71ML/d) to supply Kempsey, South West Rocks, Crescent Head & Hat Head.	Steuart McIntyre (2.5GL), other (400ML)		Yes	37		C
27	Byron	2	2	2				6	6	169	174			166	172	Council is a reticulator for 85% of supply (fully treated bulk water). 15% of the supply, including Mullumbimby is provided by Byron.	Wilson R (136ML)				Rous	C
20	Goulburn Mulwaree	0	0	0				99	110	346	553	18	20	449	662	Wollondilly R to supply Goulburn and Marulan.	Pejar (9GL), Sooley (6.25GL)					C
26	Essential Energy	0	0	1	78	78	78	732	1075	50	47			779	1,118	Water is drawn from local sources at Broken Hill and from Menindee Lakes.	Stephens Ck (24GL), Imperial Lk (700ML), Umberumberka (13GL)					I
LWUs with 4,001 - 10,000 Properties																						
111	Armidale Regional	0	0	0				148	138	107	239	11	62	262	431	Macleay River to supply Armidale. Gara River to supply Guyra.	Malpas (13GL), Oaky R (2.7GL), Puddledock Ck (930ML), Guyra (375ML), Tingha (90ML)					C
120	Snowy Monaro Regional	7	6	5	99	99	99	166	178	178	235	11	21	339	406	Snowy R to supply Jindabyne, Berridale, Adaminaby, Dalgety & Kalkite. Murrumbidgee R & groundwater (0.7ML/d) to supply Cooma, Bredbo & Nimmitabel. Coolumbooka R, Delegate R and Snowy R to supply Bombala & Delegate.	Coolumbooka (215ML), 1 dam for Nimmitabel (100ML)	Water NSW		5		C
30	Griffith	0	0	2				274	269	202	199	2	2	445	440	Murrumbidgee Irrigation Area Main Canal to supply Griffith.	Griffith (360ML)	Water NSW				I
31	Lithgow		6			100	100		61		199				246	Council is a reticulator for 39% of supply, remaining from Farmers Ck Dam to supply Lithgow.	Farmers Creek (1.5GL)				Fish River WS	C

Table 5B: Water supply & sewerage - levels of service, environmental, main sources of water supply

	WATER UTILITY	LEVELS OF SERVICE						ENVIRONMENTAL								MAIN SOURCES OF WATER SUPPLY						
		Billing Complaints WS & Sge			% of calls Answered by Operator within 30 seconds			Greenhouse Gas Emissions								Surface Water Supply			Groundwater		Bulk Supplier	Coastal (C) or Inland (I)
								Water		Sewerage		Other		Total		Major Sources of Water	Storage Dams	Bulk Raw Water Supplier	>50% of Supply from Grnd Water	No. Bores	(potable water)	
		(per 1000 properties)			(%)			(tonnes CO2 per 1000 properties)		(tonnes CO2 per 1000 properties)		(tonnes CO2 per 1000 properties)		(tonnes CO2 per 1000 properties)								
		(33) C12			(34) C14			(35a) E9		(35b) E10		(35c) E11		(35d) E12		(36)	(37)	(38)	(39)	(40)	(41)	(41a)
		13/14	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*							
32	Mid-Western Regional		0	1				197	179	203	326	4	5	384	479	Cudgegong R to supply Rylstone and Kandos and Cudgegong R and groundwater (13ML/d) to supply Mudgee and Gulgong.	Rylstone (3.32GL)			28		I
116	Hilltops	3	4	3	95	95		24	23	146	158	9	14	141	153	Young and Harden are reticulated with a fully treated bulk water supply. Boorowa River to supply Boorowa.	Boorowa (335ML)			2	Goldenfields	I
33	Richmond Valley															Casino has run-of-river supply from Richmond R. Supply for Lower River (20% of total) from Rous.		Water NSW			Rous	C
35	Singleton	0	0	0				192	87	108	251	11	7	294	306	Hunter River and Glennies Creek to supply Singleton.		Water NSW		14		C
34	Nambucca				100	100	100	159	192	214	273		33	351	467	Groundwater to supply Nambucca Heads, Macksville, Bowraville, South Head and Valla Beach.			Yes	10		C
36	Parkes	3	3	8	100	100	100	650	918	547	555	16	17	1131	1,407	Billabong Ck, Beargamil Ck & g/water (26ML/d) to supply Parkes & Peak Hill. 8% of supply is from Forbes.	Lk Endeavour (2.4GL), Beargamil (480ML)	Water NSW		7	Forbes	I
41	Muswellbrook	1	1	0				0	207	39	186	15	11	53	401	Hunter River and groundwater (0.5ML/d) to supply Muswellbrook and Denman.		Water NSW		3		C
37	Inverell	1	1	1	100	100	100	123	123	140	132	16	16	250	249	Gwydir R and groundwater (1ML/d) to supply Inverell, Yetman and Ashford.	Lk Inverell (1.5GL)	Water NSW		1		I
121	Snowy Valleys	2	3	3	99	99	99	147	172	177	165	4	4	313	328	Tumut R to supply Tumut, Little Gilmore Ck to supply Batlow, Nimbo Ck to supply Brungle, Jounama Ck to supply Talbingo & Adelong Ck. Murray River and groundwater (0.4ML/d) to supply Tumbarumba and Khancoban.	Batlow (82ML), Tumbarumba (70ML)	Water NSW		5		I
114	Federation	0	0	0	100	100	100	141	92	89	95	2	2	233	187	Murray River and Mulwala Lake to supply Corowa and Mulwala.		Water NSW		2		I
39	Cowra	2	0	0	100	100	100	276	260	140	139	0	0	370	353	Lachlan River and 2 bores to supply Cowra.	Koorawatha (200ML)	Water NSW		2		I
38	Moree Plains	13	0	22	99		90	243	240	396	363			583	553	Groundwater (18ML/d) to supply Moree, Mungindi and Bogabilla.	2 dams (150ML)		Yes	14		I
117	Murray River	2	3	3	100	100	100	176	108	227	96		53	410	248	Murray River and Gulpa Creek to supply Moama and Mathoura. Murray River to supply Barham and Murray Downs.	1 dam (130ML)	Water NSW		1		I
45	Upper Hunter	6	1	1	99	99	99									Hunter River & groundwater (5ML/d) to supply Scone, Aberdeen, Merriwa, Cassilis, Murrurundi & Willow Tree.	Murrurundi (170ML)	Water NSW		9		C
46	Narrabri	7	1	1	100	100	100		0	397	408		0	358	362	Namoi R & groundwater (34.5ML/d) to supply Narrabri, Wee Waa, Boggabri, Pilliga, Bellata & Gwabegar.			Yes	10		I
44	Gunnedah	1	3	1	95	97	97	301	336	70	61			365	398	Groundwater (26ML/d) & Namoi R to supply Gunnedah, Curlewis, Mullaley and Tambar Springs.			Yes	17		I
47	Bellingen	1	2	0	95	97	95	146	153	330	239			392	331	Bellinger R to supply Dorrigo & groundwater (4ML/d) to supply Bellingen.	1 dam (54ML)		Yes	4		C
48	Leeton	0	1	2	100	100	100									Murrumbidgee Irrigation Area Main Northern Canal to supply Leeton, Yanco, Murrami & Whitton.	Leeton, 2 others (270ML)	Water NSW				I
LWUs with 1,501 - 4,000 Properties																						
115	Cootamundra-Gundagai	11	8	7	98	98	98	10	8	235	218	6	5	236	212	Cootamundra is reticulated with a fully treated bulk water supply. Murrumbidgee River to supply Gundagai.		Water NSW			Goldenfields	I
51	Forbes	0	0	0	100	100	100	263	294	177	156	19	21	434	448	Lachlan River & groundwater (7.3ML/d) to supply Forbes & Ootha.		Water NSW		2		I
53	Berrigan	15	14	17	99	98	98	65	66	274	272	0	0	342	343	Mulwala Canal, DWR Channel & Murray River to supply Berrigan, Finley & Tocumwal.	4 dams (260ML)	Water NSW				I
54	Edward River	4	4	4	85	50	50	304	293	416	416	30	29	721	695	Edward River to supply Deniliquin.		Water NSW		1		I
55	Warrumbungle	8	42	16		100	100	116	105	152	125	16	21	248	220	Castlereagh R & groundwater (18.3ML/d) to supply Dunedoo, Coolah, Mendooran, Coonabarabran, Baradine, Binnaway, Bugaldie & Kenerbi.	Timor (1.14GL)			11		I
56	Yass Valley	17	14	11	95	95	95	132	155	184	208		13	271	325	Yass River and groundwater (0.3ML/d) to supply Yass. Raising of dam is underway to a capacity of 2.47GL.	Yass (1.13GL)			5		I
60	Glen Innes Severn	0	0	0	100	100	100	84	41	109	105	9	5	191	145	Beardy Waters and Mann River to supply Glen Innes and by a weir on the Mole River to supply Deepwater.	Beardy Waters (500ML)			2		I
59	Lachlan	8		6	100		100		375		96		23		473	Lachlan River and groundwater (2ML/d) to supply Lachlan, Tottenham and Lake Cargelligo.	5 dams (112ML)	Water NSW		4		I
61	Liverpool Plains	51	38	33	95	95	95									Groundwater (12ML/d) to supply Quirindi; Hunter R to supply Murrurundi & Willow Tree; Coepolly Ck, Cockburn R & 7 wells to supply Werris Ck, Kootingal, Moonbi, Attunga & Bendemeer.	Quipolly (5.4GL)		Yes	12		I
74	Wentworth	2	1	1	100	100	98									Murray R & Darling R to provide a dual supply for Wentworth, Buronga, Gol Gol, Dareton and Pooncarie.		Water NSW				I
67	Cobar	5	0	9	95	95	95		122	138	136	2	4	108	232	Bulk water supply. Bogan River to supply Cobar.	Cobar (1.82GL), 4 others	Cobar WB		1		I
62	Narromine	2	0	0				159	250	69	64	49	70	272	380	Groundwater (18ML/d) to supply Narromine, Trangie and Tomingley.	2 dams (52ML)		Yes	9		I
63	Narrandera	2		1	95	80	85		0				0			G/water (18ML/d) to supply Narrandera. A bulk water supply from Goldenfields is provided to part of Narrandera.			Yes	5	Goldenfields	I
68	Tenterfield	5	15	11	95	95	95	110		102	84			197	80	Tenterfield Creek and groundwater (1ML/d) to supply Tenterfield, Urbenville and Jennings.	Tenterfield Ck (1.15GL)			1		I
73	Upper Lachlan	0	0	0	90	90	90	126	124					126	124	Kentgrove Creek to supply Crookwell and groundwater (2ML/d) to supply Gunning and Dalton.	Crookwell (450ML), other (25ML)			6		I
79	Walgett		0	0		90										Namoi River and groundwater (5ML/d) to supply Walgett, Collarenibri and Lightning Ridge.		Water NSW		7		I
70	Kyogle	0	0	1	100	100	100	247	219	90	72	23	23	350	312	Clarence River to supply Kyogle, Bonalbo and Woodenbong.	Bonalbo (47ML)			3		C
80	Greater Hume	0	0	1	100	100	100	115	120	87	87	32	32	269	272	Council is mostly a reticulator serving Hume Villages with a fully treated bulk supply. G/water (4ML/d) to Culcairn.				2	Albury, Riverina	I
75	Coonamble	0	0	2	99	95	95	352	504	109	210	11	65	440	718	Groundwater (11.7ML/d) to supply Coonamble.			Yes	6		I

Table 5B: Water supply & sewerage - levels of service, environmental, main sources of water supply

	WATER UTILITY	LEVELS OF SERVICE						ENVIRONMENTAL								MAIN SOURCES OF WATER SUPPLY						
		Billing Complaints WS & Sge			% of calls Answered by Operator within 30 seconds			Greenhouse Gas Emissions								Surface Water Supply			Groundwater			
								Water		Sewerage		Other		Total		Major Sources of Water	Storage Dams	Bulk Raw Water Supplier	>50% of Supply from Grnd Water	No. Bores	Bulk Supplier	Coastal (C) or Inland (I)
		(per 1000 properties)			(%)			(tonnes CO2 per 1000 properties)		(tonnes CO2 per 1000 properties)		(tonnes CO2 per 1000 properties)		(tonnes CO2 per 1000 properties)							(potable water)	
		(33) C12			(34) C14			(35a) E9		(35b) E10		(35c) E11		(35d) E12		(36)	(37)	(38)	(39)	(40)	(41)	(41a)
		13/14	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*							
LWUs with 200 - 1,500 Properties																						
81	Gwydir	1	1	1						52	52			41	41	Gwydir R to supply Bingara & g/water (5ML/d) to supply Warialda, Gravesend & North Star. System is non-potable.		Water NSW	Yes	9		I
85	Uralla	17	8	8	98	97	97	114	106	209	228	8	7	283	288	Kentucky Creek and Gwydir River to supply Uralla and Bundarra.	Kentucky Ck (500ML)					I
87	Bourke	15	13	13	90	90	90	217	214	105	170	23	23	332	384	A weir on the Darling River to supply Bourke.				1		I
84	Gilgandra	7	12	5	80		80	381	300	277	435	14	49	650	754	Groundwater (8.5ML/d) to supply Gilgandra			Yes	5		I
86	Hay	2	2	4	50	50	50	41	165	137	128	41	15	213	305	Murrumbidgee River to supply Hay.		Water NSW				I
83	Oberon	5	5	5	95	95	95	146	146	56	56			200	200	Council is a reticulator with a bulk water supply from Fish River.					Fish River WS	I
118	Murrumbidgee		2	0					102		25		5	265	130	Groundwater (13ML/d) to supply Darlington Point and Coleambally. Billabong Creek to supply Jerilderie.		Water NSW	Yes	4		I
92	Carrathool	9	0	5	100	100	100	1073	932	63	94	66		1,182	996	Murrumbidgee Irrig. Area Canal & g/water (15ML/d) to supply Hillston, Goolgowi, Rankins Springs & Carrathool.	3 dams (184ML)		Yes	9		I
89	Bogan	0	0	0	90		98	300	246	223	181	39	32	518	431	Bogan River to supply Nyngan.		Water NSW				I
91	Cabonne	9	9	2	100	100	100		141		99		3		351	Molong Creek, Buckinbah River, the Bell River and groundwater (0.4ML/d) to supply Molong, Cumnock and Yeoval.	Borenore Ck (230ML), Molong Ck (1GL), Cumnock (20ML)			7		I
96	Warren	21	10	5	95	90	90	137	118	746	634	17	99	805	770	Macquarie River and groundwater (3.5ML/d).		Water NSW		5		I
98	Walcha	0	0	0	100	100	100		190		205		39		408	MacDonald River to supply Walcha.	Walcha (80ML)					C
100	Balranald			0			100	176	182	200			0	363	182	Murrumbidgee R to supply Balranald & Euston.		Water NSW				I
103	Central Darling	80	54	88	95	95	95	378		59	218	0	0	408	114	Groundwater (1ML/d), Wallandra Creek and Darling River to supply Wilcannia, Ivanhoe and Whitecliffs.	4 dams (575ML)			3		I
105	Brewarrina	6	2	0	100		100	498	438	94	77	4	4	598	521	Barwon River and groundwater (0.9ML/d) to supply Brewarrina and Goodooga.	1 dam (73ML)			2		I
LWUs without Sewerage																						
4	Rous (Bulk Supplier) (NO SGE)	0	0	0	95			107	94			11	9	117	103	Rocky Ck, Wilson R & Emigrant Ck to provide a fully treated bulk water supply to Byron, Richmond Valley, Lismore & Ballina.	Rocky Ck (14GL), Emigrant Ck (820ML)			3		C
8	Riverina (Groundwater) (NO SGE	4	1	2	98	98	98	364	332			8	9	372	341	Murrumbidgee River and groundwater (117ML/d) to supply Wagga Wagga, Holbrook, Lockhart and Henty.	3 dams (30ML)	Water NSW	Yes	30		I
12	Fish River WS (Bulk Supplier, NO	0			100	100										Oberon R & Duckmaloi R to provide a bulk water supply to Oberon & Lithgow councils, Pacific Power & Sydney Water.	Oberon (45GL), Duckmaloi Weir					I
28A	Goldenfields (Reticulator) (NO SC		0	0				379	372			16	17	395	389	Council reticulates water to Bland, Coolamon, Junee, Temora and part of Narrandera.					Goldenfields	I
28B	Goldenfields (Bulk) (NO SGE)							330	316			14	14	343	330	Murrumbidgee R & g/water (42.5ML/d) to supply Cootamundra, Harden, Young & Goldenfields Reticulation area.		Water NSW	Yes	6		I
40	Central Tablelands (NO SGE)	0	0	0	98	98	98	242	264			3	3	245	267	Lake Rowlands and groundwater (7ML/d) to Blayney, Canowindra, Grenfell, Eugowra, Millthorpe, Mandurama, Lyndhurst, Carcoar, Manildra, Cargo, Cudal, Woodstock & Gooloogong.	Lk Rowlands (4.5GL), Bogolong (360ML)			7		I
66	Cobar Water Board (Bulk) (NO SGE)				100		90									Bulk raw water is supplied to Cobar and the mines.	4 dams (1.1GL) Nyngan, Cobar					I
LWUs without Water Supply																						
9	Wagga Wagga (NO WS)	0	0	0	100	100	100			147	171		7	147	177							I
30A	Hawkesbury (NO WS)	0		0						95	58			95	58							C
69	Temora (NO WS)	0	0	0	100	100	100			52	60	0	0	53	60							I
72	Bland (NO WS)	0	0	0	95	95	95			68	68	0	0	68	68							I
77	Junee (NO WS)	0	0	0	100	100	100			332	326			332	326							I
78	Blayney (NO WS)	0	0	0	100	100	100			152	169			152	169							I
95	Weddin (NO WS)	0	1	1	90	90	90			38	35	0	0	38	35							I
99	Coolamon (NO WS)	0	0	0						81	82			81	82							I
102	Lockhart (NO WS)	0	0	0	95	95	95			135	140	9	9	144	149							I

NOTE:

1. 58 LWUs have a storage dam (col 37), 32 LWUs receive a bulk raw water supply from Water NSW (col 38); 58 LWUs have a groundwater supply (col 40), of which 17 obtain >50% of their water supply from groundwater (col 39); 14 LWUs receive a bulk potable water supply from another urban water utility (col 41).

Table 5C: Water Supply - Infrastructure Asset Condition and Performance - 2015-16

	WATER UTILITY	WATER SUPPLY INFRASTRUCTURE INDICATORS (including SPECIAL SCHEDULE 7 - Condition of Public Works - refer to note 2)																						SYSTEM PERFORMANCE									BPM
		WDV CRC per property	Current Replacement Cost	Written Down Replacement Cost	Current Cost Depreciation of System Assets	Capital Expenditure	Estimated Cost to Bring to Satisfactory Standard	Actual Annual Maint-enance	Mains Maint-enance Cost	Rehabilitations			Asset Renewals			Assets in Condition as a % of GRC					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Operating Cost	Net Debt to Equity	Economic Real Rate of Return	Water Main Breaks	Unplanned Inter-ruptions to Supply	Real Loss	Water Quality Complaints	Water Service Complaints	% Popn with micro Compliance	Typical Residential Bill	Drinking Water Mgmt System (DWMS)?	No. Water Treatment Operators Meeting Nat'l Cert'n	Implementation
										Mains (% of Total Length)	Service Conn-ections (%)	Water Meters (%)				WS Assets (56)																				
		$/property F9/C4	$'000	$'000 F9	$'000	$'000 F14	$'000	$'000	$'000 per 100km of Main				$'000	$'000 per 100km of Main	% of CRC	1	2	3	4	5	Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	OMA $/property F11	WS & SGE % F22	WS % F17	Per 100km of main A8	per 1000 properties C17	L/d/conn A10	No. / 1000 props C9	No. / 1000 props C10	% of population H3	$/ assessment P3	Yes/No	No.	Overall %
		(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)						(57)	(58)	(59)	(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)	(69)	(70)	(70a)	(70b)	(71)
	Sydney Water Corporati	6,700		12,700,000		222,400																		399	103	3	26	190	76	0	0	100	560			
	Hunter Water Corporatio	10,000		2,440,000		30,300																		249	91	3	27	310	104	2	0	100	387			
LWUs with > 10,000 Properties																																			
112	Central Coast	10,700	2,277,000	1,476,000	28,935	22,170	16,877	8,712	215	0.2	-	2.1	10,612	491	0.5	35	27	35	2	1	7.43	1.11	0.51	259	8	1.6	17	113	30	17	-	100	523	Yes	7	100
3	Shoalhaven	7,670	638,000	364,000	7,471	13,240	0	8,551	85	1.5	0.1	7.2	7,539	491	1.2	60	40	0	0	0	1.10	0.00	0.93	278	-4	1.2	8	49	70	0	1	100	328	Yes	20	100
4	Rous (Bulk Supplier)		476,000	328,000	6,194	11,310	4,410	1,151	158	1.0		0.6	6,627	1,612	1.4	39	29	18	13	1				258	2	3.0	8			0	0	100		Yes	5	100
5	MidCoast	10,900	723,000	434,000	14,998	8,430	66,636	12,849	240	1.3	-	6.7	2,196	159	0.3	39	32	14	9	5	0.14	0.15	0.82	463	21	0.3	2		70	4	2	100	621	Yes	13	90
6	Tweed	15,300	672,000	498,000	6,522	3,170	12,882	5,689	153	0.3	0.4	3.9	2,397	334	0.4	75	18	6	1	1	0.33	0.03	1.23	420	-2	2.2	8	37	90	5	34	100	604	Yes	5	100
7	Port Macquarie-Hastings	11,800	598,000	358,000	12,174	6,230		2,685	99	1.5	0.0	9.0	2,058	251	0.3	28	40	29	1	1	0.17	0.00	1.00	390	-9	4.1	3	10	40	5	17	100	619	Yes	8	100
8	Riverina	10,000	452,000	317,000	6,945	35,020	47,501	4,405	57	0.5	0.1	3.9	9,281	541	2.1	26	48	17	8	0	0.00	0.00	0.00	236	-2	5.7	19	53	120	3	2	100	627	Yes	9	90
11	Albury City	8,380	415,000	213,000	5,809	2,730	6,139	2,563	66	0.7	0.1	0.1	1,447	240	0.3	50	25	20	5	0	0.25	0.03	0.74	276	-9	2.8	4		60	2	3	100	418	Yes	5	100
10	Coffs Harbour	11,600	435,000	290,000	6,718	1,210	0	2,799	314	0.2	-	5.1	531	80	0.1	27	45	16	3	9	0.08	0.00	1.20	388	11	2.3	7	30	50	0	0	100	590	Yes	3	100
13	Tamworth Regional	9,830	377,000	216,000	4,501	4,050	2,440	16,092	203	0.6	0.0	2.9	2,578	395	0.7	29	33	33	5	0	0.35	0.01	0.96	518	-4	2.6	9		90	0	40	100	619	Yes	17	90
14	Clarence Valley	19,000	465,000	408,000	5,327	3,360	5,077	2,076	134	0.3	0.1	7.8	2,743	242	0.6	47	47	5	1	0	0.52	0.01	0.91	329	12	0.9	12		40	10	28	100	480	Yes	6	100
122	Dubbo Regional	9,420	270,000	195,000	3,627	6,560	5,455	1,772	155	0.3	-	3.5	3,905	616	1.4	39	36	19	5	1	0.49	0.03	0.74	437	-4	5.1	6	32	90	0	11	100	866	Yes	9	100
119	Queanbeyan-Palerang	5,570	203,000	116,000	2,781	1,220	3,415	1,109	192		0.3	5.6	614	149	0.3	18	41	34	6	0	0.00	0.03	0.42	567	-16	0.9	8	4	110	0	23	100	901	Yes	10	100
15	Eurobodalla	14,100	425,000	278,000	6,151	2,940	7,225	3,882	110	0.6	-	9.6	2,101	238	0.5	8	49	42	2	0	0.29	0.03	1.00	425	-3	1.3	13	132	50	0	0	100	695	Yes	5	100
16	Wingecarribee	8,760	282,000	170,000	4,072	2,170	3,331	1,187	165		0.2	0.7	998	148	0.4	65	19	13	2	1	0.25	0.02	0.69	387	-8	3.5	12	57	120	9	67	100	489	Yes	4	100
19	Orange	12,700	347,000	229,000	3,083	9,840	0	546	88	-	0.2	2.8	2,487	389	0.7	33	37	21	8	1	0.09	0.00	0.50	365	-13	3.5	9	58	60	2	82	100	631	Yes	3	90
21	Bathurst Regional	10,400	305,000	168,000	3,736	5,280	30,451	2,674	326	0.2	0.3	2.6	1,097	271	0.4	21	15	42	13	9	0.32	0.18	0.60	603	-12	1.4	15	4	70	9	34	100	576	Yes	4	100
23	Bega Valley	13,400	316,000	193,000	4,623	3,750	0	4,191	136	1.3	2.2	10.3	2,675	431	0.8	37	28	15	8	12	0.58	0.00	0.00	598	-3	-1.2	5	21	50	4	1	100	568	Yes	18	90
24	Ballina	4,660	116,000	71,000	1,498	1,650	2,312	788	105	-	-	6.0	1,241	357	1.1	48	34	17	0	2	0.85	0.03	0.93	463	15	1.6	4	1	160	0	0	100	545	Yes	3	90
22	Lismore	5,610	133,000	79,000	1,821	4,430	12,403	1,443		1.5	1.9	3.4	4,116	1,197	3.1	27	41	20	8	4	1.86	0.17	0.83	492	-2	2.5	36	61	40	0	0	100	735	Yes		90
25	Kempsey	15,500	273,000	193,000	4,398	4,010	26,900	3,620	200	0.2	0.5	5.2	2,597	527	1.0	47	22	18	8	5	0.79	0.14	0.92	444	7	0.7	5	29	90	1	0	100	594	Yes	7	90
27	Byron	5,130	96,000	59,000	1,238	2,790	0	1,145	119	1.1	1.0	3.3	2,787	1,036	2.9	32	28	32	6	2	2.29	0.00	1.00	471	11	3.1	7	13	90	1	0	100	584	Yes	5	100
20	Goulburn Mulwaree	19,100	311,000	215,000	3,948	2,650	4,320	2,574	382	0.7	0.2	6.7	2,023	693	0.7	20	43	35	1	1	0.53	0.02	0.95	384	-8	1.1	15	27	40	20	51	100	663	Yes	4	100
28A	Goldenfields (Reticulator	13,200	218,000	136,000	2,880				46	0.7	0.4	1.8	841			18	41	37	4	0				834	-16	3.9	13	100	90	0	1	100	779	Yes	8	100
28B	Goldenfields (Bulk)		173,000	80,000	2,744				47				360			18	41	37	4	0				151	-15	0.3	0			0	-	100		Yes	8	100
	Medians (% of LWUs basis) or totals for >10,000 Properties	*10,700*							*145*	*0.6*	*0.2*	*3.9*		*389*	*0.7*	*33*	*36*	*20*	*5*	*1*	*0.34*	*0.03*	*0.87*	*420*	*-3*	*2.2*	*8*	*32*	*70*	*1*	*2*	*100*	*604*			
LWUs with 4,001 - 10,000 Properties																																			
111	Armidale Regional	16,500	224,000	167,600	2,512	1,907	8,882	1,458		1.1	1.5	4.9	1,284	366	0.6	9	42	27	20	3	54.06	3.87	0.80	530	-9	0.6	19	59	90	3	2	100	714	Yes	8	90
120	Snowy Monaro Regiona	7,960	157,000	79,100	1,936	3,697	12,923	1,301	123	0.7	0.9	2.0	629	208	0.4	12	24	28	34	2	0.27	0.17	0.70	353	-11	2.4	18	8	50	4	21	100	689	Yes	14	90
30	Griffith	15,600	182,000	130,800	2,103	1,086	2,505	625	34	0.9	0.2	13.6	678	122	0.4	38	41	10	8	3	0.31	0.02	0.93	713	0	1.4	16	11	110	1	51	100	734	Yes	2	100
31	Lithgow	3,760	91,000	30,400	1,311	712	5,578	2,473	317	0.9	-	0.5	524	448	0.6	26	2	54	18	0	0.40	0.18	0.76	592	9	2.0			30	12	-	100	658	Yes	2	90
32	Mid-Western Regional	7,720	111,000	63,500	1,618	867	2,370	1,232	273	1.5	0.1	6.4	782	285	0.7	26	41	27	2	4	0.48	0.04	1.03	502	-5	2.2	4	28	50	6	10	100	663	Yes	8	100
116	Hilltops	5,700	102,000	41,700	1,207	490	130	290	139	1.6	0.6	4.3	480	130	0.5	3	28	18	0	50	0.41	0.00	0.81	325	-4	1.8	19	45	40	5	16	100	738	Yes	5	90
33	Richmond Valley	10,200	87,000	73,400	812	963	199	302	105	1.1	1.2	-	877	466	1.0	42	52	6	0	0	1.12	0.00	0.73	501	3	1.0	3		100	0	0	100	437	Yes	2	100
35	Singleton	8,860	60,000	59,700	1,771	4,393	3,426	521	56	1.2	0.8	2.2	575	233	1.0	92	3	1	4	0	0.39	0.06	0.47	470	-37	5.0	9	32	60	2	23	100	501	Yes	5	100

Table 5C: Water Supply - Infrastructure Asset Condition and Performance - 2015-16

WATER UTILITY		WATER SUPPLY INFRASTRUCTURE INDICATORS (including SPECIAL SCHEDULE 7 - Condition of Public Works - refer to note 2)																						SYSTEM PERFORMANCE									BPM
		WDV CRC per property	Current Replacement Cost	Written Down Replacement Cost	Current Cost Depreciation of System Assets	Capital Expenditure	Estimated Cost to Bring to Satisfactory Standard	Actual Annual Maint-enance	Mains Maint-enance Cost	Rehabilitations			Asset Renewals			Assets in Condition as a % of GRC					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Operating Cost	Net Debt to Equity	Economic Real Rate of Return	Water Main Breaks	Unplanned Inter-ruptions to Supply	Real Loss	Water Quality Complaints	Water Service Complaints	% Popn with micro Compliance	Typical Residential Bill	Drinking Water Mgmt System (DWMS)?	No. Water Treatment Operators Meeting Nat'l Cert'n	Implementation
		$/property F9/C4	$'000	$'000 F9	$'000	$'000 F14	$'000	$'000	$'000 per 100km of Main	Mains (% of Total Length)	Service Conn-ections (%)	Water Meters (%)	$'000	$'000 per 100km of Main	% of CRC	WS Assets (56)					Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	OMA $/property F11	WS & SGE % F22	WS % F17	Per 100km of main A8	per 1000 properties C17	L/d/conn A10	No. / 1000 props C9	No. / 1000 props C10	% of population H3	$/ assessment P3	Yes/No	No.	Overall %
		(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	1	2	3	4	5	(57)	(58)	(59)	(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)	(69)	(70)	(70a)	(70b)	(71)
34	Nambucca	14,500	128,000	93,300	1,673	390	77	747	188		-	4.7	132	62	0.1	34	17	44	6	0	0.10	0.00	5.57	324	5	1.8	5		70	3	9	100	533	Yes	2	100
36	Parkes	14,200	187,000	84,800	2,145	10,821	732	585	47	0.9	0.2	3.7	6,575	1,423	3.5	18	21	13	22	26	3.22	0.01	0.81	638	-26	3.0	11	4	140	3	35	100	679	Yes	7	100
41	Muswellbrook	8,670	89,000	50,700	1,481	1,684	5,035	1,003	141	0.6	0.2	2.6	1,260	764	1.4	10	37	33	15	4	0.00	0.10	0.86	612	-21	0.3	26	3	70	13	1	100	581	Yes	5	100
37	Inverell	13,500	103,000	78,400	834	1,027	0	877	142	0.4	0.1	0.0	964	372	0.9	0	95	5	0	0	0.32	0.00	1.00	518	-7	2.3	2	1	50	0	1	100	601	Yes	3	70
121	Snowy Valleys	10,800	99,000	61,300	1,431	513	599	708	71	0.8	0.3	9.4	311	123	0.3	43	36	15	6	0	0.27	0.01	0.99	388	1	0.2	4	3	80	4	2	100	557	Yes	10	100
114	Federation	7,150	60,000	40,300	941	1,863	4,265	553	263	1.6	0.1	94.2	441	242	0.7	41	43	15	1	0	0.62	0.11	1.00	469	-11	1.5	14	44	220	1	30	100	543	Yes	5	100
40	Central Tablelands	9,510	123,000	52,500	1,743	835	23,750	846	73	-	2.9	2.1	502	89	0.4	0	24	76	0	0	0.30	0.45	1.00	612	-8	1.1	8	39	110	5	18	100	662	Yes	3	100
39	Cowra	9,910	129,000	52,700	1,816	769	3,054	2,457	110	0.6	0.4	1.7	385	80	0.3	13	23	43	21	0	0.23	0.06	1.02	748	4	2.3	2	15	120	3	34	100	857	Yes	6	100
38	Moree Plains	10,900	83,000	50,100	1,053	1,199	0	1,088	445	0.6	0.2	0.9	376	231	0.5	7	30	34	18	12	0.36	0.00	1.04	734	2	4.7	49	22	160	6	89	100	1,372	Yes	3	100
117	Murray River	8,220	56,700	38,000	809	656	0	527	68	0.3	0.9	1.1	504	148	0.9	18	44	27	11	0	0.64	0.00	0.97	457	-13	3.3	6	6	50	0	2	100	657	Yes	11	90
45	Upper Hunter	11,300	79,000	52,200	958	2,037	1,200	559	219	0.5	1.0	16.9	2,037	1,119	2.6	21	38	19	11	10	1.45	0.02	0.95	664	-11	2.3	41	21	360	1	51	100	705	Yes	3	100
46	Narrabri	5,870	59,000	26,100	825	2,051	8,056	554	216	3.2	0.6	1.0	1,831	1,166	3.1	14	34	42	10	0	2.27	0.37	2.46	542	-24	3.1	57	5	280	12	36	100	617	Yes	4	90
44	Gunnedah	10,200	68,000	41,000	927	806	1,251	823	341	2.2	2.5	9.5	551	299	0.8	73	11	8	8	0	1.68	0.03	1.12	478	-24	4.8	21	10	80	2	14	100	615	Yes	2	100
47	Bellingen	10,800	59,000	44,200	718	264	0	155	57	0.6	0.8	0.4	135	81	0.2	6	81	11	1	0	0.20	0.00	1.10	390	-17	-0.2	5	2	70	2	4	100	370	Yes	1	100
48	Leeton	8,330	74,000	34,400	1,159	79	3,780	693	328	0.5	1.2	2.4	48	25	0.1	16	36	33	6	9	0.03	0.11	1.00	539	-21	2.0	13	16	150	0	0	100	701	Yes	4	90
Medians (% of LWUs basis) or totals for 4,001 - 10,000 Props		*9,910*							*140*	*0.9*	*0.6*	*2.5*		*233*	*0.6*	*18*	*36*	*27*	*8*	*0*	*0.39*	*0.03*	*0.99*	*518*	*-9*	*2.0*	*12*	*13*	*80*	*3*	*15*	*100*	*658*			
LWUs with 1,501 - 4,000 Properties																																			
115	Cootamundra-Gundagai	3,360	34,300	13,600	432	70	725	395	194		1.4	2.4	26	25	0.1	0	2	39	0	54	0.06	0.05	1.13	339	-14	1.0	92	21	60	2	44	100	615	Yes	2	80
51	Forbes	9,060	75,000	34,000	1,057	1,134	1,104	1,049	491	0.7	0.5	3.1	133	96	0.2	0	50	30	15	5	0.13	0.03	0.97	615	-18	0.4	25	120	280	1	65	100	631	Yes	3	100
53	Berrigan	7,380	44,000	26,300	607	197	0	560		1.0	0.7	1.8	197	95	0.4	54	46	0	0	0	0.33	0.00	0.80	563	-22	2.8	19	14	100	6	11	100	841	Yes	4	80
54	Edward River	10,300	53,000	37,400	550	156	498	48		0.7	-	0.7	110	74	0.2	3	28	51	17	0	0.21	0.01	0.43	429	-11	1.4	77	20	120	1	2	100	798	Yes	2	100
55	Warrumbungle	8,410	63,000	27,800	801	308	22	739	197	0.7	0.4	1.4	173	116	0.3	10	37	53	0	0	0.22	0.00	1.24	678	-8	0.5	42	14	240	1	8	95	791	Yes	11	80
56	Yass Valley	12,500	61,000	41,400	1,290	0	0	1,063	24		0.4	6.0	0			80	15	5	0	0	0.32	0.00	0.98	455	26	3.6	8	53	90	1	0	100	988	Yes	3	100
60	Glen Innes Severn	6,760	37,300	20,000	456	672	2,221	568	194	1.8	1.0	2.5	218	200	0.6	52	38	10	1	0	0.00	0.12	1.00	437	5	1.6	0	14	40	0	0	100	597	Yes	4	100
59	Lachlan	18,700	102,300	53,300	1,523	898	13,926	1,380	177	0.9	0.2	3.8	437	188	0.4	36	15	30	17	2	0.30	0.08	1.63	813	-14	-0.5	7	16	350	0	4	100	2,069	Yes	5	100
61	Liverpool Plains	17,200	59,900	44,200	642	3,849	1,182	0	77	0.8	1.0	1.1	339	257	0.6	41	17	39	3	0	0.53	0.03	0.00	559	-10	2.5	14	54	100	8	76	100	953	Yes	3	80
74	Wentworth	9,490	41,200	22,200	665	291	3,276	339	104	-	-	0.4	49	27	0.1	39	21	19	21	0	0.00	0.18	1.00	497	-17	3.5	5	1	20	0	28	100	826	Yes	2	100
67	Cobar	5,330	27,400	12,000	342	0	21,000	422	165	0.9	0.3	3.1	0			2	1	2	3	92	1.35	1.84	0.41	1181	-17	2.5			60	21	8	100	919	Yes	1	100
62	Narromine	4,310	19,400	9,300	94	1,953	4,082	52	261		0.8	3.9	1,450	1,908	7.5	5	16	11	62	6	17.06	0.57	0.87	511	-26	4.4	16	0	100	1	1	100	689	Yes	3	100
63	Narrandera	5,110	22,600	10,700	618	196	3,900	505	332	-	0.7	95.7	121	138	0.5	0	0	50	50	0	0.20	0.36	0.91	452	-27	2.6	24	17	150	0	26	100	784	Yes	2	90
68	Tenterfield	8,390	44,400	16,600	527	694	3,195	593		1.4	0.8	8.9	654	948	1.5	29	55	1	15	0	1.27	0.20	0.93	566	0	0.9	19	10	30	0	3	100	754	Yes	6	100
73	Upper Lachlan	10,700	35,900	21,500	544	239	0	426	28	3.1	0.5	1.0	97	152	0.3	72	16	11	1	0	0.45	0.00	0.92	604	-11	0.7	9	5	30	0	3	100	810	Yes	6	90
79	Walgett	10,400	38,600	20,100	555	55	6,171	390	84		1.4	0.1	0			2	9	3	4	82	0.10	0.31	0.97	1096	-19	-2.5	45		60	3	-	42	1,195	Yes	3	70
70	Kyogle	8,860	27,700	16,800	208	3,836	3,231	320	241	-	0.4	-	0			43	15	29	13	0	0.00	0.20	1.27	631	-1	1.4	7	12	30	2	15	100	550	Yes	7	90
80	Greater Hume	11,300	33,600	21,600	434	460	0	211	82		0.6	2.6	223	147	0.7	0	45	52	3	0	0.73	0.00	0.91	500	-7	-0.1	5	9	100	0	14	100	813	Yes	2	100
75	Coonamble	8,290	22,000	13,900	487	305	248	212	146	1.5	1.7	1.7	305	449	1.4	38	1	61	0	0	0.59	0.02	1.93	437	-24	0.7	16	3	60	0	51	100	704	Yes	1	90
Medians (% of LWUs basis) or totals for 1,501 - 4,000 Props		*8,860*							*171*	*0.9*	*0.7*	*2.4*		*147*	*0.4*	*29*	*16*	*29*	*3*	*0*	*0.30*	*0.05*	*0.97*	*559*	*-14*	*1.4*	*16*	*14*	*90*	*1*	*10*	*100*	*798*			

Table 5C: Water Supply - Infrastructure Asset Condition and Performance - 2015-16

	WATER UTILITY	WATER SUPPLY INFRASTRUCTURE INDICATORS (including SPECIAL SCHEDULE 7 - Condition of Public Works - refer to note 2)																							SYSTEM PERFORMANCE									BPM
		WDV CRC per property	Current Replacement Cost	Written Down Replacement Cost	Current Cost Depreciation of System Assets	Capital Expenditure	Estimated Cost to Bring to Satisfactory Standard	Actual Annual Maint-enance	Mains Maint-enance Cost	Rehabilitations			Asset Renewals			Assets in Condition as a % of GRC					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Operating Cost	Net Debt to Equity	Economic Real Rate of Return	Water Main Breaks	Unplanned Inter-ruptions to Supply	Real Loss	Water Quality Complaints	Water Service Complaints	% Popn with micro Compliance	Typical Residential Bill	Drinking Water Mgmt System (DWMS)?	No. Water Treatment Operators Meeting Nat'l Cert'n	Implementation
		$/property F9/C4	$'000	$'000 F9	$'000	$'000 F14	$'000	$'000	$'000 per 100km of Main	Mains (% of Total Length)	Service Conn-ections (%)	Water Meters (%)	$'000	$'000 per 100km of Main	% of CRC	WS Assets (56)					Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	OMA $/property F11	WS & SGE % F22	WS % F17	Per 100km of main A8	per 1000 properties C17	L/d/conn A10	No. / 1000 props C9	No. / 1000 props C10	% of population H3	$/ assessment P3	Yes/No	No.	Overall %
		(42)	(43)	(44)	(45)	(46)	(47)	(48)	(49)	(50)	(51)	(52)	(53)	(54)	(55)	1	2	3	4	5	(57)	(58)	(59)	(61)	(62)	(63)	(64)	(65)	(66)	(67)	(68)	(69)	(70)	(70a)	(70b)	(71)
LWUs with 200 - 1,500 Properties																																			
81	Gwydir	10,300	20,600	15,100	190	334	555	287	189		1.4	2.0	334	371	1.6	48	41	3	9	0	3.37	0.05	1.00	570	-6	2.6	12	2	110	3	0	100	757	Yes	5	90
85	Uralla	9,710	16,300	14,500	275	30	0	385	144	-	0.3	2.7	12	19	0.1	8	90	2	0	0	0.12	0.00	0.98	445	-12	0.5	13	60	20	4	0	100	721	Yes	4	70
87	Bourke	7,100	23,500	9,900	800	130	120	127	434	39.0	0.4	4.3	0			8	8	64	2	18	0.00	0.01	0.85	833	-14	-2.3	110	674	80	0	37	100	1,221	Yes	3	100
84	Gilgandra	11,100	27,300	14,800	474	710	20	215	169	1.9	4.1	1.4	708	1,311	2.6	10	43	46	0	0	1.52	0.00	0.77	390	-9	-0.1	33	10	140	7	51	100	804	Yes	4	90
86	Hay	7,920	24,300	10,700	304	148	0	331	119		-	3.7	148	197	0.6	0	62	27	11	0	0.49	0.00	1.27	581	-17	0.4	13	7	210	4	19	100	751	Yes	3	90
83	Oberon	6,030	12,400	7,800	176	57	150	109	13	2.6	-	7.5	57	146	0.5	69	31	0	0	0	0.00	0.02	1.10	955	-10	4.4	8	1	100	0	4	100	755	Yes	3	80
118	Murrumbidgee	7,640	17,600	9,800	213	772	0	139	67	-	1.7	0.8	18	24	0.1	2	10	83	5	0	0.00	0.00	0.79	412	-19	0.9	8	5	100	1	0	100	507	Yes	5	70
92	Carrathool	13,500	22,700	15,800	307	1,127	300	439	57	0.2	-	3.8	1,127	243	5.0	21	8	69	2	0	1.92	0.02	0.94	876	2	3.1	10	1	270	2	13	100	804	Yes	5	70
89	Bogan	12,500	33,100	13,900	430	445	1,205	426	103		4.2	5.7	355	612	1.1	12	35	12	41	0	0.83	0.09	1.04	1886	-15	2.4	60	32	200	0	164	100	1,320	Yes	4	100
91	Cabonne	20,600	45,600	24,100	515	979	96	419	77	5.8	0.6	2.4	536	1,031	1.2	13	34	52	1	0	0.95	0.00	0.79	593	-3	-0.1	13	3	80	1	3	100	606	Yes	4	100
96	Warren	7,480	14,700	7,000	199	601	115	166	417	3.3	1.0	5.6	12	40	0.1	47	31	17	5	0	0.69	0.02	1.66	547	-17	-0.6	267	6	100	10	11	100	766	Yes	3	90
98	Walcha	17,500	18,500	16,100	210	120	127	177	46		0.7	10.9	0			19	81	0	0	0	0.58	0.01	1.28	697	-7	-1.4	7	10	60	0	1	100	572	Yes	4	90
100	Balranald	8,010	16,200	7,100	421	38	0	318	184	-	-	0.3	38	119	0.2	5	47	43	5	0	0.00	0.00	1.31	622	-8	2.0	31	705	60	0	1	73	1,087	Yes	5	80
103	Central Darling	35,500	45,700	25,900	619	171	12,303	334	121		0.3	1.4	171	259	0.4	4	0	74	0	23	0.00	0.48	0.41	1011	-4	-2.2	18	68	30	69	58	100	1,381	Yes		80
105	Brewarrina	12,200	15,500	5,700	287	594	221	149	255		2.1	1.3	161	383	1.0	0	29	38	33	0	0.00	0.04	0.66	1479	-16	0.6	74	2	110	0	2	100	2,055	Yes	5	100
	Medians (% of LWUs basis) or totals for 200 - 1,500 Props	*10,300*							*121*	*2.9*	*1.0*	*2.7*		*243*	*0.6*	*10*	*34*	*38*	*2*	*0*	*0.49*	*0.01*	*0.98*	*622*	*-10*	*0.5*	*13*	*7*	*100*	*1*	*4*	*100*	*766*			
	Medians (% of LWUs basis)	9,955	Total ($M)	Total ($M)	Total ($M)	Total ($M)	Total ($M)	Total ($M)	142	0.9	0.6	3.1	Total ($M)	243	0.6	24	34	24	5	0	0.33	0.02	0.94	501	-9	1.6	12	15	85	1	10	100	684	Total	Total	Overall
	Medians (Statewide basis)	10,700	14,600	9,190	201	219	426	126	121	0.6	0.3	3.7	106	334	0.6	36	33	21	3	1	0.32	0.02	0.94	440	-3	2.3	9	32	70	3	4	100	601	82 (100%)	429	93%
	National Medians	9,140																						485	7	2.8	13	90	76	2	1	100	623			

Notes

1. Table 5C shows each NSW regional local water utility's [LWU] **water supply infrastructure asset condition** [col 56], **asset rehabilitations** [col 50 to 52], **asset renewal expenditure** [col 53 to 55], **financial performance** [col 42 to 49 and 57 to 63], water supply **system performance** [col 64 to 70b], typical residential bill [TRB - col 70] and its level of implementation of the Best-Practice Management [BPM] of Water Supply and Sewerage requirements [BPM - col 71].

   In addition to showing the results for each LWU, Table 5C shows the Statewide median for each indicator, as well as the **2015-16 National Median** for the National Water Initiative [NWI] performance indicators [col 42, 44, 46 and 61 to 70].

2. The sources of data for Table 5C are:
   - col 47, 48, 56 to 59 are from each council's reported Special Schedule 7;
   - col 42 to 46 and col 61 to 63 from each council's reported Special Schedules 3 and 4; and
   - col 64 to 72 are based on the results reported by each council in the NSW Water Supply and Sewerage Performance Monitoring Database.

   Note that minor errors identified in the reported results for column 56 for Orange have been corrected.

3. **Totals for water supply in regional NSW:**
   - **Total current replacement cost of system assets** - $14.6B [col 43],
   - **Total written down replacement cost** - $9.2B [col 44],
   - **Total annual depreciation** - $201M [col 45],
   - **Total** estimated cost to Bring to Satisfactory Standard[1] **(BTS) – $426M** [col 47],
   - **Total annual maintenance expenditure** - $126M [col 48],
   - **Total capital expenditure** - $219M [col 46],
   - **Total asset renewal expenditure** - $106M [col 53],
   - **Drinking water management system [DWMS]** - 82 (100%) [col 70a],
   - **No. of water treatment operators meeting national certification requirements** – 429 [col 70b],
   - **Overall BPM implementation [WS]** – 93% [col 71].

   The total $426M for **BTS** is 2.1 times the annual depreciation of $201M, 2.9% of the current replacement cost of system assets[2] of $14.6B and 53% of the 2015-16 annual water supply revenue of $800M.

4. **Statewide medians for water supply in regional NSW:**
   - **Written down current replacement cost per connected property** - $10,700 [col 42] ; National Median $9,140
   - **Assets in condition 1** - 36% [col 56]
   - **Assets in condition 2** - 33% [col 56]
   - **Assets in condition 3** - 21% [col 56]
   - **Assets in condition 4** - 3% [col 56]
   - **Assets in condition 5** - 1% [col 56]
   - **Water main rehabilitations** per 100 km of main – 0.6 km [col 50]
   - **Service connection rehabilitations** – 0.3% [col 51]
   - **Water meter rehabilitations** - 3.7% [col 52]
   - **Asset renewals** per 100 km of main – $344,000 [col 54]
   - **Asset renewals** / current replacement cost of assets – 0.6% [col 55]
   - **Renewals Ratio** [Asset Renewals/Depreciation] – 0.32 [col 57]
   - **Backlog Ratio** [BTS/ Value of Infrastructure] – 0.02 [col 58]
   - **Asset Maintenance Ratio** [Actual Maintenance/Required Maintenance] – 0.94 [col 59]
   - **Operating Cost** [OMA cost/connected property – F11] - $440 [col 61]; National Median $485
   - **Water Mains Maintenance cost** per 100 km of main - $121,000 [col 49]
   - **Net Debt to Equity** [WS & SGE – F22] – -3% [col 62]; National Median 7%
   - **Economic Real Rate of Return** [F17] – 2.3% [col 63]; National Median 2.8%
   - **Water Main breaks**/100km of main [A8] – 9 [col 64]; National Median 13

4. **Statewide medians for water supply in regional NSW:** (continued from left)
   - **Unplanned interruptions to supply** per 1000 properties [C17] – 32 [col 65]; National Median 90
   - **Real Loss** [leakage/connection/d - A10] – 70 [col 66]; National Median 76
   - **Water quality complaints**/1000 properties [C9] – 3 [col 67]; National Median 2
   - **Water service complaints**/1000 properties [C10] – 4 [col 68]; National Median 1
   - **% of Population with microbiological water quality compliance** [H3] – 100% [col 69]; National Median 100%
   - **Typical Residential Bill**/assessment [2015-16 – P3] - $601 [col 70]; National Median $623.

   The totals in note 3 above and the statewide medians in this note 4 provide useful information on the infrastructure asset condition, asset rehabilitations, asset renewal expenditure, financial performance, system performance, the typical residential bill and the extent of asset management and strategic business planning for water supply in regional NSW.

   Disclosure of the 30 indicators shown for each LWU in Table 5C provides transparency and public accountability.

5. **LWU Planning:**

   As indicated on page 8 of the *NSW Water and Sewerage Strategic Business Planning Guidelines* (www.water.nsw.gov.au), the provision of water supply and sewerage services is highly capital intensive. Accordingly, sound planning, analysis and community involvement are essential.

   As noted in sections 2.1 and 4.1 of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report,* each LWU needs to prepare a 30-year Integrated Water Cycle Management (IWCM) Strategy, financial plan and report in accordance with the July 2014 IWCM Check List (www.water.nsw.gov.au). This involves a 30-year total asset management plan (TAMP), which includes a **sound 30-year renewals plan** in accordance with Item 7F of the Strategic Business Planning Check List (www.water.nsw.gov.au). Only 'proven' renewals projects should be included in the first 5 years of a LWU's renewals plan.

6. **Comment on reported Asset Condition [col 56]:**

   Note 4 above shows that the Statewide medians for assets in condition 1, 2, 3, 4 and 5 are 36%, 33%, 21%, 3% and 1% respectively.

   With regard to assets in **condition 5 (very poor)**,**48 LWUs** (59%) had a 0% result.

   The following 5 LWUs had a result greater than 20% for condition 5:
   - Cobar (92%)
   - Walgett (82%)
   - Cootamundra-Gundagai (54%)
   - Hilltops (50%)
   - Parkes (26%)

1 BTS - Estimated cost to bring to a satisfactory standard.
2 This value of 2.9% is consistent with the col 58 value of 0.02 (ie. 2%) for the median LWU. The value of the Statewide median for col 58 is 0.02, which indicates a lower BTS proportion for the larger LWUs.

Table 5D: Sewerage - Infrastructure Asset Condition and Performance - 2015-16

	WATER UTILITY	SEWERAGE INFRASTRUCTURE INDICATORS (including SPECIAL SCHEDULE 7 - Condition of Public Works - refer to note 2)																						SYSTEM PERFORMANCE									BPM
		WDV CRC per property	Current Replacement Cost	Written Down Replacement Cost	Current Cost Depreciation of System Assets	Capital Expenditure	Estimated Cost to Bring to Satisfactory Standard (BTS)	Actual Annual Maint-enance	Mains Maint-enance Cost	Rehabilitations		Asset Renewals			Assets in Condition as a % of GRC					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Operating Cost	Net Debt to Equity	Economic Real Rate of Return	Sewer Main Breaks	Infiltration	Sewer Overflows	Sewerage Service Complaints	% Sge Treated that was compliant	Odour Complaints	Typical Residential Bill	Pollution Incident Response Mgmt Plan (PIRMP)?	STW Operators meeting NSW Reqmnts	Implem entatio n
		$/property F10/C8	$'000	$'000 F10	$'000	$'000 F15	$'000	$'000	$'000 per 100km of Main	Mains (% of Total Length)	Service Conn-ections %	$'000	$'000 per 100 km of Main	% of CRC	SGE Assets (86) 1	2	3	4	5	Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	OMA $/property F12	WS & SGE % F22	SGE % F18	Per 100km of main A14	ML per 100km of main	Per 100km of main	Per 1000 props C11	% E4	Per 1000 props	$/ assessment P6	Yes/No	No.	Overall %
		(73)	(74)	(75)	(76)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(84)	(85)						(87)	(88)	(89)	(91)	(92)	(93)	(94)	(95)	(96)	(97)	(98)	(99)	(100)	(100a)	(100b)	(101)
	Sydney Water Corporatio	17,000		32,409,000		426,000																	289	103	2						609			
	Hunter Water Corporation	20,000		4,640,000		58,100																	335	91	2						632			
LWUs with > 10,000 Properties																																	
112	Central Coast	11,000	2,246,000	1,470,000	27,200	38,400	22,000	10,541	80	0.4	-	27,379	1,075	1.2	17	48	32	2	1	40.46	0.94	0.87	238	8	1.2	38	157	32	-	100	2	641	Yes	23	100
3	Shoalhaven	11,100	716,000	469,000	9,500	8,500	0	14,612	22	0.1	0.2	3,962	323	0.6	94	6	0	0	0	0.44	0.00	0.97	466	-4	3.4	13	53	25	1	100	0	772	Yes	39	100
5	MidCoast	11,400	681,000	404,000	14,400	5,900	56,100	12,480	97	1.0	-	1,131	100	0.2	41	36	12	5	6	0.07	0.14	0.86	509	21	2.5	8	64	3	2	98	1	970	Yes	23	100
6	Tweed	19,600	836,000	610,000	10,700	5,300	28,100	9,002	205	1.0	0.0	3,971	557	0.5	69	21	6	1	3	0.26	0.05	1.13	514	-2	1.5	1	90	11	9	89	2	782	Yes	9	100
7	Port Macquarie-Hastings	9,500	418,000	268,000	7,400	12,700		3,915	74	0.1	0.0	2,733	388	0.7	43	39	16	0	1	0.37	0.00	1.00	484	-9	4.3	27	277	28	9	100	2	769		14	100
9	Wagga Wagga	9,300	361,000	258,000	5,200	4,100	3,200	3,566	94	0.6	1.0	3,205	486	0.9	82	3	7	7	1	0.21	0.01	0.00	405	5	0.9	72	25	33	38	100	1	454	Yes	9	100
11	Albury City	7,900	355,000	191,000	4,000	5,700	5,200	3,492	89	0.0	0.0	904	160	0.3	50	25	20	5	0	0.23	0.03	0.77	398	-9	5.2	76		1	1	33	1	703	Yes	4	100
10	Coffs Harbour	19,300	673,000	457,000	12,800	4,300	0	3,607	228	0.2	0.2	753	119	0.1	32	28	12	15	13	0.00	0.00	1.03	583	11	0.8	97		10	0	100	0	806	Yes	5	100
13	Tamworth Regional	11,700	302,000	234,000	5,700	1,600	5,900	16,194	156	0.0	0.1	1,497	265	0.5	48	28	21	2	1	0.27	0.03	0.94	398	-4	4.2	20		4	16	84	0	777	Yes	21	100
119	Queanbeyan-Palerang	7,400	288,000	147,000	3,800	6,700	24,000	1,531	56	0.0	0.0	25	6	0.0	35	27	21	11	5	0.00	0.16	0.14	394	-16	0.5	33	73	22	12	98	0	533	Yes	11	100
122	Dubbo Regional	10,500	305,000	205,000	4,800	7,700	7,700	1,338	20	0.0	0.0	435	86	0.1	48	26	19	6	1	0.75	0.04	0.91	344	-4	2.5	46	6	7	12	78	0	712	Yes	8	100
15	Eurobodalla	12,700	409,000	233,000	6,500	10,200	1,200	6,312	45	1.3	-	1,686	314	0.4	14	42	44	0	0	0.25	0.01	1.00	536	-3	2.4	23	307	15	1	100	1	886	Yes	7	100
19	Orange	9,600	255,000	162,000	3,000	1,900	0	616	2	0.9	0.2	387	85	0.2	36	28	29	2	4	0.15	0.00	0.49	380	-13	1.9	42	473	11	42	67	1	452	Yes	7	100
21	Bathurst Regional	5,700	201,000	91,000	2,800	2,400	27,500	1,481	147	0.2	0.0	619	152	0.3	11	19	40	16	14	0.23	0.30	0.46	443	-12	1.5	162	35	124	47	87	0	503	Yes	4	100
16	Wingecarribee	12,200	267,000	198,000	3,900	3,800	5,200	1,073	132	0.9	0.2	1,041	185	0.4	77	14	4	1	4	0.28	0.03	0.61	423	-8	4.9	10	234	47	15	100	1	756	Yes	9	100
14	Clarence Valley	20,200	340,000	298,000	4,300	15,100	3,000	1,664	100	0.2	0.1	815	199	0.2	52	35	11	1	0	0.18	0.01	0.83	478	12	2.8	40	61	17	19	88	0	1,076	Yes	12	100
24	Ballina	13,800	257,000	198,000	3,500	3,000	1,600	2,560	199	0.3	0.0	2,010	611	0.8	83	13	3	1	0	0.58	0.01	0.97	627	15	2.9	21	14	1	1	100	1	864	Yes	9	100
22	Lismore	15,100	327,000	193,000	4,300	3,900	29,600	1,833	273	0.0	0.1	2,204	612	0.7	24	41	25	9	1	0.49	0.16	0.75	478	-2	1.4	28	45	1	0	100	0	808	Yes	3	89
23	Bega Valley	14,700	303,000	180,000	7,100	1,700	0	6,238	132	0.5	0.4	1,378	340	0.5	22	49	17	8	4	0.19	0.00	0.00	850	-3	0.2	20	87	11	2	89	1	1,136	Yes	6	100
20	Goulburn Mulwaree	8,300	161,000	90,000	2,000	2,800	4,100	2,346	272	1.4	3.2	2,762	973	1.7	25	29	43	2	1	1.41	0.05	0.85	347	-8	6.1	45	100	0	29	100	0	749	Yes	7	100
27	Byron	13,300	206,000	146,000	3,200	1,200	0	4,552	98	0.0	0.0	1,218	429	0.6	44	29	22	5	0	0.38	0.00	1.00	662	11	6.0	21	256	2	1	94	1	1,121	Yes	7	100
25	Kempsey	17,400	220,000	159,000	3,300	2,400	57,000	3,710	201	0.0	0.1	1,958	717	0.9	39	11	17	20	13	0.71	0.37	0.97	575	7	0.9	25	131	8	2	87	1	850	Yes	9	100
	Medians (% of LWUs basis) or totals for >10,000 Properties	*11,550*							*99*	*0.2*	*0.1*		*319*	*0.5*	*42*	*28*	*18*	*4*	*1*	*0.27*	*0.03*	*0.87*	*472*	*-3*	*2.5*	*28*	*87*	*11*	*9*	*98*	*1*	*775*			
LWUs with 4,001 - 10,000 Properties																																	
111	Armidale Regional	8,200	113,000	81,000	1,460	1,150	4,320	1,002		1.0	0.4	696	230	0.6	15	53	22	7	3	50.95	4.84	0.74	269	-9	2.4	82	276	35	1	99	1	379	Yes	6	89
120	Snowy Monaro Regional	8,900	152,000	78,000	2,200	1,020	17,850	1,537	49	1.3	1.6	914	384	0.6	10	30	39	13	8	0.38	0.23	0.85	419	-11	2.1	19	31	46	19	63	1	930	Yes	16	100
30A	Hawkesbury	10,800	168,000	83,000	2,200	610	2,050	2,365	7	0.0	0.0	212	115	0.1	29	24	40	5	2	0.07	0.02	1.37	691	-1	-0.8	34	82	7	15	100	0	666	Yes	5	100
31	Lithgow	8,400	109,000	63,000	1,730	1,400	22,820	1,043	211	3.1	-	953	585	0.9	31	15	28	11	15	0.55	0.36	0.40	499	9	3.3	60		0	21	99	1	878	Yes	7	89
32	Mid-Western Regional	9,600	108,000	71,000	1,860	920	10,540	982	223	1.3	0.1	855	370	0.8	34	16	16	27	7	0.46	0.16	1.16	472	-5	1.0	68	39	39	44	85	1	739	Yes	11	78
30	Griffith	19,100	180,000	135,000	1,880	900	2,680	1,100	37	0.9	0.8	634	270	0.4	35	22	39	3	1	0.36	0.02	1.00	611	0	1.7	106		6	37	98	0	774	Yes	3	100
33	Richmond Valley	15,600	130,000	105,000	1,150	2,720	5,410	964	66	1.5	0.4	2,540	1,289	2.0	39	40	13	8	0	2.32	0.05	1.18	644	3	2.0	-		25	0	98	0	918	Yes	5	100
41	Muswellbrook	9,800	90,000	56,000	1,210	3,420	37,730	765	167	2.8	0.1	1,420	802	1.6	8	39	27	17	9	0.00	0.71	0.63	406	-21	1.3	11		12	7	39	4	595		4	100
34	Nambucca	13,400	113,000	76,000	1,580	520	10	1,020	88	0.0	0.0	456	261	0.4	5	50	44	1	0	0.32	0.00	10.20	440	5	1.1	12	95	33	3	79	2	612	Yes	4	100

Table 5D: Sewerage - Infrastructure Asset Condition and Performance - 2015-16

	WATER UTILITY	SEWERAGE INFRASTRUCTURE INDICATORS (including SPECIAL SCHEDULE 7 - Condition of Public Works - refer to note 2)																						SYSTEM PERFORMANCE									BPM
		WDV CRC per property	Current Replacement Cost	Written Down Replacement Cost	Current Cost Depreciation of System Assets	Capital Expenditure	Estimated Cost to Bring to Satisfactory Standard (BTS)	Actual Annual Maint-enance	Mains Maint-enance Cost	Rehabilitations		Asset Renewals			Assets in Condition as a % of GRC					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Operating Cost	Net Debt to Equity	Economic Real Rate of Return	Sewer Main Breaks	Infiltration	Sewer Overflows	Sewerage Service Complaints	% Sge Treated that was compliant	Odour Complaints	Typical Residential Bill	Pollution Incident Response Mgmt Plan (PIRMP)?	STW Operators meeting NSW Reqmnts	Implem entatio n
		$/property F10/C8	$'000	$'000 F10	$'000	$'000 F15	$'000	$'000	$'000 per 100km of Main	Mains (% of Total Length)	Service Conn-ections %	$'000	$'000 per 100 km of Main	% of CRC	SGE Assets (86)					Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	OMA $/property F12	WS & SGE % F22	SGE % F18	Per 100km of main A14	ML per 100km of main	Per 100km of main	Per 1000 props C11	% E4	Per 1000 props	$/ assessment P6	Yes/No	No.	Overall %
		(73)	(74)	(75)	(76)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(84)	(85)	1	2	3	4	5	(87)	(88)	(89)	(91)	(92)	(93)	(94)	(95)	(96)	(97)	(98)	(99)	(100)	(100a)	(100b)	(101)
35	Singleton	5,500	73,000	32,000	980	1,360	2,320	315	218	3.3	0.5	878	578	1.2	75	3	9	10	2	0.56	0.08	0.63	328	-37	3.3	45		15	14	100	1	495	Yes	2	100
114	Federation	7,700	58,000	42,000	760	580	2,710	339	120	0.0	0.6	284	168	0.5	54	40	6	1	0	0.11	0.07	0.80	415	-11	1.9	27	21	7	15	94	1	685		9	100
116	Hilltops	9,700	85,000	52,000	980	2,490	50	342	110	0.6	0.1	2,429	1,463	2.9	2	15	11	5	66	2.49	0.00	1.21	277	-4	2.9	89	108	11	10	100	1	720	Yes	10	89
121	Snowy Valleys	10,300	81,000	54,000	1,110	6,220	3,150	557	59	2.1	0.2	5,897	3,024	7.3	31	22	41	6	0	7.96	0.06	0.95	489	1	0.0	25		24	16	94	0	651	Yes	13	100
36	Parkes	7,900	70,000	40,000	570	7,480	150	482	246	1.4	0.5	7,357	5,005	10.5	18	13	45	4	21	14.54	0.00	1.13	321	-26	3.3	28	50	27	26	70	0	436	Yes	8	100
37	Inverell	9,500	65,000	46,000	710	280	0	701	229	0.0	0.0	182	144	0.3	2	94	4	0	0	0.02	0.00	1.01	279	-7	0.9	32	57	2	9	99	0	476	Yes	5	56
45	Upper Hunter	7,400	68,000	32,000	900	1,160	800	279	113	4.6	0.3	1,155	882	1.7	8	31	36	16	9	1.28	0.03	0.88	467	-11	-0.5	13	88	5	15	94	0	501	Yes	3	100
117	Murray River	7,000	52,000	29,000	780	470	0	389	54	0.0	0.5	457	311	0.9	10	69	14	7	0	0.60	0.00	0.97	306	-13	1.1	22	22	0	19	100	0	397	Yes	11	100
	Medians (% of LWUs basis) or totals for 4,001 - 10,000 Props	*9,500*							*111*	*1.3*	*0.3*		*384*	*0.9*	*18*	*30*	*27*	*7*	*2*	*0.55*	*0.05*	*0.97*	*419*	*-7*	*1.7*	*30*	*57*	*12*	*15*	*98*	*1*	*651*			
LWUs with 1,501 - 4,000 Properties																																			
44	Gunnedah	8,100	56,000	33,000	750	1,220	3,910	433	158	0.0	0.4	96	83	0.2	58	12	8	22	1	0.00	0.12	1.03	230	-24	4.8	17	43	29	9	100	0	505	Yes	3	100
46	Narrabri	9,700	94,000	38,000	1,390	1,350	15,510	358	147	3.3	0.6	1,314	1,086	1.4	15	60	15	10	0	0.95	0.44	0.89	454	-24	0.0	38	20	5	33	100	1	697	Yes	7	89
38	Moree Plains	7,500	60,000	30,000	1,220	2,140	0	881	422	0.0	0.5	1,723	1,936	2.9	26	7	47	13	8	1.43	0.00	0.73	499	2	1.1	46	101	6	23	100	0	650		6	100
115	Cootamundra-Gundagai	8,100	55,000	30,000	520	1,050	590	497	117	0.0	0.6	1,044	768	1.9	0	11	47	14	28	2.05	0.02	0.92	267	-14	1.6	101	91	5	51	100	0	398	Yes	6	89
53	Berrigan	4,300	39,000	16,000	570	170	0	617		0.0	0.3	171	155	0.4	0	80	20	0	0	0.31	0.00	0.96	286	-22	1.8	89	75	14	45	100	3	501		4	67
39	Cowra	9,400	49,000	33,000	580	320	630	876	202	3.0	1.1	318	318	0.6	5	38	48	8	0	0.57	0.02	0.88	492	4	3.1	180		0	51	100	0	804	Yes	4	100
48	Leeton	7,800	57,000	26,000	760	900	560	418	188	6.9	7.9	901	892	1.6	14	36	47	1	2	1.23	0.02	1.00	489	-21	1.1	15	10	0	1	100	0	519	Yes	5	100
54	Edward River	11,500	52,000	37,000	550	110	430	457	127	0.0	0.0	104	95	0.2	17	37	33	6	7	0.09	0.01	1.26	367	-11	1.9	28	41	0	13	100	0	789	Yes	3	100
51	Forbes	9,500	46,000	30,000	560	260	1,300	494	178	0.0	0.3	254	285	0.5	0	19	50	19	12	0.46	0.04	0.38	365	-18	2.5	64	42	0	29	100	2	660	Yes	4	100
47	Bellingen	15,000	63,000	46,000	1,070	3,120	260	437	94	1.0	0.3	2,270	2,293	3.6	38	57	3	1	0	2.46	0.01	0.95	656	-17	0.4	29	45	6	2	94	0	882		4	100
60	Glen Innes Severn	5,100	22,000	14,000	330	430	3,490	80	54	1.8	0.0	418	377	1.9	51	23	18	7	0	0.00	0.26	1.00	258	6	2.9	47	62	48	18	100	0	473	Yes	4	100
80	Greater Hume	11,900	48,000	31,000	580	660	0	147	35	0.0	0.1	165	214	0.3	9	37	54	0	0	0.83	0.00	0.75	326	-7	0.7	4	38	0	5	100	0	504	Yes	5	100
55	Warrumbungle	8,400	37,000	21,000	330	130	220	324	204	1.3	0.0	128	160	0.3	33	44	19	1	4	0.40	0.01	1.03	512	-8	-1.0	45	16	0	15	80	1	469	Yes	7	78
56	Yass Valley	10,300	47,000	26,000	640	0	0	940		0.0	0.4	0			45	44	11	0	0	5.58	0.00	0.85	435	26	10.4	36	27	0	28	100	0	620	Yes	3	100
59	Lachlan	9,700	38,000	21,000	530	180	1,580	535	95	0.0	0.3	156	205	0.4	10	11	70	8	1	1.26	0.02	0.70	436	-14	-1.1	45	28	0	6	63	1	545	Yes	2	100
69	Temora	5,200	20,000	11,000	210	700	0	425		3.6	0.4	578	1,051	2.9	0	8	92	0	0	2.81	0.00	0.99	219	-5	1.3	73	45	27	19	83	0	326	Yes	2	56
61	Liverpool Plains	14,400	29,000	27,000	170	10	530	0	47	6.9	0.1	0			41	17	39	3	0	0.00	0.02	0.00	301	-11	1.8	12	24	3	16	18	2	516	Yes	3	89
62	Narromine	9,000	30,000	18,000	330	640	10,360	42	65	13.0	0.1	501	928	1.7	7	19	5	0	69	1.55	0.58	0.84	383	-26	1.1	9		0	3	100	0	565	Yes	4	100
78	Blayney	10,300	30,000	20,000	540	340	5,240	384		2.6	0.2	262	345	0.9	37	38	3	21	0	0.50	0.27	0.90	489	-18	-0.8	32	55	0	14	100	1	545	Yes	4	89
91	Cabonne	15,500	49,000	38,000	750	900	70	779	149	4.1	0.2	0			59	30	10	1	0	0.64	0.00	0.90	589	-3	-0.9	16	14	5	3	61	0	487	Yes	6	100
72	Bland	5,600	23,000	10,000	260	80	550	270		4.1	0.3	81	165	0.4	24	35	40	1	0	0.00	0.05	0.81	418	-3	2.9	41	33	0	13	100	0	685	Yes	2	78
67	Cobar	5,000	18,000	9,000	370	0	2,670	83	71	-	0.0	0			3	40	46	8	3	0.00	0.31	0.32	197	-17	1.0	0	10	0	3	100	1	330	Yes	2	100
63	Narrandera	6,900	21,000	12,000	290	650	3,000	256	295	-	-	585	1,427	2.7	0	25	25	25	25	2.06	0.25	0.81	412	-27	1.2	-			-	29	0	518		4	78
68	Tenterfield	12,300	34,000	23,000	750	430	640	517		1.5	0.0	155	228	0.5	6	77	15	2	0	0.40	0.03	0.91	504	0	0.5	153	13	3	62	57	3	877	Yes	8	100
70	Kyogle	12,700	30,000	23,000	210	20	710	339	169	0.0	0.1	0			59	22	10	4	5	0.00	0.03	1.75	510	-1	1.3	5	266	10	4	100	0	662		7	100
77	Junee	6,400	21,000	11,000	310	0	2,970	336	191	0.0	0.2	0			35	20	6	35	4	0.00	0.28	0.93	269	-13	-0.6	56	170	0	1	67	0	365		2	44
74	Wentworth	10,400	38,000	17,000	690	500	4,200	186	89	-	-	324	498	0.8	18	12	45	25	0	0.00	0.25	1.00	305	-17	1.4	15		0	16	100	2	720	Yes	2	89
79	Walgett	7,400	19,000	12,000	170	0	1,940	55		0.0	0.0	0			2	45	3	47	3	0.00	0.16	0.23	200	-19	3.1	10		2	2	75	0	454	Yes	3	56
73	Upper Lachlan	8,900	24,000	14,000	480	350	0	224	13	3.6	0.7	349	623	1.5	56	22	18	4	0	0.76	0.00	0.64	476	-11	1.3	9	214	0	5	100	0	752	Yes	5	89
	Medians (% of LWUs basis) or totals for 1,501 - 4,000 Props	*9,000*							*137*	*1.1*	*0.3*		*361*	*0.9*	*17*	*30*	*20*	*6*	*0*	*0.50*	*0.02*	*0.90*	*412*	*-13*	*1.3*	*34*	*41*	*0*	*13*	*100*	*0*	*545*			

Table 5D: Sewerage - Infrastructure Asset Condition and Performance - 2015-16

	WATER UTILITY	SEWERAGE INFRASTRUCTURE INDICATORS (including SPECIAL SCHEDULE 7 - Condition of Public Works - refer to note 2)																										SYSTEM PERFORMANCE										BPM
		WDV CRC per property	Current Replacement Cost	Written Down Replacement Cost	Current Cost Depreciation of System Assets	Capital Expenditure	Estimated Cost to Bring to Satisfactory Standard (BTS)	Actual Annual Maint-enance	Mains Maint-enance Cost	Rehabilitations		Asset Renewals			Assets in Condition as a % of GRC					Renewals Ratio	Backlog Ratio	Asset Maintenance Ratio	Operating Cost	Net Debt to Equity	Economic Real Rate of Return	Sewer Main Breaks	Infiltration	Sewer Overflows	Sewerage Service Complaints	% Sge Treated that was compliant	Odour Complaints	Typical Residential Bill	Pollution Incident Response Mgmt Plan (PIRMP)?	STW Operators meeting NSW Reqmnts	Implem entatio n
		$/property F10/C8	$'000	$'000 F10	$'000	$'000 F15	$'000	$'000	$'000 per 100km of Main	Mains (% of Total Length)	Service Conn-ections %	$'000	$'000 per 100 km of Main	% of CRC	SGE Assets (86) 1	2	3	4	5	Asset Renewals / Depreciation	BTS / Value of Infrastructure	Actual maintenance / Required Maintenance	OMA $/property F12	WS & SGE % F22	SGE % F18	Per 100km of main A14	ML per 100km of main	Per 100km of main	Per 1000 props C11	% E4	Per 1000 props	$/ assessment P6	Yes/No	No.	Overall %
		(73)	(74)	(75)	(76)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(84)	(85)						(87)	(88)	(89)	(91)	(92)	(93)	(94)	(95)	(96)	(97)	(98)	(99)	(100)	(100a)	(100b)	(101)
LWUs with 200 - 1,500 Properties																																					
86	Hay	8,000	22,000	11,000	180	350	5,700	408	606	2.9	0.4	349	1,026	1.6	0	32	32	12	24	1.90	0.54	1.94	650	-17	-1.2	65	59	0	43	100	0	664	Yes	3	78
83	Oberon	9,400	19,000	12,000	130	40	1,000	45	97	0.0	0.2	0			17	20	35	11	17	0.00	0.09	0.43	422	-10	3.3	18	39	92	3	100	0	590	Yes	3	100
84	Gilgandra	10,900	23,000	14,000	290	190	390	304	265	2.7	0.0	187	505	0.8	11	47	38	4	1	0.65	0.03	1.11	393	-9	0.5	68	70	0	34	100	0	602	Yes	4	89
118	Murrumbidgee	8,900	18,000	11,000	200	180	50	172	57	0.0	0.1	67	191	0.4	3	19	75	3	0	0.14	0.00	0.83	267	-19	-0.7	6	29	0	1	0	0	375	Yes	4	67
87	Bourke	7,800	17,000	9,000	220	1,680	0	59	262	0.0	0.4	1,679	4,938	9.8	25	9	66	0	0	0.00	0.00	0.59	369	-14	2.0	18	44	3	103	100	0	673		5	89
75	Coonamble	10,300	28,000	12,000	460	110	400	161	102	0.0	0.4	105	228	0.4	0	100	0	0	0	0.23	0.03	0.95	255	-24	0.0	7	28	0	18	50	0	479	Yes	7	67
81	Gwydir	8,500	13,000	10,000	80	30	2,290	99	93	0.0	0.2	28	68	0.2	6	51	0	42	0	0.40	0.25	1.00	365	-6	2.3	76	56	29	0	81	0	500		7	89
85	Uralla	5,400	8,000	6,000	200	10	0	128	100	0.0	0.0	9	26	0.1	14	63	22	1	0	0.06	0.00	0.85	342	-12	0.1	43	60	0	3	75	3	540	Yes	2	67
99	Coolamon	12,700	18,000	13,000	220	130	50	310	161	0.0	0.5	129	293	0.7	63	33	4	0	0	0.83	0.00	0.98	327	-11	-0.1	9	5	0	6	100	0	410	Yes	2	56
89	Bogan	7,600	11,000	7,000	110	20	180	218	545	0.0	0.1	17	85	0.2	12	19	69	0	0	0.15	0.03	1.10	565	-15	0.0	0	50	0	18	25	0	540	Yes	4	100
95	Weddin	6,500	13,000	7,000	60	60	0	77	174	6.5	0.2	63	203	0.5	0	94	6	0	0	1.14	0.00	1.00	331	-11	2.3	210	65	16	71	100	0	512	Yes	2	78
102	Lockhart	7,600	13,000	7,000	160	0	270	162	33	0.0	0.1	0			4	24	61	10	0	0.00	0.04	0.98	325	-27	-0.1	0		0	21	58	0	490	Yes	3	89
100	Balranald	7,900	14,000	7,000	390	30	0	111		0.0	0.0	26	68	0.2	7	30	60	3	0	0.00	0.00	0.88	266	-8	-5.0	-		0	9	100	0	269		4	56
92	Carrathool	7,400	7,000	6,000	80	0	40	79	113	-	-	0			11	57	27	4	0	0.37	0.01	0.93	191	2	1.6	48		9	49	100	9	425		2	33
96	Warren	5,100	14,000	4,000	260	50	170	131	318	0.0	0.5	24	141	0.2	45	17	35	2	0	0.11	0.04	1.19	451	-17	-2.9	294	65	0	68	77	0	500		2	89
98	Walcha	5,600	6,000	4,000	70	30	740	59	3	0.0	0.8	0			9	75	16	0	0	0.37	0.18	0.97	404	-7	0.3	23	50	30	11	25	0	460	Yes	5	89
105	Brewarrina	11,200	12,000	5,000	150	60	90	40		0.0	0.8	62	388	0.5	1	22	7	70	0	0.00	0.02	0.26	531	-17	1.0	13	38	0	40	84	0	774		6	78
103	Central Darling	7,300	5,000	3,000	80	0	400	135	217	0.0	1.3	0			11	0	87	2	0	0.00	0.14	7.11	466	-4	-0.2	113		9	205	100	0	488		4	67
	Medians (% of LWUs basis) or totals for 200 - 1,500 Props	*7,850*							*137*	*0.0*	*0.2*		*203*	*0.4*	*10*	*31*	*34*	*3*	*0*	*0.15*	*0.03*	*0.98*	*367*	*-12*	*0.1*	*23*	*50*	*0*	*19*	*92*	*0*	*500*			
	Medians (% of LWUs basis)	9,450	Total ($M)	Total ($M)	Total ($M)	Total ($M)	Total ($M)	Total ($M)	115	0.2	0.2	Total ($M)	321	0.6	20	29	22	5	1	0.37	0.03	0.92	417	-9	1.3	29	52	5	14	99	0	607	Total	Total	Overall
	Medians (Statewide basis)	11,200	13,300	8,600	191	202	467	141	100	0.5	0.1	104	340	0.5	35	29	20	2	1	0.28	0.02	0.95	470	-3	2.5	38	75	14	5	100	1	697	70 (81%)	445	90%
	National Medians	9,240																					429	7	2.9	20			1			703			

Notes

1. Table 5D shows each NSW regional local water utility's [LWU] **sewerage infrastructure asset condition** [col 86], **asset rehabilitations** [col 81, 82], **asset renewal expenditure** [col 83 to 85], **financial performance** [col 73 to 80 and 87 to 93], sewerage **system performance** [col 94 to 99], typical residential bill [TRB - col 100] and its level of implementation of the Best-Practice Management [BPM] of Water & Sewerage required outcomes [BPM - col 101]. Table 5D also shows the Statewide median for each indicator, as well as the **2015-16 National Median** for the National Water Initiative [NWI] performance indicators [col 72, 91, 92, 93, 94, 97, 100].

2. The sources of data for Table 5D are:
   - col 78, 79, 86 to 89 are from each council's reported Special Schedule 7;
   - col 73 to 77 and col 91 to 93 from each council's reported Special Schedules 5 and 6; and
   - col 94 to 102 are based on the results reported by each council in the NSW Water Supply and Sewerage Performance Monitoring Database.

   Note that minor errors identified in the reported results for column 86 for Orange have been corrected.

3. **Totals for sewerage in regional NSW:**
   - **Total current replacement cost of system assets** - $13.3B [col 74],
   - **Total written down replacement cost** - $8.6B [col 75],
   - **Total annual depreciation** - $191M [col 76],
   - **Total** estimated cost to Bring to Satisfactory Standard[1] **(BTS) – $467M** [col 78],
   - **Total annual maintenance expenditure** - $141M [col 79],
   - **Total capital expenditure** - $202M [col 77],
   - **Total asset renewal expenditure** - $104M [col 83],
   - **Pollution Incident Response Management Plan (PIRMP)?** - 70 (81%) [col 100a]
   - **Overall BPM implementation [SGE]** – 90% [col 101].

   The total $467M for **BTS** is 2.4 times the annual depreciation of $191M, 3.5% of the current replacement cost of system assets[2] of $13.3B and 68% of the 2015-16 annual sewerage revenue of $690M.

4. **Statewide medians for sewerage in regional NSW:**
   - **Written down current replacement cost** per connected property - $11,200 [col 73] ; National Median $9,240
   - **Assets in condition 1** - 35% [col 86]
   - **Assets in condition 2** - 29% [col 86]
   - **Assets in condition 3** - 20% [col 86]
   - **Assets in condition 4** - 2% [col 86]
   - **Assets in condition 5** - 1% [col 86]
   - **Sewer main rehabilitations** % of total length – 0.5 km [col 81]
   - **Service connection rehabilitations** – 0.1% [col 82]
   - **Asset renewals** per 100 km of main – $340,000 [col 84]
   - **Asset renewals** / current replacement cost of assets – 0.5% [col 85]
   - **Renewals Ratio** [Asset Renewals/Depreciation] – 0.28 [col 87]
   - **Backlog Ratio** [BTS/ Value of Infrastructure] – 0.02 [col 88]
   - **Asset Maintenance Ratio** [Actual Maintenance/Required Maintenance] – 0.95 [col 89]
   - **Operating Cost** [OMA cost/connected property – **F12**] - $470 [col 91]; National Median $429
   - **Sewer Mains Maintenance cost** per 100 km of main - $100,000 [col 80]
   - **Net Debt to Equity** [WS & SGE – **F22**] – -3% [col 92]; National Median 7%
   - **Economic Real Rate of Return** [**F18**] – 2.5% [col 93]; National Median 2.9%
   - **Sewer Main breaks**/100km of main [**A4**] – 38 [col 94]; National Median 20

4. **Statewide medians for sewerage in regional NSW:** (continued from left)
   - **Infiltration**/ML/100km of main – 75 [col 95]
   - **Sewer Overflows**/100km of main – 14 [col 96]
   - **Sewerage service complaints**/1000 properties [**C11**] – 5 [col 94]; National Median 1
   - **% sewage treated that was compliant [E4]** – 100% [col 98]
   - **Sewage odour complaints**/1000 properties – 1 [col 99]
   - **Typical Residential Bill**/assessment [2015-16 – **P6**] - $697 [col 100]; National Median $703.

   The totals in note 3 on the previous page and the statewide medians in this note 4 provide useful information on the infrastructure asset condition, asset rehabilitations, asset renewal expenditure, financial performance, system performance, the typical residential bill and the extent of asset management and strategic business planning for sewerage in regional NSW.

   Disclosure of the 30 indicators shown for each LWU in Table 5D provides transparency and public accountability.

5. **LWU Planning:**

   As indicated on page 8 of the *NSW Water and Sewerage Strategic Business Planning Guidelines* (www.water.nsw.gov.au), the provision of water supply and sewerage services is highly capital intensive. Accordingly, sound planning, analysis and community involvement are essential.

   As noted in sections 2.1 and 4.1 of the 2015-16 NSW Water Supply and Sewerage Performance Monitoring Report, each LWU needs to prepare a 30-year Integrated Water Cycle Management (IWCM) Strategy, financial plan and report in accordance with the July 2014 IWCM Check List (www.water.nsw.gov.au).

   This involves a 30-year total asset management plan (TAMP), which includes a **sound 30-year renewals plan** in accordance with Item 7F of the Strategic Business Planning Check List (www.water.nsw.gov.au). Only 'proven' renewals projects should be included in the first 5 years of a LWU's renewals plan.

6. **Comment on reported Asset Condition [col 86]:**

   Note 4 above shows that the Statewide medians for assets in condition 1, 2, 3, 4 and 5 are 35%, 29%, 20%, 2% and 1% respectively.

   With regard to assets in **condition 5 (very poor)**, **42 LWUs** (49%) had a 0% result.

   The following 6 LWUs had a result greater than 20% for condition 5:
   - Narromine (69%)
   - Hilltops (66%)
   - Cootamundra-Gundagai (28%)
   - Narrandera (25%)
   - Hay (24%)
   - Parkes (21%)

1 BTS - Estimated cost to bring to a satisfactory standard.

2 This value of 3.5% is consistent with the col 88 value of 0.03 (ie. 3%) for the median LWU. The value of the Statewide median for col 88 is 0.02, which indicates a lower BTS proportion for the larger LWUs.

Table 6: Water supply - residential charges, bills & cost recovery

No.	WATER UTILITY	RESIDENTIAL CHARGES: Type of Tariff (1) P1 15/16	Type of Tariff (1) P1 16/17	Fixed Charge (or Minimum) ($) (2) P1.2 14/15	Fixed Charge 15/16	Fixed Charge 16/17	Usage Charge Step 1: Step (kL) (5a) P1.3 14/15	Step 1 Step (kL) 15/16	Step 1 Step (kL) 16/17	Step 1 Charges (c/kL) (5b) P1.3 14/15	Step 1 Charges 15/16	Step 1 Charges 16/17	Step 2: Step (kL) (5c) P1.4 14/15	Step 2 Step (kL) 15/16	Step 2 Step (kL) 16/17	Step 2 Charges (c/kL) (5d) P1.4 14/15	Step 2 Charges 15/16	Step 2 Charges 16/17	Billing (2006 National Guidelines) (% Implementation) (5e) 14/15	Billing 15/16	Operating Cost (OMA) (c/kL) (6) 13/14	OMA 14/15	OMA 15/16	Typical Developer Charge ($/ET) (7) 14/15	Developer Charge 15/16	Developer Charge 16/17	Typical Residential Bill based on Col(14b) (Includes Special Levies) (8) P3 14/15	Typical Bill 15/16	Typical Bill 16/17	COST RECOVERY: Return on Assets (%) (11) 13/14	Return on Assets 14/15	Return on Assets 15/16	ERRR (Water Supply) (%) (12) F17 13/14	ERRR 14/15	ERRR 15/16	Residential Revenue from Usage Charges (% of residential bills) (13) F4 14/15	Residential Revenue 15/16	Avge Annual Residential Water Supplied[3]: Potable kL/prop (14a) 14/15	Potable kL/prop 15/16	Potable + Non Potable kL/prop (14b) W12 14/15	Potable + Non Potable kL/prop 15/16	L/c/d (14c) 15/16	Full Cost Recovery? (FCR) (Y/Y*/N) (14d) 15/16	Total Connected Properties (15) C4 15/16
	Sydney Water	Two Part	Two Part	116	103	90	All	All	All	230	228	200							100	100							571	560	492				1.9	2.3	3.0	80	81	201	201	201	201		Y	1,899,000
	Hunter Water	Two Part	Two Part	18	18	26	All	All	All	220	222	225							100	100							390	387	399				3.5	2.5	3.0	95	96	168	166	168	166		Y	242,000
	LWUs with > 10,000 Properties																																											
112	Central Coast	Two Part	Two Part	150	174	198	All	All	All	223	226	229							100	100	145	147	121	2,906	2,956	3,020	496	523	551	0.0	0.4	0.8	1.2	1.5	1.6	73	67	155	154	155	155	172	Y*	137,800
3	Shoalhaven	Two Part	Two Part	81	80	82	All	All	All	160	165	170							100	100	87	92	92	6,580	6,580	6,580	309	328	337	1.6	2.3	1.7	0.9	1.7	1.2	75*	76	142	150	143	150	204	Y	47,480
4	Rous (Bulk Supplier) (No Sge)																				96	99	100	9,090	9,250	8,260				1.2	1.3	2.5	1.7	1.8	3.0		0						Y	41,420
5	MidCoast	Inclining Block	Inclining Block	205	215	232	<200	<200	<200	270	292	315	>200	>200	>200	302	326	352	97	97	166	202	196	5,980	6,160	6,160	587	621	670	-0.7	-0.9	-1.2	0.7	0.7	0.3	72	69	142	139	142	139	170	Y	39,740
6	Tweed	Inclining Block	Inclining Block	148	159	166	<300	<300	<300	245	270	285	>300	>300	>300	370	405	425	100	100	138	147	150	12,910	13,130	13,390	584	604	637	1.7	0.9	1.5	2.4	1.6	2.2	75*	75	178	165	178	165	179	Y	32,580
7	Port Macquarie-Hastings (Unfilter	Inclining Block	Inclining Block	183	194	197	<270	<270	<270	255	270	275	>270	>270	>270	510	540	550	33	33	172	181	170	9,800	9,550	9,610	568	619	630	1.8	1.6	4.6	1.7	1.2	4.1	68	70	151	158	151	158	147	Y	30,380
8	Riverina (Groundwater) (No Sge)	Inclining Block	Inclining Block	160	160	160	<500	<500	<500	133	140	140	>500	>500	>500	200	210	210	100	100	63	52	44	4,930	5,920	4,930	574	627	627	5.6	7.9	5.9	5.3	7.5	5.7	74	76	311	333	311	333	343	Y	31,710
11	Albury City	Inclining Block	Inclining Block	113	128	138	<225	<225	<225	118	130	139	>225	>225	>225	216	227	234	100	100	86	87	80	3,000	3,050	3,110	354	418	448	1.9	2.2	3.2	1.7	1.9	2.8	75	76	205	223	205	223	279	Y	25,360
10	Coffs Harbour	Inclining Block	Inclining Block	143	143	143	<365	<365	<365	263	267	271	>365	>365	>365	395	401	407	100	100	149	161	156	9,940	10,130	10,290	582	590	596	-0.2	0.6	0.9	1.2	2.0	2.3	76*	76*	167	167	167	167	149	Y	25,060
13	Tamworth Regional	Inclining Block	Inclining Block	248	254	259	<400	<400	<400	142	145	148	400-800	400-800	400-800	213	218	222	80	80	105	131	104	4,630	4,710	4,790	515	619	631	3.6	2.3	2.9	3.3	2.0	2.6	55	60	188	251	188	251	300	Y	22,010
14	Clarence Valley	Inclining Block	Inclining Block	149	177	116	<450	<450	<450	179	191	237	>450	>450	>450	268	287	356	95	95	121	133	122	5,120	5,210	5,320	413	480	491	0.2	-0.1	0.5	0.7	0.4	0.9	66	76*	147	158	147	158	180	Y	21,530
122	Dubbo Regional	Two Part	Two Part	242	250	255	All	All	All	185	191	194							100	100	103	100	86	5,329	5,349	5,350	817	866	880	2.7	4.5	4.7	3.4	5.1	5.1	74	71	311	322	311	322	386	Y	20,700
119	Queanbeyan-Palerang (Reticulato	Inclining Block	Two Part	381	417	251	<160	<176	<176	274	297	372	>160	>176	>176	402	456		100	100	134	145	140	8,595	8,732	8,850	864	901	857	1.0	0.9	1.2	0.9	0.7	0.9	61	71*	171	163	171	163	194	Y	20,820
15	Eurobodalla	Two Part	Two Part	282	289	294	All	All	All	340	348	352							98	98	229	225	232	11,590	11,780	12,020	668	695	705	0.3	1.0	1.4	0.4	1.1	1.3	58	58	114	117	114	117	190	Y	19,720
12	Fish River WS (Bulk Supplier) (No																													15.6			15.6										Y*	23,500
16	Wingecarribee	Inclining Block	Inclining Block	154	158	158	<225	<225	<225	174	178	178	>225	>225	>225	261	267	267	80	80	108	130	120	6,480	6,540	6,690	463	489	489	2.1	1.8	3.8	1.8	1.5	3.5	68	71	178	186	178	186	218	Y	19,350
19	Orange	Inclining Block	Inclining Block	222	252	259	<450	<450	<450	202	220	227	>450	>450	>450	303	330	340			92	81	100	7,490	7,560	7,660	564	631	651	3.3	4.4	4.0	2.9	4.0	3.5	70	64	170	173	170	173	185	Y	18,020
21	Bathurst Regional	Inclining Block	Inclining Block	121	156	164	<250	<250	<250	180	180	189	>250	>250	>250	270	270	284			118	122	123	5,100	5,400	5,410	522	576	605	2.0	1.7	1.5	1.8	1.6	1.4	82	79	223	233	225	235	274	Y	16,070
23	Bega Valley (Unfiltered)	Two Part	Two Part	198	203	207	All	All	All	250	270	275							99	99	193	225	233	7,910	8,040	8,200	541	568	579	-0.3	-0.5	-1.0	-0.6	-0.8	-1.2	65*	64	137	135	137	135	199	Y*	14,420
24	Ballina (Reticulator)	Inclining Block	Inclining Block	189	195	200	<350	<350	<350	202	208	214	>350	>350	>350	304	313	322	100	100	89	84	86	3,540	3,160	3,220	555	545	560	0.7	1.8	2.1	0.3	1.2	1.6	66	65	181	168	181	168	165	Y	15,240
22	Lismore (Reticulator)	Two Part	Two Part	204	234	248	All	All	All	299	322	341							75	75	124	122	124	2,910	3,050	1,400	666	735	778	-0.1	1.3	2.3	0.2	1.6	2.5	70	68	155	155	155	155	167	Y	14,020
25	Kempsey (Groundwater)	Inclining Block	Inclining Block	255	268	281	<250	<250	<250	209	219	230	>250	>250	>250	301	316	332	95	95	157	157	149	9,300	9,450	9,570	580	594	623	-0.8	0.7	0.0	0.0	1.3	0.7	59	56	156	149	156	149	172	Y	12,470
27	Byron (Reticulator)	Inclining Block	Inclining Block	155	175	179	<450	<450	<450	232	242	247	>450	>450	>450	348	363	370	90	90	93	91	98	3,440	3,500	3,560	574	584	596	2.1	2.1	3.6	1.6	1.6	3.1	73	71	180	169	180	169	222	Y	11,450
20	Goulburn Mulwaree	Inclining Block	Inclining Block	165	170	170	<292	<292	<292	280	280	280	>292	>292	>292	378	378	378	25	25	143	174	131	3,370	3,370	3,370	624	663	623	0.7	0.4	0.7	1.0	0.8	1.1	65*	73*	139	162	139	162	202	Y	11,290
26	Essential Energy	Two Part	Two Part	313	317	321	All	All	All	172	174	177							100	100	197	170	238				755	722	733							59	57	257	233	257	233	324	Y*	10,530
28A	Goldenfields (Reticulator) (No Sge	Two Part	Two Part	174	178	183	All	All	All	212	217	224							100	100	105	109	112	7,080	7,430	7,800	750	779	804	2.7	4.0	4.5	2.3	3.6	3.9	78	78	272	277	275	280	240	Y	10,290
28B	Goldenfields (Bulk Supplier) (No S																				31	31	31							1.3	0.5	0.8	0.9	0.0	0.3								Y	19,780
	Medians (% of LWUs basis excl bulk suppliers) for >10,000 Properties			*178*	*186*	*197*				*211*	*220*	*230*				*303*	*321*	*340*			*123*	*132*	*123*	*5,980*	*6,160*	*6,160*	*574*	*611*	*625*	*1.6*	*1.6*	*1.7*	*1.2*	*1.6*	*2.2*	*70*	*69*	*171*	*166*	*171*	*166*	*197*	*0 LWU without FCR*	
	LWUs with 4,001 - 10,000 Properties																																											
111	Armidale Regional	Inclining Block	Inclining Block	215	215	220	<400	<400	<400	241	241	247	400-1000	400-1000	400-1000	320	320	328	10	10	150	138	149	4,916	5,112	6,190	685	714	732	0.9	1.7	0.9	0.9	1.6	0.6	79	72	195	207	195	207	222	Y	10,140
120	Snowy Monaro (Unfiltered)	Inclining Block	Inclining Block	360	363	372	<300	<300	<300	210	230	236	>300	>300	>300	330	350	359	99	99	201	167	142	6,181	7,859	6,260	755	689	706	0.6	0.9	2.7	0.3	0.6	2.4	41	47*	188	142	198	151	274	Y	9,930
30	Griffith	Inclining Block	Inclining Block	129	129	132	<200	<200	<200	65	67	69	>200	>200	>200	125	130	135	15	15	70	76	75	5,160	5,900	6,630	690	734	759	1.0	0.9	1.7	0.7	0.7	1.4	82*	83*	545	562	567	585	434	Y	8,360
31	Lithgow	Inclining Block	Inclining Block	150	160	168	<250	<250	<250	296	311	311	>250	>250	>250	445	467	467	40	40	162	232	196	2,700	2,700	3,000	540	658	666	3.5	0.0	1.8	2.0	0.4	2.0	83	78	132	160	132	160	200	Y	8,100
32	Mid Western Regional	Two Part	Two Part	140	144	148	All	All	All	275	281	291							30	30	148	165	178	8,250	8,460	8,670	649	663	685	2.5	2.8	2.3	2.6	2.8	2.2	80	80	185	185	185	185	219	Y	8,230
116	Hilltops (Reticulator)	Two Part	Two Part	250	275	303	<480	All	All	246	270	297	>480			369			50	50	58	81	102	1,730	3,263	3,330	671	738	811	-0.4	-0.3	2.2	-0.6	-0.7	1.8	69	63	171	171	171	171	187	Y	7,320
33	Richmond Valley	Inclining Block	Inclining Block	127	133	139	<200	<200	<200	194	203	212	>200	>200	>200	292	307	322			113	114	108	5,040	5,130	5,220	460	437	457	0.3	1.0	1.1	0.3	0.9	1.0	75	74	172	150	172	150	155	Y	7,210
35	Singleton	Inclining Block	Inclining Block	149	154	136	<450	<450	<450	122	135	155	>450	>450	>450	226	245	265	100	100	107	87	83	5,230	5,390	5,550	455	501	535	3.7	1.7	6.9	1.3	-0.5	5.0	69*	75*	251	258	251	258	219	Y	6,740
34	Nambucca (Groundwater)	Two Part	Two Part	128	128	138	All	All	All	290	290	283									143	152	140	12,360	12,570	12,780	517	533	533	1.3	1.2	0.6	2.1	2.2	1.8	77	78	134	139	134	139	156	Y	6,420

Table 6: Water supply - residential charges, bills & cost recovery

	WATER UTILITY	RESIDENTIAL CHARGES																				Operating Cost (OMA)			Typical Developer Charge			Typical Residential Bill based on Col(14b)			COST RECOVERY														Total Connected Properties
		Type of Tariff		Fixed Charge (or Minimum)			Usage Charge (for Step 1 and Step 2)											Billing (2006 National Guidelines)														Return on Assets			ERRR (Water Supply)			Residential Revenue from Usage Charges		Avge Annual Residential Water Supplied[3]					Full Cost Recovery?	
							Step 1						Step 2																															
				($)			Step (kL)			Charges (c/kL)			Step (kL)			Charges (c/kL)			(% Imple-mentation)		(c/kL)			($/ET)			(Includes Special Levies)			(%)			(%)			(% of residential bills)		Potable		Potable + Non Potable			(FCR) (Y/Y*/N)	
		(1) P1		(2) P1.2			(5a) P1.3			(5b) P1.3			(5c) P1.4			(5d) P1.4			(5e)		(6)			(7)			(8) P3			(11)			(12) F17			(13) F4		kL/prop (14a)		kL/prop (14b) W12		L/c/d (14c)	(14d)	(15) C4
		15/16	16/17	14/15	15/16	16/17	14/15	15/16	16/17	14/15	15/16	16/17	14/15	15/16	16/17	14/15	15/16	16/17	14/15	15/16	13/14	14/15	15/16	14/15	15/16	16/17	14/15	15/16	16/17	13/14	14/15	15/16	13/14	14/15	15/16	14/15	15/16	14/15	15/16	14/15	15/16	14/15	15/16	15/16	
36	Parkes	Inclining Block	Inclining Block	215	180	180	<400	<400	<400	165	180	185	>400	>400	>400	310	320	325	70	100	75	77	70	11,300	11,990	11,930	670	679	693	3.5	3.1	4.2	0.9	1.4	3.0	76	81	276	277	280	283	309	Y	5,990
41	Muswellbrook	Inclining Block	Inclining Block	175	175	175	<350	<350	<350	152	160	169	>350	>350	>350	228	240	253	100	100	123	118	114	6,350	6,500	6,630	547	581	603	1.9	0.8	1.8	0.1	-0.5	0.3	69*	71*	245	254	245	254	277	Y	5,840
37	Inverell	Inclining Block	Inclining Block	330	347	364	<500	<600	<600	130	137	145	>500	>600	>600	150	160	170			165	163	150	11,150	11,320	11,440	564	601	633	1.3	0.9	1.8	1.0	0.8	2.3	45	48	180	186	180	186	228	Y	5,790
121	Snowy Valleys	Two Part	Two Part	227	130	133	<300	All	All	126	211	216	>300			252			100	100	122	146	110	4,579	4,698	4,570	483	557	570	-0.5	-0.1	-0.1	0.8	0.3	0.2	78*	77*	203	202	203	203	268	Y	5,660
114	Federation	Inclining Block	Inclining Block	100	100	100	<450	<450	<450	160	160	155	>450	>450	>450	240	240	240	100	100	64	82	85	910	910	910	560	543	529	2.3	4.2	1.9	1.7	3.6	1.5	82	82	287	277	287	277	398	Y	5,630
40	Central Tablelands (No Sge)	Two Part	Two Part	200	200	200	All	All	All	225	236	255							80	80	160	185	173	8,560	8,700	8,850	620	662	699	0.9	0.1	1.1	1.0	0.1	1.1	69*	71*	187	196	187	196	152	Y	5,520
39	Cowra	Two Part	Two Part	186	192	198	All	All	All	286	295	305									122	120	109	7,360	7,580	7,580	875	857	885	-0.4	1.2	1.6	0.1	2.0	2.3	79	78*	241	225	268	248	339	Y	5,320
38	Moree Plains (Groundwater)	Inclining Block	Inclining Block	270	280	240	<750	<750	<750	144	158	158	>750	>750	>750	186	205	205	60	60	98	82	84	4,000	6,800	6,800	1045	1372	1332	3.0	3.1	3.7	3.9	4.1	4.7	75*	82*	538	691	548	696	710	Y	4,600
117	Murray River (Dual Supply)	Two Part	Two Part	262	276	278	All	All	All	91	96	97									110	114	99	2,810	2,864	3,150	590	657	664	2.1	2.3	3.5	1.9	2.1	3.3	51	43	160	152	351	338	390	Y	4,620
117	Murray River (Non Potable)	Two Part	Two Part	97	102	103	All	All	All	69	72	73																													191	186			4,620
45	Upper Hunter	Inclining Block	Inclining Block	258	217	206	<300	<300	<300	175	192	205	>300	>300	>300	262	307	328	100	100	123	107	116	6,920	7,100	7,220	798	705	727	2.0	5.1	2.3	2.0	5.1	2.3	73*	72*	306	254	306	254	286	Y	4,600
46	Narrabri (Groundwater)	Two Part	Two Part	323	333	343	All	All	All	87	90	92									71	81	80	3,460	3,500	3,680	591	617	634	8.7	4.2	4.6	6.8	2.6	3.1	56	55	308	316	308	316	262	Y	4,450
44	Gunnedah (Groundwater)	Inclining Block	Inclining Block	170	170	170	<400	<400	<400	104	108	112	>400	>400	>400	156	162	168			64	66	66	8,490	8,700	9,000	628	615	631	4.4	4.1	5.5	3.6	3.3	4.8	74*	75	427	408	427	408	406	Y	4,040
47	Bellingen (Unfiltered)	Inclining Block	Inclining Block	112	117	122	<365	<365	<365	152	163	171	>365	>365	>365	228	245	257	85	90	109	140	129	6,300	6,300	6,300	343	370	387	2.3	0.9	0.9	1.4	-0.3	-0.2	77	78	152	155	152	155	157	Y	4,100
48	Leeton	Inclining Block	Inclining Block	252	264	268	<300	<300	<300	86	91	96	300-600	300-600	300-600	126	133	140			89	83	79	4,600	4,600	4,600	675	701	729	0.3	1.1	3.0	-0.4	0.4	2.0	66	66	431	424	431	424	461	Y	4,130
Medians (% of LWUs basis) for 4,000 to 10,000 Properties				*200*	*180*	*180*				*160*	*180*	*185*				*240*	*245*	*257*			*113*	*114*	*109*	*5,230*	*6,300*	*6,300*	*620*	*658*	*666*	*1.9*	*1.2*	*1.9*	*1.0*	*0.9*	*2.0*	*76*	*74*	*203*	*207*	*245*	*248*	*268*	*0 LWU without FCR*	
LWUs with 1,501 - 4,000 Properties																																											
115	Cootamundra-Gundagai (Reticula	Two Part	Two Part	312	320	328	All	All	All	184	193	199							30	30	57	85	89	5,690	5,931	6,180	755	615	632	2.1	-0.1	1.4	1.8	-0.3	1.0	53*	59	241	153	241	153	186	Y	4,040
51	Forbes	Two Part	Two Part	206	211	215	All	All	All	90	103	114							50	55	75	79	66	6,620	6,780	6,920	523	631	680	-1.0	-0.8	1.2	-1.7	-1.6	0.4	66	79	352	408	352	408	470	Y	3,750
53	Berrigan (Dual Supply)	Two Part	Two Part	474	497	510	All	All	All	94	94	94							30	30	63	65	63	5,600	5,750	5,900	775	841	854	2.9	3.6	3.5	2.6	3.2	2.8	40	41	241	272	399	461	556	Y	3,570
53	Berrigan (Non Potable)	Two Part	Two Part				All	All	All	47	47	47																													157	189			3,570
54	Edward River	Inclining Block	Inclining Block	320	328	334	<800	<800	<800	80	85	90	>800	>800	>800	120	125	130	100	100	100	98	58	3,950	3,250	3,370	699	798	832	0.4	1.1	2.0	-0.4	0.4	1.4	55*	62	474	553	474	553	726	Y	3,630
55	Warrumbungle	Two Part	Two Part	360	364	375	All	All	All	180	190	195									173	220	183	1,560	1,590	1,620	715	791	814	0.1	-1.1	0.7	-0.2	-1.2	0.5	51*	54	197	225	201	231	295	Y	3,310
56	Yass Valley	Two Part	Two Part	450	450	460	All	All	All	280	290	300							50	50	163	168	158	12,500	12,820	13,140	902	988	1017	0.9	1.7	1.6		3.8	3.6	53	57	161	186	161	186	226	Y	3,300
60	Glen Innes Severn	Inclining Block	Inclining Block	270	284	298	<450	<450	<450	205	215	225	>450	>450	>450	308	323	340			220	233	234	2,790	2,860	2,900	539	597	625	0.3	0.3	0.7	1.2	1.2	1.6	52	53	131	145	131	145	166	Y	2,960
59	Lachlan	Inclining Block	Inclining Block	308	355	380	<450	<600	<600	203	220	235	>450	>600	>600	305	330	355	100	100	115	111	85	5,800	5,800	10,000	1427	2069	2214	-0.7	-0.7	0.1	-1.2	-1.0	-0.5	78	83	517	719	531	734	809	Y	2,850
61	Liverpool Plains	Inclining Block	Inclining Block	575	690	710	<300	<300	<300	125	128	131	>300	>300	>300	203	208	213	50	50	193	176	151	10,690	10,990	11,290	812	953	979	1.3	0.5	2.5	1.3	0.5	2.5	41	39	190	205	190	205	238	Y	2,570
74	Wentworth (Dual Supply)	Inclining Block	Inclining Block	265	270	275	<250	<250	<250	120	120	120	>250	>250	>250	280	280	280			105	80	63	2,520	2,520	2,640	686	826	836	4.6	4.2	3.5	4.7	4.6	3.5	48	54	99	180	504	669	1044	Y	2,340
74	Wentworth (Non Potable)	Inclining Block	Inclining Block	140	145	150	<700	<700	<700	40	40	40	>700	>700	>700	110	110	110																							405	489			2,340
67	Cobar	Inclining Block	Inclining Block	233	240	250	<450	<450	<450	205	210	215	450-550	450-550	450-550	300	310	320			224	242	218	1,160	1,160	1,160	935	919	946	-0.1	14.8	3.1	-0.2	14.7	2.5	77	77	342	324	342	405	395	Y	2,260
66	Cobar WB																				69	713	58							-0.6	-0.4	-0.8	-0.6	-0.5	-0.9								Y*	
62	Narromine (Groundwater)	Two Part	Two Part	193	203	213	All	All	All	110	115	120							93	96	77	99	96	4,500	4,590	4,680	690	689	720	6.5	4.4	5.4	4.8	2.8	4.4	74	73	452	423	452	423	429	Y	2,160
63	Narrandera (Groundwater)	Two Part	Two Part	266	273	280	All	All	All	102	102	105									44	53	43	1,750	1,800	1,810	957	784	806	8.4	6.3	4.9	5.5	3.9	2.6	72	65*	678	501	678	501	545	Y	2,090
68	Tenterfield	Inclining Block	Inclining Block	398	438	394	<450	<450	<450	207	228	296	>450	>450	>450	238	262	444			213	229	234	5,000	5,400	5,800	695	754	805	1.8	0.2	1.1	1.8	0.1	0.9	44	51*	143	139	143	139	178	Y	1,980
73	Upper Lachlan	Inclining Block	Inclining Block	413	430	420	<200	<200	<200	256	269	282	>200	>200	>200	339	356	374	90	90	269	297	313	3,700	3,800	3,900	779	810	818	1.7	-0.8	0.7	1.7	-0.7	0.7	47*	54	143	141	143	141	236	Y	2,010
79	Walgett (Dual Supply)	Inclining Block	Inclining Block	423	455	467	<500	<500	<500	36	76	78	>500	>500	>500	50	106	109			99	30	178				1212	1195	1227	-13	5.1	-4.4	-12	5.1	-2.5	57*	34*	720	302	1341	522	339	Y*	1,930
79	Walgett (Non Potable)	Inclining Block	Inclining Block	423	455	467	<600	<600	<600	12	25	26	>600	>600	>600	17	36	36																							621	220			1,930
70	Kyogle	Inclining Block	Inclining Block	340	344	361	<200	<200	<200	130	150	158	>200	>200	>200	180	190	200	90	92	197	209	247	2,850	3,170	2,930	528	550	578	-1.6	0.4	0.9	-1.4	0.6	1.4	41	43	145	137	145	137	168	Y	1,900
80	Greater Hume	Inclining Block	Inclining Block	308	339	304	<200	<200	<200	140	160	170	>200	>200	>200	220	240	255	75	75	90	92	88	2,960	3,050	3,140	685	813	808	-0.5	-0.2	0.2	-0.8	-0.5	-0.1	59	62*	244	264	244	264	230	Y	1,900
75	Coonamble (Groundwater)	Inclining Block	Inclining Block	170	210	231	<370	<370	<370	55	70	80	>370	>370	>370	90	110	120			52	58	62	880	900	940	583	704	783	0.3	-1.1	1.1	-0.8	-1.7	0.7	71*	71*	603	584	603	584	586	Y	1,680
Medians (% of LWUs basis) for 1,500 to 4,000 Properties				*312*	*339*	*334*				*130*	*150*	*158*				*229*	*251*	*268*			*105*	*99*	*96*	*3,825*	*3,525*	*3,635*	*715*	*798*	*814*	*0.4*	*0.4*	*1.2*	*0.5*	*0.5*	*1.4*	*53*	*55*	*241*	*264*	*342*	*405*	*339*	*0 LWU without FCR*	

Table 6: Water supply - residential charges, bills & cost recovery

	WATER UTILITY	RESIDENTIAL CHARGES: Type of Tariff (1) P1		Fixed Charge (or Minimum) ($) (2) P1.2			Usage Charge (for Step 1 and Step 2) Step 1 Step (kL) (5a) P1.3			Step 1 Charges (c/kL) (5b) P1.3			Step 2 Step (kL) (5c) P1.4			Step 2 Charges (c/kL) (5d) P1.4			Billing (2006 National Guidelines) (% Imple-mentation) (5e)		Operating Cost (OMA) (c/kL) (6)			Typical Developer Charge ($/ET) (7)			Typical Residential Bill based on Col(14b) (Includes Special Levies) (8) P3			COST RECOVERY: Return on Assets (%) (11)			ERRR (Water Supply) (%) (12) F17			Residential Revenue from Usage Charges (% of residential bills) (13) F4		Avge Annual Residential Water Supplied[3] Potable kL/prop (14a)		Potable + Non Potable kL/prop (14b) W12		Potable + Non Potable L/c/d (14c)	Full Cost Recovery? (FCR) (Y/Y*/N) (14d)	Total Connected Properties (15) C4
		15/16	16/17	14/15	15/16	16/17	14/15	15/16	16/17	14/15	15/16	16/17	14/15	15/16	16/17	14/15	15/16	16/17	14/15	15/16	13/14	14/15	15/16	14/15	15/16	16/17	14/15	15/16	16/17	13/14	14/15	15/16	13/14	14/15	15/16	14/15	15/16	14/15	15/16	14/15	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16
	LWUs with 200 - 1,500 Properties																																																
81	Gwydir	Inclining Block	Inclining Block	390	390	390	<600	<600	<600	125	125	125	>600	>600	>600	195	195	195	25	25	66	97	103	2,000	2,000	2,000	790	757	757	4.5	1.3	1.7	6.0	3.0	2.6	76	49	320	294	320	294	395	Y	1,470
85	Uralla	Two Part	Two Part	295	305	311	All	All	All	210	220	225							100	100	199	174	194	910	930	960	684	721	736	0.4	1.1	0.8	0.1	0.8	0.5	57*	59	185	189	185	189	248	Y	1,490
87	Bourke (Dual Supply)	Two Part	Two Part	168	176	185	All	All	All	216	216	216							100	100	91	80	70	830	830	870	1200	1221	1271	-0.2	2.1	-1.5	-0.9	1.5	-2.3	79	78	284	281	1243	1157	1743	Y*	1,400
87	Bourke (Non Potable)	Unmetered	Unmetered	418	437	478	All	All	All																															959	875			1,400
84	Gilgandra (Groundwater)	Two Part	Two Part	219	233	245	All	All	All	98	104	109							10	10	69	62	57				730	804	843	1.4	1.0	0.2	0.8	0.4	-0.1	70	71	521	549	525	567	544	Y	1,330
86	Hay (Dual Supply)	Inclining Block	Inclining Block	129	132	134	<300	<300	<300	108	110	112	>300	>300	>300	164	165	168			59	53	76				921	751	766	-0.5	1.0	0.6	-0.7	0.8	0.4	57	54	159	139	1048	527	722	Y	1,350
86	Hay (Non Potable)	Two Part	Two Part	327	335	341	All	All	All	33	34	35																											889	388			1,350
83	Oberon (Reticulator)	Two Part	Two Part	292	330	340	All	All	All	213	280	288									86	60	79	1,350	1,390	1,430	606	755	777	-0.8	2.1	4.4	-0.5	2.2	4.4	75	73	148	152	148	152	143	Y	1,300
118	Murrumbidgee (Groundwater)	Inclining Block	Inclining Block	185	195	200	<500	<500	<500	36	40	42	500-800	>500	>500	42	60	63			51	48	41	1,479	1,479	1,000	422	507	528	-0.2	0.2	1.4	-0.9	-0.5	0.9	63	62*	476	687	867	1045	1274	Y	1,280
92	Carrathool (Groundwater)	Two Part	Two Part	390	402	414	All	All	All	87	90	93							100	100	106	86	61	1,050	1,080	1,120	815	804	829	1.0	3.1	2.8	0.9	3.2	3.1	62	50*	488	446	611	534	593	Y	1,170
89	Bogan	Two Part	Two Part	510	536	536	All	All	All	178	187	187							100	100	158	261	277				1113	1320	1320	-0.3	-0.3	2.6	-0.6	-0.6	2.4	57	59	339	419	339	419	416	Y	1,110
91	Cabonne	Inclining Block	Inclining Block	283	312	343	<300	<300	<300	175	190	190	300-500	300-500	300-500	407	450	450	100	100	191	239	197	6,680	6,680	6,680	546	606	637	-0.3	-0.4	0.2	-0.8	-0.8	-0.1	56	61	150	155	187	197	297	Y	1,170
96	Warren (Dual Supply)	Inclining Block	Inclining Block	320	330	347	<450	<450	<450	100	103	108	>450	>450	>450	151	155	163	100	100	64	53	61				805	766	805	-0.7	0.5	-0.4	-1.0	0.3	-0.6	52	50	328	302	752	630	734	Y*	940
96	Warren (Non Potable)	Inclining Block	Inclining Block				<450	<450	<450	37	38	40	>450	>450	>450	64	66	69																					424	328			940
98	Walcha	Inclining Block	Inclining Block	190	210	221	<300	<300	<300	272	272	286	>300	>300	>300	396	396	416			307	362	314				528	572	601	-0.8	-1.6	-1.3	-0.9	-1.7	-1.4	64	63*	124	133	124	133	163	Y*	920
100	Balranald (Dual Supply)	Inclining Block	Inclining Block	187	187	194	<600	<600	<600	94	94	97	>600	>600	>600	141	141	160			89	62	53	700	700	700	798	1087	1151	1.1	1.6	1.4	2.2	2.1	2.0	47	60	167	304	660	1038	1332	Y	880
100	Balranald (Non Potable))	Inclining Block	Inclining Block	198	198	205	<600	<600	<600	52	52	57	>600	>600	>600	78	78	86																					493	734			880
103	Central Darling (Dual Supply)	Two Part	Two Part	120	150	173	All	All	All	350	350	350							15	15	275	193	191				1046	1381	1493	4.4	2.3	-2.1	4.4	2.2	-2.2	79	81	128	181	581	638	918	Y*	730
103	(Non Potable-Wilcannia)	Unmetered	Unmetered	478	598	687	All	All	All																															453	457			730
105	Brewarrina (Dual Supply)	Two Part	Two Part	421	431	440	All	All	All	190	190	190							100	100	90	61	79				1953	2055	2071	0.1	-0.5	0.6	6.4	-0.2	0.6	73	74	614	658	1391	1629	1149	Y	470
105	Brewarrina (Non Potable)	Unmetered	Unmetered	365	374	381	All	All	All																															777	971			470
	Medians (% of LWUs basis) for 200 to 1,500 Properties			*283*	*305*	*311*				*175*	*187*	*187*				*164*	*165*	*168*			*90*	*80*	*79*	*1,200*	*1,235*	*1,060*	*798*	*766*	*805*	*-0.2*	*1.0*	*0.6*	*-0.5*	*0.8*	*0.5*	*64*	*61*	*284*	*294*	*581*	*534*	*593*	*0 LWU without FCR*	
	Median All LWUs (% of LWUs basis)			*Fixed Charge*	*$232*		*Usage Charge for Step 1*	*190 c/kL*					*Usage Charge for Step 2*	*280 c/kL*					*OMA (c/kL)*	*112*		*Developer Charge*	*$5400*		*TRB*	*$705*		*ROA*	*1.6%*		*ERRR*	*1.8%*		*71%*			*AARW 230 kL/prop*			*84 LWUs achieved FCR (74 with 'Y' and 10 with Y*)*	
	Median All LWUs (Statewide basis)				*$197*			*230 c/kL*												*120*			*$5600*			*$625*			*1.7%*			*2.3%*			*73%*			*162 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 2016/17 financial year as this provides a higher value than the result for the 2015/16 financial year. 34 LWUs with 4,000 or more properties (72%) obtained at least 70% of residential revenue from water usage charges (column 13). This includes Central Coast and Essential Energy, who have been granted a deemed compliance as their prices are regulated by IPART. 29 LWUs (85%) 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 44% of LWUs now have residential water billing in accordance with the National Guidelines for Residential Customers' Water Accounts. A further 12% of LWUs have made significant progress towards such billing.
3. **Dual Water Supplies:** 10 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 6 of section 6).
4. **Average Annual Residential Water Supplied (Dual Supplies):** The 10 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 6 of section 6).
   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 51% over the last 24 years to 162 kL/property (190 L/person/day).
6. **Full Cost Recovery** has been achieved by all 84 LWUs. These comprise 74 utilities which had either an Economic Real Rate of Return or Return on Assets of >=0 for the 2015/16 financial year (shown as "Y" in col (14d)).
   They also include 10 utilities which have significantly increased their 2016/17 charges in order to recover their costs (shown as "Y*").
7. As of 2016-17, no utilities have special levies for water supply. Goulburn Mulwaree's special levy was $40 in 2015-16.

Table 6A: Water supply - 2016-17 residential multiple tariffs

WATER UTILITY		Town	Tariff Type (1)	Access Charge ($) (2)	Access Charge Independent of Land Value ? (3)	Allowance (kL) (4)	Usage Range (kL) (5)	Usage Charge (c/kL) (6)
111	Armidale Regional	Armidale	Inclining Block	220	Y	Nil	up to 400kL	247
							401kL to 1000kL	328
							>1000kL	373
		Armidale, untreated	Inclining Block	220	Y	Nil	up to 400kL	120
							401kL to 1000kL	214
							>1000kL	263
		Guyra, Tingha	Inclining Block	320	Y	Nil	up to 400kL	165
							401kL to 1000kL	197
							>1000kL	208
100	Balranald (Dual Supply)	Balranald & Euston, Filtered	Inclining Block	197	Y	Nil	up to 600 kL	97
							>600 kL	160
		Balranald & Euston, Raw	Inclining Block	205	Y	Nil	up to 600 kL	57
							>600 kL	86
21	Bathurst Regional	Filtered	Inclining Block	164	Y	Nil	up to 250 kL	189
							>250 kL	284
		Raw Water	Inclining Block	164	Y	Nil	up to 250 kL	83
							>250 kL	125
		Hillview Water	Inclining Block	149	Y	Nil	up to 250 kL	198
							>250 kL	397
53	Berrigan (Dual Supply)	Berrigan, Barooga, Finley (Potable)	Two Part	510	Y	Nil	All	94
		Berrigan, Barooga, Finley (Non-Potable)	Two Part	510	Y	Nil	All	47
		Tocumwal (Filtered)	Two Part	510	Y	Nil	All	62
89	Bogan	Nyngan	Two Part	536	Y	Nil	All	187
		Nyngan, Raw Water	Two Part	436			All	63
		Hermidale	Annual Charge	633	Y			
		Girilambone & Coolabah	Annual Charge	435	Y			
87	Bourke (Dual Supply)	Bourke, Filtered	Two Part	185	Y	Nil	All	216
		Bourke, Raw	Unmetered	478	Y			
105	Brewarrina (Dual Supply)	Brewarrina, Filtered	Two Part	440	Y	Nil	All	190
		Brewarrina, Raw	Unmetered	381	Y	Nil		
		Goodooga, Filtered	Two Part	331	Y	Nil	All	190
		Goodooga, Raw	Unmetered	356	Y	Nil		
91	Cabonne	Molong, Cumnock, Yeoval	Inclining Block	343	Y	Nil	up to 300 kL	190
							301 kL to 500 kL	450
							>500 kL	610
		North Yeoval, Wellington (part)	Inclining Block	232	Y	Nil	up to 300 kL	290
							301 kL to 500 kL	370
							>500 kL	590
92	Carrathool	Potable - Carrathool Village, Hillston Town, Goolgowi Village, Merriwaga Village	Two Part	414	Y	Nil	All	93
		Raw Water - Goolgowi Village, Rankins Springs Village and Attached Farmlets	Two Part	392	Y	Nil	All	58
		Rural Water - Melbergen	Two Part	1694	Y	Nil	All	204
		Rural Water - Yoolarai, Goolgowi, Budawong, Bunda, Goorawin, Rankins Springs Stage 2 & 3	Two Part	1694	Y	Nil	All	188
112	Central Coast	Gosford	Two Part	198	Y	Nil	All	229
		Wyong	Two Part	165	Y	Nil	All	229
103	Central Darling	Wilcannia (Filtered)	Two Part	173	Y	Nil	All	350
		Wilcannia (Raw)	Unmetered	687	Y			
		White Cliffs, Raw	Two Part	654	Y	Nil	All	380
		Ivanhoe (Raw)	Two Part	294	Y	Nil	All	170
		Ivanhoe (Filtered)	Two Part	175	Y	Nil	All	390

Table 6A: Water supply - 2016-17 residential multiple tariffs

WATER UTILITY		Town	Tariff Type (1)	Access Charge ($) (2)	Access Charge Independent of Land Value ? (3)	Allowance (kL) (4)	Usage Range (kL) (5)	Usage Charge (c/kL) (6)
67	Cobar	Cobar	Inclining Block	250	Y	Nil	up to 450kL	215
							451kL to 550kL	320
							>550kL	410
		Nymagee, Euabalong, Euabalong West	Unmetered	600	Y			
		Mount Hope	Unmetered	700	Y			
75	Coonamble Shire	Coonamble	Inclining Block	231	Y	Nil	up to 370 kL	80
							>370 kL	120
		Gulargambone	Inclining Block	299	Y	Nil	up to 430 kL	85
							>430 kL	130
		Quambone	Inclining Block	299	Y	Nil	up to 430 kL	90
							>430 kL	140
115	Cootamundra-Gundagai (Reticulator)	Cootamundra	Two Part	328	Y	Nil	All	199
		Gundagai	Inclining Block	190	Y	Nil	up to 300 kL	140
							301-500 kL	190
							>500 kL	325
122	Dubbo Regional	Dubbo	Two Part	255	Y	Nil	All	194
		Wellington, Geurie	Inclining Block	391	Y	Nil	up to 300 kL	210
							301 to 500 kL	214
							>500kL	232
54	Edward River	Deniliquin, Filtered &/or Raw	Inclining Block	334	Y	Nil	up to 800 kL	90
							>800 kL	130
		Conargo	Two Part	90	Y	Nil	All	60
26	Essential Energy	Broken Hill, Menindi	Two Part	321	Y	Nil	All	177
		Sunset Strip, Silverton	Two Part	321	Y	Nil	All	114
		Pipeline Customers	Two Part	321	Y	Nil	All	76
51	Forbes	Filtered	Two Part	215	Y	Nil	All	114
		Raw	Two Part			Nil	All	45
		Ootha	Two Part	254	Y	Nil	All	114
84	Gilgandra (Groundwater)	Gilgandra	Two Part	245	Y	Nil	All	109
		Tooraweenah	Two Part	120	Y	Nil	All	142
60	Glen Innes Severn	Glen Innes, Deepwater	Inclining Block	298	Y	Nil	up to 450 kL	225
							>450 kL	340
		Emmaville	Two Part	298	Y	Nil	All	105
20	Goulburn Mulwaree Council	Goulburn	Inclining Block	170	Y	Nil	up to 292 kL	280
							>292 kL	378
		Marulan	Inclining Block	244	Y	Nil	up to 292 kL	280
							>292 kL	378
30	Griffith	Griffith (Filtered)	Inclining Block	132	Y	Nil	up to 200 kL	69
							>200 kL	135
		Yenda (Dual), Filtered	Inclining Block	207	Y	Nil	up to 200 kL	69
							>200 kL	135
		Yenda (Dual), Raw	Two Part		Y	Nil	All	35
44	Gunnedah (Groundwater)	Gunnedah	Inclining Block	170	Y	Nil	up to 400 kL	112
							>400 kL	168
		Curlewis	Inclining Block	232	Y	Nil	up to 400 kL	117
							>400 kL	176
		Mullaley	Inclining Block	320	Y	Nil	up to 400 kL	174
							>400 kL	216
		Tambar Springs	Inclining Block	370	Y	Nil	up to 400 kL	278
							>400 kL	346

Table 6A: Water supply - 2016-17 residential multiple tariffs

WATER UTILITY		Town	Tariff Type (1)	Access Charge ($) (2)	Access Charge Independent of Land Value ? (3)	Allowance (kL) (4)	Usage Range (kL) (5)	Usage Charge (c/kL) (6)
86	Hay (Dual Supply)	Hay (Filtered)	Inclining Block	134	Y	Nil	up to 300 kL	112
							>300 kL	168
		Hay (Raw)	Two Part	341	Y	Nil	All	35
116	Hilltops	Young	Two Part	303	Y	Nil	All	297
		Harden	Inclining Block	373	Y	Nil	up to 450 kL	224
							>450 kL	335
		Boorowa	Inclining Block	496	Y	Nil	up to 200 kL	222
							>200 kL	444
38	Moree Plains Shire	Potable - Moree, Mungindi, Boggabilla, Pallamallawa	Inclining Block	240	Y	Nil	up to 750 kL	158
							>750 kL	205
		Non-potable - Garah, Boomi, Boggabilla, Gurley, Weemalah	Inclining Block	240	Y	Nil	up to 750 kL	106
							>750 kL	173
117	Murray River (Dual Supply)	Murray, Filtered	Two Part	278	Y	Nil	All	97
		Murray, Raw	Two Part	103	Y	Nil	All (93.6c for stage 2 and 3, 95.1c for stage 3 water restrictions)	73
		Barham, Tooleybuc, Moulamein	Inclining Block, Raw Water is unmetered	255+546	Y	Nil	up to 600 kL	100
		(Filtered + Raw Water)			Y		>600 kL	150
		Wakool, Murray Downs, Koraleigh (Filtered)	Inclining Block	255	Y	Nil	up to 1000 kL	100
							>1000 kL	150
118	Murrumbidgee	Darlington Point, Coleambally	Inclining Block	200	Y	Nil	up to 500 kL	42
							>500 kL	63
		Jerilderie, Filtered	Inclining Block	260	Y	Nil	up to 250 kL	163
							>250 kL	190
		Jerilderie, Raw	Two Part	378	Y	Nil	All	79
46	Narrabri (Groundwater)	Narrabri	Two Part	343	Y	Nil	All	92
		Narrabri, unmetered	Unmetered	501	Y			
		Gwabegar	Two Part	595	Y	Nil	All	122
		Wee Waa	Two Part	337	Y	Nil	All	93
		Boggabri	Two Part	367	Y	Nil	All	106
		Bellata	Two Part	521	Y	Nil	All	122
		Pilliga	Two Part	557	Y	Nil	All	122
62	Narromine (Groundwater)	Narromine, Trangie	Two Part	213	Y	Nil	All	120
		Tomingley	Two Part	213	Y	Nil	All	115
119	Queanbeyan-Palerang (Reticulator)	Queanbeyan	Two Part	251	Y	Nil	All	372
		Bungendore, Braidwood, Captains Flat	Inclining Block	430	Y	Nil	up to 200 kL	226
							>200kL	355
35	Singleton	Singleton	Inclining Block	136	Y	Nil	up to 450 kL	155
							>450 kL	265
		Mt Thorley	Two Part	455	Y	Nil	All	240
		Jerry's Plains	Inclining Block	136	Y	Nil	up to 450 kL	190
							>450 kL	260
		Broke Water	Inclining Block	136	Y	Nil	up to 450 kL	205
							>450 kL	260
120	Snowy Monaro (Unfiltered)	Snowy River	Inclining Block	372	Y	Nil	up to 300 kL	236
							>300 kL	359
		Cooma	Inclining Block	347	Y	Nil	up to 300 kL	170
							>300 kL	268
		Bombala	Inclining Block	590	Y	Nil	up to 350 kL	140
							>350 kL	190
		Delegate	Unmetered	452	Y			

Table 6A: Water supply - 2016-17 residential multiple tariffs

WATER UTILITY		Town	Tariff Type (1)	Access Charge ($) (2)	Access Charge Independent of Land Value ? (3)	Allowance (kL) (4)	Usage Range (kL) (5)	Usage Charge (c/kL) (6)
121	Snowy Valleys	Tumut Potable - All towns	Two Part	133	Y	Nil	All	216
		Tumut Raw Water	Two Part	133	Y	Nil	All	82
		Tumbarumba, Khancoban	Inclining Block	343	Y	Nil	up to 200 kL	213
							>200kL	357
13	Tamworth	Tamworth	Inclining Block	259	Y	Nil	up to 400 kL	148
							401 to 800 kL	222
							>800 kL	333
		Calala Backwash Water	Two Part		Y	Nil	All	35
		Raw Water	Inclining Block		Y		up to 400 kL	101
							401 to 800 kL	111
							>800 kL	122
		Dungowan Dam Raw Water (if main traverses property)	Inclining Block	130	Y	Nil	up to 400 kL	51
							401 to 800 kL	111
							>800 kL	122
45	Upper Hunter Shire Council	Murrurundi	Inclining Block	276	Y	Nil	up to 300 kL	242
							>300 kL	328
		Merriwa/Cassilis, Aberdeen/Scone	Inclining Block	206	Y	Nil	up to 300 kL	205
							>300 kL	328
79	Walgett (Dual Supply)	Walgett, Collarenebri (Filtered)	Inclining Block	467	Y	Nil	up to 500 kL	78
							>500 kL	109
		Walgett, Collarenebri (Raw Water)	Inclining Block	467	Y	Nil	up to 600 kL	26
							>600 kL	36
		Lightning Ridge, Carinda, Rowena (Bore Water)	Inclining Block	308	Y	Nil	up to 600 kL	26
							>600 kL	36
96	Warren (Dual Supply)	Warren Bore Water	Inclining Block	347	Y	Nil	up to 450 kL	108
							>450 kL	163
		Warren River Water	Inclining Block	347		Nil	up to 450 kL	40
							>450 kL	69
		Nevertire Bore Water	Inclining Block	473	Y	Nil	up to 450 kL	62
							>450 kL	90
		Collie Bore Water	Inclining Block	352	Y	Nil	up to 400 kL	134
							>400 kL	203
55	Warrumbungle	Coonabarabran, Timore Dam (Raw), Baradine, Binnaway, Villages: Bugaldie & Kenebri, Southern, Coolah, Dunedoo, Village	Two Part	375	Y	Nil	All	190
		Mendooran	Two Part	816	Y	Nil	All	195
74	Wentworth (Dual Supply)	Wentworth - Filtered	Inclining Block	275	Y	Nil	up to 250 kL	120
							>250 kL	280
		Wentworth - Raw	Inclining Block	150	Y	Nil	up to 700 kL	40
							>700 kL	110
56	Yass Valley	Yass, Bowning, Binalong & Rural Areas	Two Part	460	Y	Nil	All	300
		Murrumbateman	Two Part	345	Y	Nil	All	300

Table 6B: Water supply - 2016-17 non-residential tariffs

	WATER UTILITY	Town	Tariff Type	Access Charge for 20 mm Service Connection (or Minimum)	Basis for Access Charge	Access Charge Independent of Land Value ?	Allowance	Usage Range	Usage Charge	Implemented 2(d) of BPMF
			(1)	($) (2)	*Proportional to square of size of service connection or water meter (3)	(4)	(kL) (5)	(kL) (6)	(c/kL) (7)	(8)
11	Albury City	Albury	Two Part	138	Meter Size* (eg. 40mm :$550.80)	Y	Nil	All	188	Y
111	Armidale Regional	Armidale	Inclining Block	220	Uniform Access Charge	Y	Nil	up to 400 kL	247	N
								401 to 1000 kL	328	
								>1000 kL	373	
		Armidale, Untreated Water	Inclining Block	220	Uniform Access Charge	Y	Nil	up to 400 kL	120	
								401 to 1000 kL	214	
								>1000 kL	263	
		Guyra, Tingha	Inclining Block	320	Uniform Access Charge	Y	Nil	up to 400 kL	165	
								401 to 1000 kL	197	
								> 1000 kL	208	
24	Ballina (Reticulator)	Ballina	Inclining Block	200	Service Connection Size* (eg. 40mm $800)	Y	Nil	up to 350 kL	214	Y
								>350 kL	322	
100	Balranald (Dual Supply)	Balranald & Euston, Filtered	Inclining Block	194	Service Connection Size* (eg. 40mm $774)	Y	Nil	up to 600 kL	97	Y
								>600 kL	160	
		Balranald & Euston, Raw	Inclining Block	205	Service Connection Size* (eg. 40mm $820)	Y	Nil	up to 600 kL	57	
								>600 kL	86	
21	Bathurst Regional	Bathurst (Filtered)	Inclining Block	164	Service Connection Size* (eg. 40mm $655)	Y	Nil	up to 250kL	189	Y
								>250 kL	284	
23	Bega Valley (Unfiltered)	Bega Valley	Two Part	207	Service Connection Size* (eg. 40mm $828)	Y	Nil	All	275	Y
47	Bellingen (Unfiltered)	Bellingen	Two Part	122	Service Connection Size* (eg. 40mm $488)	Y	Nil	All	171	Y
53	Berrigan (Dual Supply)	Berrigan, Barooga, Finley (Potable)	Two Part	510	Uniform Access Charge	Y	Nil	All	94	N
		Berrigan, Barooga, Finley (Non-Potable)	Two Part	510	Uniform Access Charge	Y	Nil	All	47	
		Tocumwal (Filtered)	Two Part	510	Uniform Access Charge	Y	Nil	All	62	
89	Bogan	Nyngan	Two Part	536	Service Connection Size* (eg. 40mm $2213)	Y	Nil	All	187	Y
		Nyngan, Raw Water	Two Part	436		Y	Nil	All	63	
		Hermidale	Annual Charge	633						
		Girilambone & Coolabah	Annual Charge	435						
87	Bourke (Dual Supply)	Bourke, Filtered	Two Part	185	Service Connection Size (eg. 40mm $634)	Y	Nil	All	216	Y
		Bourke, Raw	Unmetered	478	Service Connection Size (eg. 40mm $1509)					
105	Brewarrina (Dual Supply)	Brewarrina, Filtered	Unmetered	440	Service Connection Size (eg. 40mm $1759.90)	Y	Nil	All	190	Y
		Brewarrina, Raw	Unmetered	381	Service Connection Size (eg. 40mm $1522.85)	Y	Nil			
		Goodooga, Filtered	Unmetered	331	Service Connection Size (eg. 40mm $1325.50)	Y	Nil	All	190	
		Goodooga, Raw	Unmetered	356	Service Connection Size (eg. 40mm $1424.65)	Y	Nil			
27	Byron (Reticulator)	Byron	Two Part	179	Service Connection* (40mm: $716)	Y	Nil	All	265	Y
91	Cabonne	Molong, Cumnock, Yeoval	Inclining Block	343	Service Connection (40mm: $685.60)	Y	Nil	up to 300 kL	190	Y
								301 to 500 kL	450	
								>500 kL	610	
		North Yeoval Wellington	Inclining Block	232	Service Connection (40mm: $464.80)	Y	Nil	up to 300 kL	290	
								301 to 500 kL	370	
								>500 kL	590	
92	Carrathool	Potable - Carrathool Village, Hillston Town, Goolgowi Village	Two Part	414	Service Connection (40mm: $477)	Y	Nil	All	93	Y
		Potable - Merriwagga Village	Two Part	414	Uniform Access Charge	Y	Nil	All	93	
		Raw Water - Goolgowi Village, Rankins Springs Village	Two Part	392	Service Connection (40mm: $467)	Y	Nil	All	58	
		Rural Water - Melbergen	Two Part	1694	Uniform Access Charge	Y	Nil	All	204	
		Rural Water - Yoolarai, Goolgowi, Budawong, Bunda, Goorawin	Two Part	1694	Uniform Access Charge	Y	Nil	All	188	
		Rural Water - Rankins Springs Stage 2 & 3	Two Part	1694	Service Connection (40mm: $2299)	Y	Nil	All	188	

Table 6B: Water supply - 2016-17 non-residential tariffs

WATER UTILITY		Town	Tariff Type	Access Charge for 20 mm Service Connection (or Minimum)	Basis for Access Charge	Access Charge Independent of Land Value ?	Allowance	Usage Range	Usage Charge	Implemented 2(d) of BPMF
				($)	*Proportional to square of size of service connection or water meter		(kL)	(kL)	(c/kL)	
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
112	Central Coast	Gosford	Two Part	198	Service Connection Size* (40mm: $706.42)	Y	Nil	All	229	Y
		Wyong	Two Part	165	Service Connection Size* (40mm: $584.09)	Y	Nil	All	229	
103	Central Darling	Wilcannia (Filtered)	Two Part	173	Uniform Access Charge	Y	Nil	All	350	N
		Wilcannia (Raw)	Unmetered	687	Uniform Access Charge	Y	Nil			
		White Cliffs (Raw)	Two Part	654	Uniform Access Charge	Y	Nil	All	380	
		Ivanhoe (Raw)	Two Part	338	Uniform Access Charge	Y	Nil	All	170	
		Ivanhoe (Filtered)	Two Part	201	Uniform Access Charge	Y	Nil	All	390	
40	Central Tablelands	Central Tablelands, Quandialla	Two Part	200	Meter Size*(40mm: $800)	Y	Nil	All	255	Y
14	Clarence Valley	Treated	Two Part	116	Service Connection Size (40mm: $464)	Y		All	237	Y
		Raw Water	Two Part	58	Service Connection Size (40mm: $232)	Y		All	118	
67	Cobar	Cobar	Inclining Block	360	Service Connection Size (40mm: $795)	Y	Nil	up to 450 kL	215	Y
								451 to 550 kL	320	
								>551 kL	410	
10	Coffs Harbour	Coffs Harbour, Nana Glen, Coramba	Two Part	143	Meter Size: 40mm $572	Y	Nil	All	271	Y
75	Coonamble Shire	Coonamble	Inclining Block	231	Meter Size 40mm: $924	Y	Nil	up to 370 kL	80	Y
								>370 kL	120	
		Gulargambone	Inclining Block	299	Meter Size 40mm: $1196	Y	Nil	up to 430 kL	85	
						Y	Nil	>430 kL	130	
		Quambone	Inclining Block	299	Meter Size 40mm: $1196	Y	Nil	up to 430 kL	90	
						Y	Nil	>430 kL	140	
39	Cowra	Cowra, Rural, Commercial, Government	Two Part	322	Meter Size: 40mm $1288	Y	Nil	All	226	Y
		Cowra, Industrial	Two Part	322	Meter Size: 40mm $1288	Y	Nil	All	89	
		Raw Water	Two Part	322	Meter Size: 40mm $1288	Y	Nil	All	180	
115	Cootamundra-Gundagai (Reticulator)	Cootamundra	Two Part	388	Meter Size 40mm: $1552	Y	Nil	All	219	Y
		Gundagai	Two Part	190	Service Connection Size: 40mm: $760	Y	Nil	All	190	
122	Dubbo Regional	Dubbo	Two Part	255	Meter Size* (eg. 40mm $1018)	Y	Nil	All	194	Y
		Wellington, Geurie	Inclining Block	473	Service Connection Size (40mm: $1882.44)	Y	Nil	up to 300 kL	146	
								301 to 500 kL	157	
								500 to 10000 kL	191	
								>10000 kL	237	
54	Edward River	Deniliquin, Filtered	Two Part	280	Service connection (40mm: $747)	Y	Nil	All	130	Y
		Deniliquin, Raw	Two Part	167	Uniform Access Charge	Y	Nil	All	65	
		Conargo	Two Part	90	Uniform Access Charge	Y	Nil	All	60	
26	Essential Energy	Broken Hill, Menindi Treated	Two Part	321	Service Connection (eg. 40mm $1284.46)	Y	Nil	All	177	Y
		Chlorinated	Two Part	321	Service Connection (eg. 40mm $1284.46)	Y	Nil	All	114	
		Untreated	Two Part	502	Service Connection (eg. 50mm $2006.96)	Y	Nil	All	155	
		Pipeline Customers	Two Part	321	Service Connection (eg. 40mm $1284.46)	Y	Nil	All	76	
15	Eurobodalla	Eurobodalla	Two Part	294	Meter Size*: 40mm $1176	Y	Nil	up to 3650 kL	352	Y
			Bulk Tariff					>3650 kL	176	
114	Federation	Corowa, Mulwala, Howlong	Two Part	100	Service Connection (eg. 40mm $400)	Y	Nil	All	155	Y
51	Forbes	Forbes	Two Part	215	Service Connection Size* (40mm: $859)	Y	Nil	All	114	Y
84	Gilgandra (Groundwater)	Gilgandra	Two Part	245	Service Connection Size* (40mm: $983)	Y	Nil	All	109	Y
		Tooraweenah	Two Part	120	Uniform Access Charge	Y	Nil	All	142	
60	Glen Innes Severn	Glen Innes, Deepwater	Two Part	298	Service Connection Size* (40mm: $530)	Y	Nil	All	225	Y
		Emmaville	Two Part	298	Service Connection Size* (40mm: $530)	Y	Nil	All	105	
28A	Goldenfields (Reticulator)	Retail	Two Part	321	Meter Size*(40mm: $1286.20)	Y	Nil	All	186	Y

Table 6B: Water supply - 2016-17 non-residential tariffs

	WATER UTILITY	Town	Tariff Type	Access Charge for 20 mm Service Connection (or Minimum)	Basis for Access Charge	Access Charge Independent of Land Value ?	Allowance	Usage Range	Usage Charge	Implemented 2(d) of BPMF
				($)	*Proportional to square of size of service connection or water meter		(kL)	(kL)	(c/kL)	
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
20	Goulburn Mulwaree	Goulburn	Inclining Block	170	Meter Size*(40mm: $677)	Y	Nil	up to 292 kL (20mm mtr)	280	Y
								>292 kL (20mm mtr)	378	
		Marulan	Inclining Block	244	Meter Size*(40mm: $970)	Y	Nil	up to 292 kL (20mm mtr)	280	
								>292 kL (20mm mtr)	378	
80	Greater Hume	Culcairn + Villages	Inclining Block	304	Service Connection Size (40mm: $542)	Y	Nil	up to 200 kL	170	Y
								>200 kL	255	
30	Griffith	Griffith (Filtered)	Inclining Block	132	Meter Size*(40mm: $528)	Y	Nil	up to 200 kL	69	Y
								>200 kL	135	
		Yenda (Dual, Filtered)	Inclining Block			Y	Nil	up to 200 kL	69	
				207	Uniform Access Charge			>200 kL	135	
		Yenda (Dual, Raw)	Two Part				Nil	All	35	
44	Gunnedah (Groundwater)	Gunnedah	Two Part	170	Service Connection Size: 20-40mm: $170, 50mm: $400	Y	Nil	All	112	Y
		Curlewis	Two Part	232	Service Connection Size: 20-40mm: $232, 50mm: $488	Y	Nil	All	117	
		Mullaley	Two Part	320	Service Connection Size: 20-40mm: $320, 50mm: $518	Y	Nil	All	174	
		Tambar Springs	Two Part	370	Service Connection Size: 20-40mm: $370, 50mm: $570	Y	Nil	All	278	
81	Gwydir	Gwydir	Inclining Block	390	Meter Size*(40mm: $1560)	Y	Nil	up to 600 kL	125	Y
								>600 kL	195	
86	Hay (Dual Supply)	Hay (Filtered)	Inclining Block	134	Uniform Access Charge	Y	Nil	up to 300 kL	112	N
								>300 kL	168	
		Hay (Raw) - commercial users	Two Part	341	Uniform Access Charge	Y	Nil	All	35	
116	Hilltops (Reticulator)	Young	Two Part	303	Meter Size* (40mm: $1210)	Y	Nil	All	297	Y
		Harden	Two Part	373	Service Connection Size: 40 mm: $1493.16	Y	Nil	All	224	
		Boorowa	Inclining Block	496	Uniform Access Charge	Y	Nil	up to 200 kL	222	
								>200 kL	444	
37	Inverell	Inverell/Ashford/Yetman, Filtered	Two Part	364	Uniform Access Charge	Y	Nil	All	145	N
25	Kempsey (Groundwater)	Kempsey	Two Part	281	Meter Size: 40 mm: $1099	Y	Nil	All	230	Y
70	Kyogle	Kyogle, Bonalbo, Muli-Muli, Woodenbong	Inclining Block	361	Service Connection Size: 40mm: $1445	Y	Nil	up to 200 kL	158	Y
								>200 kL	200	
59	Lachlan	Condoblin	Two Part	380	Service Connection Size: 40mm: $1438	Y	Nil	All	235	Y
48	Leeton	Leeton, Whitton, Murrami	Inclining Block	268	Meter Size*(40mm: $1072)	Y	Nil	up to 300 kL	96	Y
								>300 kL	140	
22	Lismore (Reticulator)	Lismore, Nimbin	Two Part	248	Service Connection Size*(40mm: $993.32)	Y	Nil	All	341	Y
31	Lithgow	Lithgow	Two Part	711	Service Connection Size (50mm: $941)	Y	Nil	All	311	Y
61	Liverpool Plains Shire Council	Quirindi, Werris Creek	Inclining Block	710	Service Connection Size (eg. 40mm $1785)	Y	Nil	up to 300 kL	131	Y
								>300 kL	213	
		Villages	Inclining Block	710	Service Connection Size (eg. 40mm $1503)	Y	Nil	up to 300 kL	131	
								>300 kL	213	
5	MidCoast	Great Lakes and Greater Taree, Gloucester	Inclining Block	232	Meter Size* (eg. 40mm $949)	Y	Nil	up to 200 kL	315	Y
								>200 kL	352	
32	Mid-Western Regional Council	Mudgee, Gulgong, Rylstone	Two Part	148	Meter Size* (eg. 40mm $592)	Y	Nil	All	291	Y
38	Moree Plains Shire	Potable - Moree, Mungindi, Boggabilla, Pallamallawa	Inclining Block	240	Service Connection Size (eg. 40mm $960)	Y	Nil	up to 750 kL	158	Y
								>750 kL	205	
		Non-potable - Garah, Boomi, Boggabilla, Gurley, Weemalah	Inclining Block	240	Service Connection Size (eg. 40mm $960)	Y	Nil	up to 750 kL	106	
								>750 kL	173	
117	Murray River (Dual Supply)	Murray, Filtered	Two Part	278	Service Connection Size (eg. 40mm $1112.98)	Y	Nil	All	97	Y
		Murray, Raw	Two Part	103	Service Connection Size (eg. 40mm $410.06)	Y	Nil	All (93.6c for stage 2 and 3, 95.1c for stage 3 water restrictions)	73	
		Barham, Tooleybuc, Moulamein (Filtered + Raw)	Two Part	255+546	Service Connection Size*(40mm: $2184)	Y	Nil	All potable	100	
		Filtered	Two Part	255	Service Connection Size*(40mm: $1020)	Y	Nil	All	100	

Table 6B: Water supply - 2016-17 non-residential tariffs

WATER UTILITY		Town	Tariff Type	Access Charge for 20 mm Service Connection (or Minimum)	Basis for Access Charge	Access Charge Independent of Land Value ?	Allowance	Usage Range	Usage Charge	Implemented 2(d) of BPMF
				($)	*Proportional to square of size of service connection or water meter		(kL)	(kL)	(c/kL)	
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
118	Murrumbidgee	Darlington Point, Coleambally	Inclining Block	200	Service Connection Size (eg. 40mm $385)	Y	Nil	up to 500 kL	42	Y
								>500 kL	63	
		Jerilderie, Filtered	Inclining Block	260	Service Connection Size*(32mm: $652)	Y	Nil	up to 250 kL	163	
								>250 kL	190	
		Jerilderie, Raw	Two Part	378	Uniform Access Charge	Y	Nil	All	79	
41	Muswellbrook	Muswellbrook, Denman, Sandy Hollow	Two Part	175	Service Connection Size* (eg. 40mm $700)	Y	Nil	All	212	Y
34	Nambucca	Nambucca	Two Part	138	Service Connection Size (eg. 40mm $552)	Y	Nil	All	283	Y
46	Narrabri (Groundwater)	Narrabri	Two Part	343	Service Connection Size (eg. 40mm $397)	Y	Nil	All	92	Y
		Narrabri, unmetered	Unmetered	501	Service Connection Size (eg. 40mm $1246)					
		Gwabegar	Two Part	595	Service Connection Size* (eg. 40mm $777)	Y	Nil	All	122	
		Wee Waa	Two Part	337	Service Connection Size* (eg. 40mm $411)	Y	Nil	All	93	
		Boggabri	Two Part	367	Service Connection Size* (eg. 40mm $894)	Y	Nil	All	106	
		Bellata	Two Part	521	Service Connection Size* (eg. 40mm $1191)	Y	Nil	All	122	
		Pilliga	Two Part	557	Service Connection Size* (eg. 40mm $742)	Y	Nil	All	122	
63	Narrandera (Groundwater)	Narrandera	Two Part	280	Meter Size (eg. 40mm $1118)	Y	Nil	All	105	Y
62	Narromine (Groundwater)	Narromine, Trangie	Two Part	213	Service Connection Size* (eg. 40mm $844)	Y	Nil	All	120	Y
		Tomingley	Two Part	213	Service Connection Size* (eg. 40mm $844)	Y	Nil	All	115	
83	Oberon (Unfiltered, Reticulator)	Oberon	Two Part	340	Uniform Access Charge	Y	Nil	All	288	N
19	Orange	Orange	Two Part	259	Service Connection Size* (eg. 40mm $995.12)	Y	Nil	All	227	Y
36	Parkes	Parkes	Two Part	180	Meter Size, eg: 40mm $720	Y	Nil	All	225	Y
7	Port Macquarie-Hastings (Unfiltered)	Hastings	Inclining Block	197	Meter Size* (eg. 40mm $790)	Y	Nil	up to 270 kL	275	Y
								>270 kL	550	
119	Queanbeyan-Palerang (Reticulator)	Queanbeyan	Two Part	251	Meter Size, eg : 40mm $1003	Y	Nil	All	372	Y
		Bungendore, Braidwood, Captains Flat	Inclining Block	430	Service Connection Size* (eg. 40mm $1719.88)	Y	Nil	up to 200 kL	226	
								>200kL	355	
33	Richmond Valley	All	Two Part	139	Service Connection Size* (eg. 40mm $542)	Y	Nil	All	212	Y
8	Riverina (Groundwater) (No Sge)	Wagga Wagga, Rural Towns & Villages	Inclining Block	160	Uniform Access Charge	Y	Nil	up to 500 kL	140	N
								>500 kL	210	
4	Rous County Council	Bulk Supplier	Two Part	150	Service Connection Size* (eg. 40mm $584)	Y	Nil	All	215	
3	Shoalhaven	Shoalhaven, treated	Inclining Block	82	Service Connection Size (40mm: $330)	Y	Nil	All	170	Y
35	Singleton	Singleton	Two Part	136	Meter Size* (eg. 40mm $594.85)	Y	Nil	All	160	Y
		Mt Thorley	Two Part	455	Meter Size* (eg. 40mm $915.20)	Y	Nil	All	240	
		Jerry's Plains	Two Part	136	Meter Size* (eg. 50mm $939.90)	Y	Nil	All	260	
		Broke	Two Part	136	Meter Size* (eg. 32mm $373.40)	Y	Nil	All	260	
120	Snowy Monaro (Unfiltered)	Snowy River	Inclining Block	372	Meter Size, eg : 40mm $1485	Y	Nil	up to 300 kL	236	Y
								>300 kL	359	
		Cooma, Bredbo, Nimmitabel	Two Part	347	Service Connection Size (40mm: $1386)	Y	Nil	All	170	
		Bombala	Inclining Block	590	Uniform Access Charge	Y	Nil	up to 350 kL	140	
								>350 kL	190	
		Delegate	Unmetered	452	Uniform Access Charge	Y				
121	Snowy Valleys	Tumut Potable - All towns	Two Part	133	Meter Size (eg. 40mm $535)	Y	Nil	All	216	Y
		Tumut Raw Water	Two Part	133	Meter Size (eg. 40mm $535)			All	82	
		Tumbarumba, Khancoban	Inclining Block	343	Meter Size (eg. 40mm $1372)	Y	Nil	up to 200 kL	187	
								>200 kL	316	

Table 6B: Water supply - 2016-17 non-residential tariffs

	WATER UTILITY	Town	Tariff Type	Access Charge for 20 mm Service Connection (or Minimum)	Basis for Access Charge	Access Charge Independent of Land Value ?	Allowance	Usage Range	Usage Charge	Implemented 2(d) of BPMF
				($)	*Proportional to square of size of service connection or water meter		(kL)	(kL)	(c/kL)	
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
13	Tamworth	Tamworth	Inclining Block	259	Service Connection Size* (eg. 40mm $1047)	Y	Nil	up to 400 kL	148	Y
								401 to 800 kL	163	
								>800 kL	179	
		Calala Backwash Water	Two Part					All	35	
		Raw Water	Inclining Block					up to 400 kL	101	
								401 to 800 kL	111	
								>800 kL	122	
		Dungowan Dam Raw Water (if main traverses property)	Inclining Block	130	Uniform Access Charge	Y	Nil	up to 400 kL	51	
								401 to 800 kL	111	
								>800 kL	122	
68	Tenterfield	Tenterfield, Jennings, Urbenville	Inclining Block	148	Meter Size* (eg. 40mm $591.28)	Y	Nil	up to 450 kL	296	Y
								> 450 kL	444	
6	Tweed	Tweed	Two Part	166	Meter Size*(40mm: $665.80)	Y	Nil	All	285	Y
45	Upper Hunter Shire Council	Murrurundi	Two Part	276	Meter Size (40mm: $1103)	Y	Nil	All	318	Y
		Merriwa/Cassilis, Aberdeen/Scone	Two Part	206	Meter Size (40mm: $825)	Y	Nil	All	216	
73	Upper Lachlan Council	Crookwell, Taralga, Dalton, Gunning	Inclining Block	420	Uniform Access Charge	Y	Nil	up to 200 kL	282	N
								>200 kL	374	
85	Uralla	Uralla, Bundarra	Two Part	311	Uniform Access Charge	Y	Nil	All	225	N
98	Walcha	Walcha	Two Part	221	Service Connection Size (38mm: $777)	Y	Nil	All	286	Y
79	Walgett (Dual Supply)	Walgett, Collarenebri (Filtered)	Inclining Block	467	Service Connection Size*(40mm: $1867)	Y	Nil	up to 500 kL	78	Y
								>500 kL	109	
		Walgett, Collarenebri (Raw Water)	Inclining Block	467	Service Connection Size*(40mm: $1867)	Y	Nil	up to 600 kL	26	
								>600 kL	36	
		Lightning Ridge, Carinda, Rowena (Bore Water)	Inclining Block	308	Service Connection Size*(40mm: $1231)	Y	Nil	up to 600 kL	26	
								>600 kL	36	
96	Warren (Dual Supply)	Warren Bore Water	Inclining Block	347	Uniform Access Charge	Y	Nil	up to 450 kL	108	N
								>450 kL	163	
		Warren River Water	Inclining Block	347	Uniform Access Charge		Nil	up to 450 kL	40	
								>450 kL	69	
		Nevertire Bore Water	Inclining Block	473	Uniform Access Charge	Y	Nil	up to 450 kL	62	
								>450 kL	90	
		Collie Bore Water	Inclining Block	352	Uniform Access Charge	Y	Nil	up to 400 kL	134	
								>400 kL	203	
55	Warrumbungle	Coonabarabran, Timore Dam (Raw), Baradine, Binnaway, Southern, Coolah, Dunedoo, Village, Villages: Bugaldie, Kenebri	Two Part	375	Uniform Access Charge	Y	Nil	All	195	N
		Mendooran	Two Part	816	Uniform Access Charge	Y	Nil	All	195	
74	Wentworth (Dual Supply)	Wentworth - Filtered	Inclining Block	275	Service Connection Size (40mm: $1090)	Y	Nil	up to 250 kL	120	Y
								>250 kL	280	
		Wentworth - Raw	Inclining Block	150	Service Connection Size (40mm: $550)	Y	Nil	up to 700 kL	40	
								>700 kL	110	
16	Wingecarribee	Wingecarribee	Two Part	158	Meter Size*(40mm: $629)		Nil	All	178	Y
56	Yass Valley	Yass, Bowning, Binalong & Rural Areas	Two Part	460	Meter Size (40mm: $719)	Y	Nil	All	300	Y
		Murrumbateman	Two Part	345	Meter Size (40mm: $539.25)	Y	Nil	All	300	

Table 7: 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)	Volume (% of sge collected)	($/Equivalent Tenement [ET])				($/assessment)			(%)			(%)			(FCR) (Y/Y*/N)	(c/kL)	(kL/prop)	(No.)					
		(1) P4.1			(2)			(c/kL) (3a)		(c/kL) (3b)		(4)		(5)	(6)	(7)				(8) P6			(9)			(11) F18			(11a)	(11b)	(11c) W19	(12) C8					
		14/15	15/16	16/17	13/14	14/15	15/16	15/16	16/17	15/16	16/17	15/16	16/17	15/16	15/16	14/15	15/16	16/17		14/15	15/16	16/17	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16					
	Sydney Water	601	609	584				110	111	213	220	Y	Y							552	609	584				1.4	1.4	2.0	Y	178	296	1,852,000					
	Hunter Water	594	594	604				67	67			Y	Y							632	632	641				1.8	1.7	1.8	Y	190	304	231,000					
	LWUs with > 10,000 Properties																																				
112	Central Coast	612	641	672	163	133	96	92	83	168	171	Y	Y	17	20	3,370	3,440	3,530		612	641	672	-0.3	0.2	1.1	-0.2	0.3	1.2	Y*	170	249	134,160					
3	Shoalhaven	750	772	795	239	223	205	140	150	168	171	Y	Y	15	15	8,340	8,340	8,340		750	772	795	1.6	3.4	3.1	2.2	3.9	3.4	Y		228	42,150					
5	MidCoast (Combined)	948	970	970	304	279	261	252	252	263	263	Y	Y	9	20	9,400	9,680	9,680		948	970	970	1.3	1.3	1.2	2.8	2.6	2.5	Y		195	35,460					
6	Tweed	732	782	805	229	199	213	150	160	210	220	Y	Y	17	29	6,200	6,310	6,430		732	782	805	1.5	1.0	1.4	1.7	1.1	1.5	Y		241	31,110					
7	Port Macquarie-Hastings	736	769	804	160	170	154	116	121	158	161	Y	Y	6	5	3,530	3,620	3,660		736	769	804	2.6	1.3	3.5	2.9	1.5	4.3	Y	132	315	28,230					
9	Wagga Wagga	434	454	474	191	195	191	200	204	180	184	Y	Y	32	37	3,730	3,760	3,830		434	454	474	-0.5	0.5	0.1	0.3	1.3	0.9	Y	93	212	27,710					
11	Albury City	639	703	713	210	212	211	292	292	175	184	Y	Y	22	28	4,000	4,070	4,150		639	703	713	3.9	4.0	5.3	4.2	4.1	5.2	Y		189	24,330					
10	Coffs Harbour	806	806	806	267	199	242	209	212	166	170	Y	Y	21		9,940	9,690	9,840		806	806	806	-0.4	-0.8	-0.1	0.5	0.1	0.8	Y		241	23,710					
13	Tamworth Regional	758	777	791	192	160	144	118	120	176	179	Y	Y	26	54	1,930	1,960	2,000		758	777	791	1.6	2.4	3.6	2.5	3.2	4.2	Y	7	276	20,000					
119	Queanbeyan-Palerang	470	533	643	181	188	184	107	111	232	232	Y	Y	18	14	2,459	2,504	2,560		470	533	643	3.0	2.2	1.1	2.4	1.6	0.5	Y	150	214	19,800					
122	Dubbo Regional	690	712	725	201	203	172	204	208	183	187	Y	Y	6	30	4,922	4,956	4,950		690	712	725	2.9	4.0	2.7	2.3	3.6	2.5	Y		200	19,420					
15	Eurobodalla	865	886	902	324	260	268	175	178	140	142	Y	Y	13	12	10,080	10,250	10,460		865	886	902	0.6	1.3	2.1	1.0	1.7	2.4	Y		200	18,400					
19	Orange	423	452	484	163	172	130	216	230	216	227	Y	Y	24	16	4,600	4,640	4,700		423	452	484	2.7	3.7	2.5	1.7	2.7	1.9	Y		292	16,890					
21	Bathurst Regional	479	503	529	139	168	184	145	155	230	250	Y	Y	36	47	4,970	5,260	5,270		479	503	529	2.2	3.0	1.8	1.8	2.7	1.5	Y		241	16,070					
16	Wingecarribee	739	756	796	237	133	152	133	140	182	200	Y	Y	17	21	8,250	8,330	8,520		739	756	796	0.6	2.4	4.6	1.1	3.0	4.9	Y		278	16,260					
14	Clarence Valley	988	1076	1092	287	238	264	326	331	260	265	Y	Y	18	10	7,670	7,810	7,990		988	1076	1092	0.6	0.9	1.2	2.3	2.5	2.8	Y		181	14,750					
24	Ballina	807	864	925	306	169	199	219	234	167	172	Y	Y	18		7,700	4,880	4,930		807	864	925	-0.2	0.5	0.8	1.4	2.7	2.9	Y	166	315	14,400					
22	Lismore	772	808	855	159	145	212			106	110	Y	Y	20	26	10,330	10,810	11,100		772	808	855	0.3	0.6	1.5	0.2	0.5	1.4	Y		225	12,790					
23	Bega Valley	1109	1136	1147	425	402	435	378	402	100	120	Y	Y	18	30	11,070	11,260	11,480		1109	1136	1147	-0.1	0.3	-0.2	0.4	0.7	0.2	Y		196	12,240					
20	Goulburn Mulwaree	724	749	762	211	183	184	292	297	259	267	Y	Y	30	40	4,470	4,470	4,590		724	749	762	5.6	6.2	6.0	5.6	6.2	6.1	Y		189	10,870					
27	Byron*	780	802	819	217	234	221	236	247	220	224	Y	Y	25	25	18,810	13,150	9,990		1093	1121	1149	1.3	1.6	3.6	3.9	4.0	6.0	Y	1	299	10,920					
25	Kempsey	791	850	914	275	241	283	206	221	206	222	Y	Y	24	24	7,840	7,970	8,070		791	850	914	-1.1	-0.2	0.3	-0.4	0.4	0.9	Y	98	203	9,130					
26	Essential Energy	511	518	525	225	238	240	124	125	199	201	Y	Y	20	40					511	518	525							Y*	18	132	9,720					
	Medians (% of LWUs basis) for >10,000 Properties	*739*	*772*	*796*	*217*	*199*	*205*	*22 out of 23 have non-res sewer usage charges*		*187*		*23 out of 23 have trade waste charges*				*6,935*	*5,785*	*5,850*		*739*	*772*	*796*	*1.3*	*1.3*	*1.7*	*1.8*	*2.6*	*2.5*	*0 LWUs did not achieve FCR*		*225*					
	LWUs with 4,001 - 10,000 Properties																																				
111	Armidale Regional	379	379	388	130	95	105			145	148	Y	Y	30	21	4,457	4,637	4,950		379	379	388	1.8	2.7	2.7	1.4	2.1	2.4	Y	11	256	9,830					
120	Snowy Monaro Regional	900	930	953	328	257	258	315	323	180	200	Y	Y	26	10	5,651	6,904	6,330		900	930	953	1.0	1.9	2.3	0.8	1.6	2.1	Y	110	163	8,740					
30A	Hawkesbury	602	666	706	204	182	248			131	137	Y	Y	32	22	8,460	8,610	8,780		602	666	706	-0.2	-0.3	-0.8	-0.4	-0.3	-0.8	Y*	171	279	7,660					
31	Lithgow	836	878	900	222	198	213	163	167	170	180	Y	Y	8		2,160	2,160	2,500		836	878	900	1.8	0.6	2.5	1.7	1.8	3.3	Y		234	7,510					
32	Mid Western Regional	697	739	794	258	222	258	236	254					16	21	3,770	3,860	3,960		697	739	794	1.1	1.5	0.4	1.8	2.1	1.0	Y		183	7,440					
30	Griffith	750	774	792	209	196	179	148	151	122	124	Y	Y	22	14	3,620	4,130	4,650		750	774	792	0.3	0.4	0.7	1.3	1.4	1.7	Y		342	7,070					
33	Richmond Valley	896	918	934	230	217	262	202	205	162	170	Y	Y	16		8,000	8,000	8,000		896	918	934	0.9	1.5	1.1	2.5	2.4	2.0	Y		246	6,730					
41	Muswellbrook	581	595	609	233	224	245	201	201	131	134	Y	Y	15		7,030	7,190	7,330		581	595	609	6.0	2.2	2.1	5.0	1.4	1.3	Y		166	5,760					
34	Nambucca	580	612	598	214	163	215	331	331	177	180	Y	Y	28	9	9,340	9,490	9,660		580	612	598	0.0	0.7	0.7	0.4	1.2	1.1	Y		204	5,690					
35	Singleton	480	495	510	161	150	176	166	170	152	160	Y	Y	27		3,140	3,230	3,330		480	495	510	5.6	4.8	5.4	2.9	2.2	3.3	Y		187	5,710					
114	Federation	668	685	685	220	243	215	131	131	170	173	Y	Y	12	16	2,122	2,122	2,130		668	685	685	2.8	2.8	1.9	2.8	2.9	1.9	Y		193	5,490					

Table 7: 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
		14/15	15/16	16/17	13/14	14/15	15/16	15/16	16/17	15/16	16/17	15/16	16/17	15/16	15/16	14/15	15/16	16/17	14/15	15/16	16/17	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16
116	Hilltops	720	720	720	138	160	158			156	156	Y	Y	18	22	1,159	3,085	3,110	720	720	720	1.4	0.4	2.2	2.3	1.8	2.9	Y		175	5,360
121	Snowy Valleys	635	651	667	198	295	225	190	195			Y	Y	25	6	4,232	4,337	4,260	635	651	667	2.1	0.3	0.0	1.4	0.1	0.0	Y		218	5,220
36	Parkes	424	436	440	149	183	187	125	130	185	190	Y	Y	32	26	3,250	3,450	3,530	424	436	440	3.2	3.8	4.0	1.4	2.7	3.3	Y		172	5,100
37	Inverell	454	476	500	111	151	133							9	10	3,610	3,670	3,710	454	476	500	1.3	0.7	2.5	0.6	0.8	0.9	Y		210	4,860
45	Upper Hunter	477	501	526	185	216	213	96	101			Y	Y	22	8	1,540	1,580	1,610	477	501	526	-1.0	1.0	0.2	-1.9	0.2	-0.5	Y		220	4,250
117	Murray River	389	397	400	140	153	123	54	55	169	171	Y	Y	28	23	1,584	1,599	1,680	389	397	400	1.2	1.4	1.5	1.0	1.1	*1.1*	Y	40	250	4,210
	Medians (% of LWUs basis) for 4,000 to 10,000 Properties	*608*	*632*	*638*	*204*	*197*	*213*	*13 out of 16 have non-res sewer usage charges*		*170*		*14 out of 16 have trade waste charges*				*3,615*	*3,765*	*3,835*	*608*	*632*	*638*	*1.4*	*1.5*	*2.0*	*1.4*	*1.7*	*1.8*	*0 LWUs did not achieve FCR*		*207*	
	LWUs with 1,501 - 4,000 Properties																														
44	Gunnedah	492	505	523	133	150	111	156	167	150	155	Y	Y	25	22	7,050	7,230	7,480	492	505	523	3.5	5.8	5.6	2.7	4.9	4.8	Y	10	207	4,100
46	Narrabri	677	697	718	223	226	231			200	200	Y	Y	11	30	5,210	5,280	5,710	677	697	718	1.5	0.5	0.5	1.0	0.0	*0.0*	Y		196	3,950
38	Moree Plains	630	650	690	137	126	110	120	127	200	200	Y	Y	37	11	4,700	4,780	4,780	630	650	690	0.2	4.0	1.1	0.3	4.1	1.1	Y	25	454	3,980
115	Cootamundra-Gundagai	388	398	412	141	146	121	222	230	200	300	Y	Y	30	17	3,429	3,514	3,580	388	398	412	2.5	2.8	1.7	1.7	1.8	1.6	Y		221	3,700
53	Berrigan	477	501	513	170	161	141							10	11	1,850	2,100	2,300	477	501	513	1.9	1.3	3.0	0.8	0.4	1.8	Y	27	203	3,640
39	Cowra	781	804	828	262	284	300	75	77	161	165	Y	Y	22		5,360	5,520	5,520	781	804	828	1.5	1.5	1.5	3.1	3.1	*3.1*	Y		164	3,560
48	Leeton	492	519	543	231	187	168	87	96	183	188	Y	Y	42	19	5,100	5,100	5,100	492	519	543	0.4	0.2	2.3	-0.7	-0.6	1.1	Y		292	3,340
54	Edward River	770	789	804	236	246	211	135	140	170	170	Y	Y	23	7	4,650	4,500	4,180	770	789	804	4.7	2.0	2.1	5.0	2.1	1.9	Y		174	3,250
51	Forbes	644	660	684	219	225	163	153	159	70	75	Y	Y	24	35	4,080	4,170	4,260	644	660	684	0.9	1.0	2.6	0.8	0.9	2.5	Y		224	3,200
47	Bellingen	842	882	911	313	264	359	97	100	142	147	Y	Y	6	14	4,680	4,810	4,830	842	882	911	0.9	0.9	0.7	0.3	0.3	0.4	Y		183	3,060
60	Glen Innes Severn	450	473	497	129	151	137	103	105	169	172	Y	Y	6	9	2,930	3,000	3,040	450	473	497	1.7	1.8	2.7	1.9	1.8	2.9	Y		188	2,820
80	Greater Hume	489	504	489	185	226	194	136	150	160	160	Y	Y	27	14	4,020	4,140	4,260	489	504	489	0.4	0.5	1.0	0.1	0.3	0.7	Y	60	168	2,620
55	Warrumbungle	458	469	498	358	309	384	79	85	160	200		Y	30	29	1,300	1,320	1,340	458	469	498	0.0	-0.3	-0.4	-1.1	-1.0	*-1.0*	N		133	2,520
56	Yass Valley	595	620	640	220	226	227	230	280	170	180	Y	Y		26	5,790	5,940	6,090	595	620	640	1.7	3.2	10.5		2.9	10.4	Y		192	2,510
59	Lachlan	458	545	584	199	205	181	125	200	145	150	Y	Y		21	7,750	7,750	7,800	458	545	584	-0.7	-1.7	0.2	-2.1	-2.6	-1.1	Y		241	2,200
69	Temora	311	326	392	147	119	143	36	39					22	17				311	326	392	0.1	1.7	1.6	0.0	1.5	1.3	Y	80	153	2,160
61	Liverpool Plains	504	516	528	171	242	182	174	178	300	350	Y	Y	15	28	2,910	2,960	3,010	504	516	528	2.2	1.9	2.6	1.8	1.2	1.8	Y		165	1,840
62	Narromine	548	565	582	298	257	153	205	210	205	210	Y	Y	23		3,670	3,820	3,820	548	565	582	1.3	0.4	1.6	0.7	-0.2	1.1	Y		250	2,020
78	Blayney	529	545	560	248	229	256	115	115	160	175	Y	Y	20	4	3,850	3,950	3,620	529	545	560	1.8	0.4	-0.2	1.2	-0.2	-0.8	N		191	1,950
91	Cabonne	475	487	535	361	471	433	120	120	160	160	Y	Y	19	32	6,280	6,350	7,500	475	487	535	-0.5	-1.0	-0.7	-0.7	-1.2	-0.9	Y*		136	2,440
72	Bland	669	685	718	183	184	185	35	150	156	160	Y	Y	6	13	2,120	2,120	2,120	669	685	718	2.7	3.4	3.0	2.6	3.3	2.9	Y		225	1,840
67	Cobar	320	330	340	118	103	80	180	185	175	180	Y	Y	21	7	920	950	920	320	330	340	-1.3	-1.1	1.4	-1.7	-1.5	1.0	Y	35	247	1,760
63	Narrandera	505	518	531	224	248	235	123	126					19		650	1,000	1,030	505	518	531	2.8	1.7	1.6	2.1	1.2	*1.2*	Y	20	175	1,710
68	Tenterfield	851	877	921	299	327	287	107	154	149	156	Y	Y	21	6	6,000	6,600	7,200	851	877	921	0.8	0.6	-0.1	1.5	1.2	0.5	Y		176	1,870
70	Kyogle	643	662	688	284	225	224	103	103	103	103	Y	Y	19	28	2,130	2,340	2,160	643	662	688	0.1	-0.1	1.0	0.4	0.2	1.3	Y		227	1,830
77	Junee	365	365	365	125	112	107							12	18	1,300	1,350	1,400	365	365	365	-0.1	0.3	-0.1	-0.8	-0.2	-0.6	N	50	251	1,670
74	Wentworth	705	720	730	23	25	24			173	182	Y	Y	13		6,250	6,560	6,250	705	720	730	2.4	2.7	1.8	2.1	2.4	1.4	Y		1,290	1,650
79	Walgett	443	454	465	107	92	141							12					443	454	465	2.4	4.5	4.1	2.4	3.5	3.1	Y		142	1,620
73	Upper Lachlan	737	752	752	116	134	134	269	282					19	6	3,970	4,050	4,200	737	752	752	2.5	1.5	1.8	1.9	1.0	1.3	Y		355	1,530
	Medians (% of LWUs basis) for 1,500 to 4,000 Properties	*505*	*545*	*560*	*199*	*225*	*181*	*24 out of 29 have non-res sewer usage charges*		*172*		*23 out of 29 have trade waste charges*				*4,020*	*4,140*	*4,200*	*505*	*545*	*560*	*1.5*	*1.3*	*1.6*	*0.9*	*1.0*	*1.3*	*3 LWUs did not achieve FCR*		*196*	

Table 7: 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
		14/15	15/16	16/17	13/14	14/15	15/16	15/16	16/17	15/16	16/17	15/16	16/17	15/16	15/16	14/15	15/16	16/17	14/15	15/16	16/17	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16
	LWUs with 200 - 1,500 Properties																														
86	Hay	649	664	676	205	219	362	110	112					15	4				649	664	676	1.3	1.5	-0.9	0.9	1.1	-1.2	N		180	1,320
83	Oberon	513	590	607	218	141	137	225	332		185		Y	43	6	1,710	1,770	1,820	513	590	607	-0.9	2.0	3.4	-1.3	1.7	3.3	Y		309	1,260
84	Gilgandra	557	602	644	176	189	188	150	160	237	254	Y	Y	21	27				557	602	644	0.8	-0.2	0.6	0.6	-0.5	0.5	Y		209	1,240
118	Murrumbidgee	309	375	395	163	165	479			169	172	Y	Y	15		975	975	1,000	309	375	395	0.1	0.0	0.1	-1.2	-1.1	-0.7	Y		56	1,220
87	Bourke	632	673	686	252	276	224			177	177	Y	Y	11	3	930	930	930	632	673	686	2.0	1.1	2.2	1.1	0.3	2.0	Y		165	1,210
75	Coonamble	465	479	496	132	103	109	88	88					19	12			940	465	479	496	0.5	1.0	0.6	-0.3	0.1	0.0	Y		234	1,190
81	Gwydir	500	500	500	104	149	153	245	245	130	130	Y	Y	26	16	2,000	2,000	2,000	500	500	500	7.0	3.4	3.0	5.7	2.9	2.3	Y	12	238	1,150
85	Uralla	520	540	550	341	311	281	105	110	125	130	Y	Y		5	510	530	540	520	540	550	-0.7	0.3	0.8	-1.4	-0.4	0.1	Y		122	1,140
99	Coolamon	380	410	430	303	263	314								4	4,500	4,500	4,710	380	410	430	-0.3	0.6	0.3	-0.7	0.2	-0.1	Y	23	104	1,010
89	Bogan	540	540	540	221	243	330	196	196	161	161	Y	Y	30	37				540	540	540	3.4	4.7	0.9	2.5	3.7	0.0	Y		171	940
95	Weddin	427	512	512	146	190	191							4	9	3,730	3,730	3,730	427	512	512	1.9	2.0	2.4	1.8	1.9	2.3	Y		173	1,010
102	Lockhart	490	490	490	228	150	202	191	173	75	75	Y	Y			1,290	1,320	1,320	490	490	490	0.4	1.5	0.3	-0.2	1.0	-0.1	Y	62	161	870
100	Balranald	269	269	279	127	125	106	15	16	130	200	Y	Y	4		630	630	630	269	269	279	-1.0	-2.2	-4.4	-1.8	-2.3	-5.0	N		252	860
92	Carrathool	405	425	467	89	151	126									680	710	790	405	425	467	0.6	0.6	1.0	0.6	0.9	1.6	Y		152	790
96	Warren	485	500	525	243	227	208	180	185	178	173	Y	Y	22	18				485	500	525	-1.6	-1.8	-1.4	-3.6	-3.4	-2.9	N		217	820
98	Walcha	440	460	460	220	190	207	97	99	150	150	Y	Y	22	10				440	460	460	1.8	1.4	1.1	0.9	0.6	0.3	Y		195	800
105	Brewarrina	756	774	790	145	154	131							10	8				756	774	790	-0.1	0.2	1.1	6.0	0.1	1.0	Y		404	480
103	Central Darling	390	488	561	211	93	334									400	400	400	390	488	561	1.4	4.0	-0.1	2.0	6.6	-0.2	Y*		140	380
	Medians (% of LWUs basis) for 200 to 1,500 Properties	*488*	*500*	*519*	*208*	*177*	*205*	*11 out of 18 have non-res sewer usage charges*		*172*		*11 out of 18 have trade waste charges*				*975*	*975*	*970*	*488*	*500*	*519*	*0.6*	*1.1*	*0.7*	*0.6*	*0.5*	*0.1*	*3 LWUs did not achieve FCR*		*176*	
	Median All LWUs (% of LWUs basis)	*Access Charge*		*$609*	*OMA (c/kL)*		*200*	*Non-Res Usage Charge*	*160*							*Developer Charge*		*$4200*		*TRB*	*$600*		*ROA*	*1.4%*		*ERRR*	*1.3%*		*80 LWUs had 'FCR' (76 'Y', 4 Y*)*		
	Median All LWUs (Statewide basis)			***$718***			***208***		***159***									***$4700***			***$718***			***1.8%***			***2.5%***		***6 LWUs did not achieve FCR***		
	70 out of 86 LWUs have non-residential usage charges and 71 out of 86 have appropriate trade waste charges																														

NOTES:

1. 70 LWUs have non-residential sewerage charges which substantially meet the requirements of the Best-Practice Management Guidelines (Table 3) and 71 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 80 utilities. These comprised 76 utilities which had either an Economic Real Rate of Return or Return on Assets of >=0 for the 2015/16 financial year, shown as 'Y" in col (11a). In addition they include 4 utilities which have significantly increased their 2016/17 charges in order to recover all their costs which are shown as "Y*". A total of 6 LWUs did not achieve full cost recovery. These are shown as "N".
4. Byron also has a residential sewer usage charge of 185c/kL.

Table 7A: Sewerage - 2016-17 residential multiple tariffs

WATER UTILITY		Town	Access Charge (or Minimum) ($) (1)	Access Charge Independent of Land Value ? (2)
111	Armidale Regional	Armidale	388	Y
		Guyra	615	Y
		Tingha	430	Y
105	Brewarrina	Brewarrina	790	Y
		Goodooga	343	Y
91	Cabonne	Molong	258	Y
		Canowindra, Cudal, Manildra, Cumnock, Yeoval	496	Y
		Eugowra	421	Y
92	Carrathool	Hillston	467	Y
		Goolgowi	410	Y
112	Central Coast	Gosford	672	Y
		Wyong	483	Y
75	Coonamble	Coonamble	496	Y
		Gulargambone	680	Y
115	Cootamundra-Gundagai	Cootamundra	412	Y
		Gundagai	726	Y
122	Dubbo Regional	Dubbo	725	Y
		Wellington, Geurie	635	Y
		Mumbil	595	Y
114	Federation	Corowa, Howlong, Mulwala	685	Y
		Urana	510	Y
60	Glen Innes Severn	Glen Innes	497	Y
		Deepwater	397	Y
20	Goulburn Mulwaree	Goulburn	762	Y
		Marulan	921	Y
44	Gunnedah	Gunnedah	523	Y
		Curlewis	641	Y
116	Hilltops	Young	720	Y
		Harden	640	Y
		Boorowa	672	Y
102	Lockhart	Lockhart	490	Y
		The Rock	475	Y
		Yerong Creek	465	Y
117	Murray River	Moama, Mathoura	400	Y
		Barham, Moulamein, Murray Downs	607	Y
		Wakool, Tooleybuc	563	Y
118	Murrumbidgee	Darlington Point	395	Y
		Coleambally	315	Y
		Jerilderie	480	Y
46	Narrabri	Narrabri	718	Y
		Wee Waa	735	Y
		Boggabri	567	Y
119	Queanbeyan-Palerang Regional	Queanbeyan	643	Y
		Palerang	1,000	Y
120	Snowy Monaro Regional	Snowy River	953	Y
		Cooma-Monaro	902	Y
		Bombala	675	Y
		Delegate	548	Y
121	Snowy Valleys	Tumut	667	Y
		Tumbarumba, Khancoban	639	Y
79	Walgett	Walgett	465	Y
		Lightening Ridge	415	Y
		Collarenebri	495	Y
96	Warren	Warren	525	Y
		Nevertire	551	Y

NOTE: This Table only lists LWUs with multiple tariffs for residential customers. Residential tariffs for all LWUs are shown in Table 7.

Table 7B: Sewerage - 2016-17 non-residential tariffs

WATER UTILITY		Town	Access Charge (or Minimum) ($) (1)	Access Charge Independent of Land Value? (2)	Basis for Access Charge *Proportional to square of size of service connection or water meter (3)		Sewer Usage Charge (for estimated volume discharged to sewerage system = water usage x sewer discharge factor) (4)	Subtantially Implemented 2(c) of BPMF Yes/No (5)
11	Albury	Albury	281	Y	Meter Size (40mm: $1123.50 x SDF)		292 c/kL	Y
111	Armidale Regional	Armidale	388	Y	Uniform Access Charge	Multiple Units: $346/WC; Hotels, Motels: $127/WC, $54/Urinal	1st WC/Urinal covered by rate, 2 to 6: $259/WC or Urinal, All additional: $135/WC or Urinal	N
		Guyra	615	Y	Uniform Access Charge			
		Tingha	430	Y	Uniform Access Charge			
24	Ballina	Ballina	697	Y	Service connection size* (40mm $2794)		234 c/kL	Y
100	Balranald	Balranald	279	Y	Service connection size* (40mm $1114)		16 c/kL	Y
21	Bathurst Regional	Bathurst	477	Y	Service connection size* (40mm: $1904)		155 c/kL	Y
23	Bega Valley	Bega Valley	1147	Y	Meter size* (eg. 40mm $4588)		402 c/kL	Y
47	Bellingen	Bellingen, Urunga, Dorrigo	911	Y	Meter size* (eg. 40mm $3644)		100 c/kL	Y
53	Berrigan	Berrigan, Finley, Tocumwal, Barooga	513	Y	Uniform Access Charge	After two WCs $109/WC		N
72	Bland	Bland	718	Y	Uniform Access Charge	$145/WC, $75/Urinal		N
78	Blayney	Blayney, Millthorpe	464	Y	Service connection size* (40mm $1836)		115 c/kL	Y
89	Bogan	Nyngan	540	Y	Service connection size* (40mm $648)		207 c/kL	Y
87	Bourke	Bourke	688	Y	Uniform Access Charge			N
105	Brewarrina	Brewarrina	790	Y	Uniform Access Charge		$66.85/Urinals, Additional WCs (2-5) $199.50, additional WC $66.85/WC	N
		Goodooga	343	Y	Uniform Access Charge			
27	Byron	Byron	819	Y	Service connection size* (40mm $3276)		247 c/kL	Y
91	Cabonne	Molong	258	Y	Service connection size (40mm $725)		120 c/kL	Y
		Canowindra, Manildra, Cudal, Cumnock, Yeoval	496	Y	Service connection size (40mm $687)		120 c/kL	
		Eugowra	421	Y	Service connection size (40mm $666.70)		120 c/kL	
92	Carrathool	Hillston	467 + $47/unit	Y	Uniform Access Charge	Motels: Base+10% Base charge/unit; Service Station: 1.5 Base Charge; laundromat, Clubs & Hotels: 2xBase Charge	$148/WC, $74/Urinal	N
		Goolgowi	410 + $41/unit		Uniform Access Charge	Motels: Base+10% Base charge/unit; Service Station: 1.5 Base Charge; laundromat: 2xBase Charge, Clubs & Hotels $942	$148/WC, $74/Urinal	
112	Central Coast	Gosford	672	Y	Meter Size*(40mm $3947.02)		83 c/kL	Y
		Wyong	483	Y	Meter Size*(40mm: $1136.61)		83 c/kL	
103	Central Darling	Wilcannia	561	Y	Uniform Access Charge	After two fittings, $194/additional fitting		Y
14	Clarence Valley	Clarence Valley	631	Y	Service connection size* (40mm: $2525)		331 c/kL	Y
67	Cobar	Cobar	340	Y	Service connection size* (40mm: $1360)		185 c/kL	Y
10	Coffs Harbour	Coffs Harbour	789 x MF x SDF	Y	MF - meter factor = [water meter size (mm)/20]^2	SDF - sewage discharge factor	212 c/kL	Y
99	Coolamon	Coolamon, Gainmain	430	Y	Uniform Access Charge		for >2 Pedestals, $115/Pedestal	N
75	Coonamble	Coonamble	496	Y	Uniform Access Charge		88 c/kL	Y
		Gulargambone	680	Y	Uniform Access Charge		104 c/kL	
115	Cootamundra-Gundagai	Cootamundra	242	Y	Meter Size* 40mm: $968		230 c/kL	Y
		Gundagai	190	Y	Service Connection (40mm: $760)		288 c/kL	
39	Cowra	Cowra	678	Y	Service connection size* (40mm: $742)		77 c/kL	Y
122	Dubbo Regional	Dubbo	382	Y	Meter Size* (40mm: $1528.80)		208 c/kL	Y
		Wellington, Mumbil, Geurie	349	Y	Meter Size* (40mm: $1395.84)		90 c/kL	
54	Edward River	Deniliquin	804	Y	Uniform Access Charge		140 c/kL	Y

Table 7B: Sewerage - 2016-17 non-residential tariffs

WATER UTILITY		Town	Access Charge (or Minimum) ($) (1)	Access Charge Independent of Land Value? (2)	Basis for Access Charge *Proportional to square of size of service connection or water meter (3)		Sewer Usage Charge (for estimated volume discharged to sewerage system = water usage x sewer discharge factor) (4)	Subtantially Implemented 2(c) of BPMF Yes/No (5)
26	Essential Energy	Broken Hill	750	Y	Service connection size* (40mm: $2998.70)		125 c/kL	Y
15	Eurobodalla	Eurobodalla	902	Y	Meter Size (Availability Factor based)* (eg. 40mm $3608)		178 c/kL	Y
114	Federation	Corowa, Howlong, Mulwala	393 x SDF	Y	Service connection size (40mm: $1572)		131 c/kL	Y
		Urana	510	Y	Uniform Access Charge			
51	Forbes	Forbes	522	Y	Service Connection Size* (40mm: $2089)		159 c/kL	Y
84	Gilgandra	Gilgandra	287	Y	Service Connection Size*(40mm: $1141)		160 c/kL	Y
60	Glen Innes Severn	Glen Innes, Deepwater	199	Y	Service Connection Size*(40mm: $794)		105 c/kL	Y
20	Goulburn Mulwaree	Goulburn	418	Y	Meter Size* (40mm: $1683)		297 c/kL	Y
		Marulan	678	Y	Meter Size* (40mm: $2478)		297 c/kL	
80	Greater Hume	Burrumbuttock, Jindera, Holbrook, Culcairn, Henty, Walla Walla	279	Y	Service Connection Size (40mm: $429)		150 c/kL	Y
30	Griffith	Griffith	453	Y	Service Connection Size* (40mm: $1509)		151 c/kL	Y
44	Gunnedah	Gunnedah	203	Y	Service Connection Size (40mm: $815.58)		167 c/kL	Y
		Curlewis	221	Y	Service Connection Size (40mm: $883.48)		220 c/kL	
81	Gwydir	Bingara, Warialda	425	Y	Meter Size (eg 40mm: $1695)		245 c/kL	Y
30A	Hawkesbury	Category 1, Vol < 1kL/d	822	Y	Uniform Access Charge			Y
		Category 2, Vol : 1kL to 5 kL/d	4123	Y	Uniform Access Charge			
		Category 3, Vol < 5kL to 10 kL/d	8214	Y	Uniform Access Charge			
		Category 4, Vol : 10kL to 20 kL/d	16377	Y	Uniform Access Charge			
		Category 5, Vol > 20 kL/d	16377	Y	Uniform Access Charge		for waste > 20 kL/d, 295c/kL	
86	Hay	Hay	552	Y	Uniform Access Charge		112 c/kL	Y
116	Hilltops	Young	720	Y	Uniform Access Charge			N
		Harden	240	Y	Service Connection*(eg 40mm: $960.09)		220 c/kL	
		Boorowa	672	Y	Uniform Access Charge			
37	Inverell	Inverell, Ashford, Delungra, Gilgai	500	Y	Uniform Access Charge	$120.75/WC, $72.45/Urinal		N
77	Junee	Junee	365	Y	Uniform Access Charge	$91.70/WC, $35.30/Urinal		N
25	Kempsey	Kempsey	845	Y	Meter Size (eg 40mm: $3010)		221 c/kL	Y
70	Kyogle	Kyogle	271	Y	Service Connection Size*(40mm: $1084)		103 c/kL	Y
59	Lachlan	Lachlan	332	Y	Service Connection*(eg 40mm: $1320)		200 c/kL	Y
48	Leeton	Leeton	116	Y	Service Connection Size*(40mm: $463.36)		96 c/kL	Y
22	Lismore	Lismore, Nimbin, Perradenya	855	Y	Uniform Access Charge			N
31	Lithgow	Lithgow, Wallerawang, Portland	775	Y	Service Connection Size (50mm: $1027)		167 c/kL	Y
61	Liverpool Plains	Quirindi, Werris Creek	343	Y	Service Connection Size*(40mm: $1202)		174 c/kL	Y
102	Lockhart	Lockhart	195	Y	Service Connection Size*(40mm: $390)		173 c/kL	Y
		The Rock	275	Y	Service Connection Size*(40mm: $550)		100 c/kL	
		Yerong Creek	230	Y	Service Connection Size*(40mm: $460)		137 c/kL	
5	MidCoast	Great Lakes, Greater Taree Area, Gloucester	731	Y	Meter Size*(eg 40mm: $2944)		252 c/kL	Y
32	Mid-Western Regional	Mudgee, Gulgong, Rylstone	443	Y	Uniform Access Charge		254 c/kL	Y
38	Moree Plains Shire	Moree, Mungindi, Balone, Bogabilla, Gurly	690	Y	Service Connection Size (40mm: $1336.90)		127 c/kL	Y
117	Murray River	Moama, Mathoura	288	Y	Service Connection Size*(40mm: $1152.73)		54.6 c/kL	Y
		Barham, Moulamein, Murray Downs	666	Y	Uniform Access Charge	Hotels: SC+20%SC/Cistern+10%SC/Room, Clubs: SC+20%SC/Cistern, Shops/Motels/Units: SC+10%SC		
		Wakool, Tooleybuc	622	Y	Uniform Access Charge	Hotels: SC+20%SC/Cistern+10%SC/Room, Clubs: SC+20%SC/Cistern, Shops/Motels/Units: SC+10%SC		

Table 7B: Sewerage - 2016-17 non-residential tariffs

WATER UTILITY		Town	Access Charge (or Minimum) ($) (1)	Access Charge Independent of Land Value? (2)	Basis for Access Charge *Proportional to square of size of service connection or water meter (3)		Sewer Usage Charge (for estimated volume discharged to sewerage system = water usage x sewer discharge factor) (4)		Subtantially Implemented 2(c) of BPMF Yes/No (5)
118	Murrumbidgee	Darlington Point	395	Y	Uniform Access Charge				N
		Coleambally	315	Y	Uniform Access Charge				
		Jerilderie	480	Y	Service Connection*(eg 32mm: $1280)		75 c/kL		
41	Muswellbrook	Muswellbrook, Denman	253	Y	Service Connection Size*(40mm: $1012)		201 c/kL		Y
34	Nambucca	Nambucca	218	Y	Service Connection Size (40mm: $872)		331 c/kL		Y
46	Narrabri	Narrabri	718	Y	Uniform Access Charge	$111/Pedestal, Cistern			N
		Wee Waa	735	Y	Uniform Access Charge	$111/Pedestal, Cistern			
		Bogabri	567	Y	Uniform Access Charge	$90/Pedestal/Cistern			
63	Narrandera	Narrandera	385	Y	Service Connection Size*(40mm: $1537.50)		126 c/kL		Y
62	Narromine	Narromine, Trangie	208	Y	Service Connection Size*(40mm: $830)		210 c/kL		Y
83	Oberon	Oberon	157	Y	Service Connection Size*(38mm: $567)		332 c/kL		Y
19	Orange	Orange	156	Y	Service connection Size 40mm: $624.88		230 c/kL		Y
36	Parkes	Parkes	252	Y	Meter Size* (40mm: $1008)		130 c/kL		Y
7	Port Macquarie-Hastings	Hastings	804	Y	Uniform Access Charge		121 c/kL		Y
119	Queanbeyan-Palerang	Queanbeyan	643	Y	Service Connection Size (40mm: $2572)		111 c/kL		Y
		Bungendore, Braidwood, Captains Flat	1146	Y	Service Connection Size (40mm: $4584)		274 c/kL		
33	Richmond Valley	All	135	Y	Service Connection Size*(40mm: $543)		205 c/kL		Y
3	Shoalhaven	Shoalhaven	795	Y	Meter Size (40mm: $2256)		150 c/kL		Y
35	Singleton	Singleton	510	Y	Service connection Size* 40mm: $2040		170 c/kL		Y
120	Snowy Monaro	Snowy River	890	Y	Meter Size (40mm: $3560)		323 c/kL		Y
		Cooma, Nimmitabel	963 for usage <100kL	Y	Sliding Access Charge	$963 for consumption < 100 kL, increasing to $22787 for consumption > 8,000 kL			
		Bombala	649	Y	Uniform Access Charge		25 c/kL		
		Delegate	548	Y	Uniform Access Charge		95 c/kL		
121	Snowy Valleys	Tumut	630	Y	Meter Size (40mm: $2540)		195 c/kL		Y
		Tumbarumba, Khancoban	368	Y	Meter Size (40mm: $1472)		123 c/kL		
13	Tamworth	Tamworth	511	Y	Meter Size (40mm: $2038)		120 c/kL	Strata lot availability: $791	Y
69	Temora	Temora	309	Y	Meter Size (40mm: $1237)		39 c/kL		Y
68	Tenterfield	Tenterfield, Urbenville	466	Y	Service Connection Size*(40mm: $1864)		154 c/kL		Y
6	Tweed	Tweed	805	Y	Service Connection Size*(40mm: $3221.80)		160 c/kL		Y
45	Upper Hunter	Murrurundi, Merriwa, Aberdeen, Scone	663	Y	Meter Size (40mm $1274)		101 c/kL		Y
73	Upper Lachlan	Crookwell, Gunning, Taralga	752	Y	Uniform Access Charge		282 c/kL		Y
85	Uralla	Uralla	385	Y	Uniform Access Charge		110 c/kL		Y
9	Wagga Wagga	Wagga Wagga	145	Y	Meter Size (40mm $580)		200 c/kL		Y
98	Walcha	Walcha	450	Y	Service Connection Size*(40mm: $1800)		99 c/kL		Y
79	Walgett	Walgett	465	Y	Uniform Access Charge	Additional SC/Pedestal, $72/Cistern			N
		Lightening Ridge	415	Y	Uniform Access Charge	Additional SC/Pedestal, $65/Cistern			
		Collarenebri	495	Y	Uniform Access Charge	Additional SC/Pedestal, $65/Cistern			
96	Warren	Warren, Nevertire	480	Y	Uniform Access Charge		185 c/kL		Y
55	Warrumbungle	Coolah, Dunedoo, Coonabarabran, Baradine	312	Y	Meter Size* (40mm $1246)		85 c/kL		Y
95	Weddin	Grenfell	561	Y	Uniform Access Charge				N
74	Wentworth	Wentworth, Nimatjira	730	Y	Uniform Access Charge	Additional SC/Pedestal, $104/Cistern			N
16	Wingecarribee	Wingecarribee	655	Y	Meter Size* (40mm: $2620)		140 c/kL		Y
56	Yass Valley	Yass	640	Y	Uniform Access Charge		280 c/kL		Y

Table 7C: Sewerage - Liquid trade waste fees and charges - 2016-17

	WATER UTILITY	Does LWU have appropriate Liquid Trade Waste Policy[1,2] ? (1) *2015-16*	Appropriate Trade Waste Fees & Charges *(Yes/No)* (2)	All liquid trade waste approvals *(Yes/No)* (3)	ANNUAL TRADE WASTE FEE ($) Category 1 (4)	Category 2 (6)	Category 3 (7)	Reinspection Fee $/inspection Cat/1/2/3 (8)	Category 2 Trade Waste Usage Charge (c/kL) (9)	Category 2 Non Compliance Trade Waste Usage Charge ($/kL) (9A)	Excess Mass Charge (c/kg) BOD (10)	Suspended Solids (11)	Oil & Grease (12)	Non Compliance Excess Mass Charge for BOD (Yes/No) (13)
11	Albury City	Yes	Yes	Yes	84	84	361		184	16.9	38	25	63	
111	Armidale Regional	Yes*	Yes	Yes	87	174	434	173	148	13.0				Yes
24	Ballina	Yes	Yes	Yes	88	180	596	128	172	12.7	78	98	137	
100	Balranald		Yes		117	117	528	80	200	15.0	65	80	115	
21	Bathurst Regional	Yes	Yes		108	108	720	101	250	19.1	96	121	168	
23	Bega Valley	Yes	Yes		134	134	134		120	10.8				Yes
47	Bellingen	Yes	Yes		207	207		139	147	15.4	75	96	135	
53	Berrigan		No											
72	Bland	Yes	Yes		97	175	580	90	160	14.8	73	93	130	Yes
78	Blayney	Yes	Yes	Yes	88	88	330	81	175	17.8	75	100	150	Yes
89	Bogan	Yes	Yes		85	169		85	161	15.1				Yes
87	Bourke	Yes	Yes						177	14.5				
105	Brewarrina	Yes	No											
27	Byron	Yes	Yes	Yes	153	255	429		224	3.7	155	155	182	Yes
91	Cabonne	Yes	Yes		95	189	638	88	160	16.3	60	80	110	
92	Carrathool		No											
112	Central Coast	Yes	Yes	Yes	74	234	1969	118	171	14.6	76	97	136	
103	Central Darling		No											
14	Clarence Valley	Yes	Yes		136	136	972	165	265	23.0				
67	Cobar	Yes	Yes	Yes	98	196	650	90	180	16.5	77	103	129	
10	Coffs Harbour	Yes	Yes		200	400	950	140	170	15.6	77	96	139	
99	Coolamon		No											
75	Coonamble		No											
115	Cootamundra-Gundagai	Yes	Yes		119	236	354	119	300	14.0	65	90	120	
39	Cowra	Yes*	Yes		94	188	630	82	165	15.1	74	95	133	Yes
122	Dubbo Regional	Yes	Yes	Yes	93	185	621	86	187	15.9	78	101	141	Yes
54	Edward River	Yes	Yes		93	185	615	87	170	15.6	76	98	137	
26	Essential Energy	Yes	Yes		108	720		101	201	18.4	90	115	161	Yes
15	Eurobodalla	Yes	Yes	Yes	96	96	516		142	13.3	84	104	140	
114	Federation	Yes	Yes		93	185	620	86	173	15.9				
51	Forbes	Yes	Yes		481	481		135	75					
84	Gilgandra	Yes	Yes	Yes	90	179	600	83	254	16.0	75	100		Yes
60	Glen Innes Severn	Yes	Yes		93	186	622	87	172	15.9	78	100	141	
20	Goulburn Mulwaree	Yes	Yes	Yes	103	113	377	165	267	24.0	82	107	148	Yes
80	Greater Hume	Yes	Yes		84	170	570	80	160	13.5	70	95	130	
30	Griffith	Yes	Yes	Yes	84	183	492	70	124	8.0	141	140		
44	Gunnedah	Yes	Yes		183	183	366	100	155	13.5	71	88	120	
81	Gwydir	Yes	Yes		77	77	430	60	130	15.0				
30A	Hawkesbury	Yes	Yes		822	4123	8214	89	137		301	261	368	Yes
86	Hay	Yes	No	Yes										
116	Hilltops	Yes	Yes		99	177	587	99	156	14.4	71	91	127	Yes
37	Inverell		No											
77	Junee	Yes	No											
25	Kempsey	Yes	Yes	Yes	130	130	130	155	222	20.2	123	234	234	
70	Kyogle	Yes	Yes	Yes	88	88	500	68	103	3.0	54	69	97	
59	Lachlan	Yes	Yes	Yes	160	160	160	152	150	15.5				
48	Leeton	Yes*	Yes		165	166	634	94	188	17.2	70	108	152	

Table 7C: Sewerage - Liquid trade waste fees and charges - 2016-17

	WATER UTILITY	Does LWU have appropriate Liquid Trade Waste Policy[1,2] ? (1) *2015-16*	Appropriate Trade Waste Fees & Charges *(Yes/No)* (2)	All liquid trade waste approvals *(Yes/No)* (3)	ANNUAL TRADE WASTE FEE ($) Category 1 (4)	Category 2 (6)	Category 3 (7)	Reinspection Fee $/inspection Cat/1/2/3 (8)	Category 2 Trade Waste Usage Charge (c/kL) (9)	Category 2 Non Compliance Trade Waste Usage Charge ($/kL) (9A)	Excess Mass Charge (c/kg) BOD (10)	Suspended Solids (11)	Oil & Grease (12)	Non Compliance Excess Mass Charge for BOD (Yes/No) (13)
22	Lismore	Yes*	Yes	Yes	100	100	100	100	110		80	100	130	
31	Lithgow	Yes	Yes	Yes	150	223	409	85	180	19.0	75	96	135	
61	Liverpool Plains	Yes*	Yes		90	90	606	86	350	15.0	250	250	350	
102	Lockhart	Yes	Yes		69	162	462	65	75	6.2	110	112		
5	MidCoast	Yes	Yes	Yes	127	159	567	108	263	15.7	49	49	71	Yes
32	Mid Western Regional		No	Yes										
38	Moree Plains	Yes	Yes		95	189	629	87	200	16.0	100	100	100	
117	Murray River	Yes	Yes		92	184	614	85	171	15.7	78	99	139	
118	Murrumbidgee	Yes	Yes		77	153	306	108	172	15.9	92	117	165	
41	Muswellbrook	Yes	Yes	Yes	115	179	598	164	134	16.1	64	85	117	Yes
34	Nambucca	Yes	Yes	Yes	96	159	159	139	180	16.1	115	115		
46	Narrabri	Yes*	Yes	Yes	580	830	860	160	200		200			
63	Narrandera	Yes	No											
62	Narromine	Yes	Yes		94	94	602	86	210					
83	Oberon	Yes	Yes						185	15.6	76	99	138	Yes
19	Orange	Yes	Yes	Yes	84	84	564	78	227	15.8	175	165	385	Yes
36	Parkes	Yes	Yes	Yes	190	190	680	98	190	14.4				
7	Port Macquarie-Hastings	Yes	Yes	Yes	192	192	591	101	161	14.7	74	89	130	
119	Queanbeyan-Palerang	Yes	Yes	Yes	120	120	780	98	232	19.7	261	241	167	
33	Richmond Valley	Yes	Yes		93	172	584	164	170	15.0	75	97	135	
3	Shoalhaven	Yes	Yes	Yes	120	149	582	76	171	16.0	76	98	138	
35	Singleton	Yes	Yes	Yes	95	95	95	155	160	15.5	75	100	140	
120	Snowy Monaro Regional	Yes	Yes		215	845	1675	147	200	21.0	300	200	200	
121	Snowy Valleys	Yes	Yes	Yes	150	310	610	146		15.0	175	160	290	
13	Tamworth Regional	Yes	Yes	Yes	146	146	644	99	179	15.0	80	104	160	
69	Temora		No											
68	Tenterfield	Yes	Yes	Yes	136	136	620	85	156	15.6				
6	Tweed	Yes	Yes	Yes	111	160	753	104	220	15.8	90	120	180	
45	Upper Hunter	Yes	Yes		418	418	418	120		18.0	80	100	140	
73	Upper Lachlan	Yes	No											
85	Uralla		Yes	Yes	74	74	74		130					
9	Wagga Wagga	Yes	Yes	Yes	100	100	651	94	184	16.7	82	102	143	
98	Walcha	Yes	Yes		83	165		79	150	13.9				
79	Walgett	Yes	No											
96	Warren	Yes	Yes		93	185	620	86	173	15.9	78	100	140	
55	Warrumbungle	Yes	Yes		90	90	205	85	200	15.0	73	95	132	Yes
95	Weddin	Yes*	No											
74	Wentworth	Yes	Yes		98	195	655	91	182	17.0	82	100	100	
16	Wingecarribee	Yes	Yes	Yes	62	192	651	92	200	17.7	90	110	160	
56	Yass Valley	Yes	Yes	Yes	93	290	521		180					

Notes:

1. Yes* in column 1 indicates that the LWU has adopted a trade waste policy before 2009, which needs significant updating.
2. 88% of LWUs have an appropriate trade waste policy and 83% of LWUs have appropriate trade waste fees and charges.
3. The non-residential sewer usage charges and trade waste usage charges over the last 6 years are shown on Figures 44 and 45 respectively.

Table 8: 2015-16 NSW urban water supplied

	WATER UTILITY	POTABLE URBAN WATER SUPPLIED (ML) (Excludes bulk water)											NON-POTABLE URBAN WATER SUPPLIED (ML) (Excludes bulk water)							TOTAL URBAN WATER SUPPLIED	BULK WATER EXPORTS (Potable + Non-potable)	RECYCLED WATER		WATER SOURCES FOR URBAN WATER USE (ML)				
		REVENUE WATER (Potable)							NON-REVENUE WATER (Potable) See Table 8A				Recycled[11]			Storm water	Non-potable excluding recycled										
		Residential	Commercial	Industrial	Rural	Institutional	Public Parks & Gardens	Total Revenue Water	Losses		Unbilled	Total Non-Revenue Water	Total Potable Urban Water Supplied Revenue + Non-Revenue Water	Res	Non Res	Total Recycled Urban Water	Urban Storm water Used	Res	Non Res	Total Non Potable	Total Non-Potable Including Recycled and Stormwater Use	(Potable + Non-potable) including Recycled and Stormwater Use	See Table 8A[11]	NON-URBAN See Table 8A[11]	TOTAL (Urban + Non-Urban) see also Table 15	Surface Water	Ground Water	Recycled Water	Bulk Purchase	Total Sourced Water Excluding Non Urban Recycled
		W8.1	W9.1					W8.1 + W9.1	Real Loss (Leakage)[9]	Apparent Loss (illegal use, meter error)	(Fire Fighting, Flushing, Public Amenities)	W10.1	W11.1 = W8.1 + W9.1 + W10.1	W20	W21 + W25-W25.1	W20+W21+W25-W25.1	W28.4	W8.2	W9.2 + W10.2	W11.2 = W8.2 +W9.2+W10.2	W20+W21 +W25-W25.1 +W11.2+W28.4	W11 =W11.1+W11.2+ W20+W21+W25-W25.1+W28.4	W14 =W14.1+W14.2 +W15+W28.1	W22+ W23+ W24+ W25.1	W26	Urban Use Only				=Sum (15) to (17) and (11e)
		Sum (1) to (6)						(7)				(8) + (8a) + (8b) (9)	(7) + (9) (10)								(11b)+(11e)+(12c) (12d)	(10)+(12d) (13)	(14)	(11c)	(11d)	(15) W1	(16) W2	(16b) W4	(17) W5	(17b) W7
	Sydney Water	354,000						474,000					525,000	2,500	9,900	12,400		0	1300	1300	13700	539,000	0		43,300	6,000	0	38,500	529,000	573,000
	Hunter Water	38,000						56,000				12,000	68,000	0	4,100	4,100	0	0	0		4100	72,000	484		5,373	59,400	9,000	4,300	0	73,000
	Water NSW																					0	535,000			924,300	0		2,000	927,000
	LWUs with > 10,000 Properties																													
112	Central Coast	20,303	4,845	590	3	507	144	26,392	1,358	493	73	1,924	28,316	65	522	587	30		94	94	711	29,027	309	308	895	28,332	83	811	539	29,795
3	Shoalhaven	6,665	2,101	1,056	721	263	34	10,840	1,263	249	74	1,586	12,426		315	315		2	1,638	1,640	1,955	14,381		1,236	1,551	12,687		315	83	13,085
4	Rous (Bulk Supplier) (NO SGE)	0	27	0	740	0	0	767	*66*	216	52	*334*	*1,101*									*1,101*	9,580			10,666				10,666
5	MidCoast	5,152	1,563	470	0	169	89	7,443	946	367	179	1,492	8,935		459	459					459	9,394		485	944	8,383	552	459		9,394
6	Tweed	5,218	1,539	203	122	228	81	7,391	848	156	42	1,046	8,437		667	667					667	9,104		28	695	9,082		667	6	9,755
7	Port Macquarie-Hastings (Unfiltered)	4,360	1,036	37	34	241	48	5,756	458	*148*	29	*635*	*6,391*		257	257			228	228	485	*6,876*		83	340	6,092		257		6,349
8	Riverina (Groundwater) (NO SGE)	9,589	1,636	872	969	661	498	14,225	1,204	207	1,223	2,634	16,859									16,859				2,303	12,827		53	15,183
11	Albury	5,250	603	266	36	666	418	7,239	*483*	*284*	38	*805*	*8,044*					1	191	192	192	*8,236*	418	2,503	2,503	7,353				7,353
10	Coffs Harbour	3,924	1,049	87	0	93	75	5,228	436	*109*	27	*572*	*5,800*		372	372			10	10	382	*6,182*		741	1,113	5,304		372		5,676
13	Tamworth Regional	5,028	1,323	1,595	248	207	538	8,939	*695*	*298*	0	*993*	*9,932*		147	147			71	71	218	*10,150*		3,924	4,071	8,353	704	147		9,204
14	Clarence Valley	3,009	790	203	517	0	102	4,621	324	153	300	777	5,398		337	337			53	53	390	5,788		48	385	5,127		337		5,464
122	Dubbo Regional	5,900	1,504	131	70	816	815	9,236	*616*	*364*	46	*1,026*	*10,262*						259	259	259	*10,521*		2,599	2,599	7,454	2,363			9,817
119	Queanbeyan-Palerang (Reticulator)	3,237	396	126	1	22	213	3,995	575	96	52	723	4,718		58	58					58	4,776		42	100	241	296	58	4,202	4,797
15	Eurobodalla	2,193	473	6	12	144	37	2,865	344	211	17	572	3,437		173	173					173	3,610		22	195	3,309	128	173		3,610
12	Fish River WS (Unfiltered, Bulk Supplier)	0	0	0	118	0	0	118	1,351	*0*		1,351	1,469						2,278	2,278	2,278	3,747	2,936			6,678				6,678
16	Wingecarribee	3,270	543	0	142	245	18	4,218	767	70	31	868	5,086									5,086		232	232	561			5,031	5,592
19	Orange	2,829	655	76	130	257	78	4,025	*410*	90	34	*534*	*4,559*		2,051	2,051					2,051	*6,610*			2,051	4,947	56	2,051		7,054
21	Bathurst Regional	3,443	1,175	2,178	25	98	0	6,919	402	*306*	0	*708*	*7,627*					16	212	228	228	*7,855*	4			6,725	26			6,751
23	Bega Valley (Unfiltered)	1,800	429	81	25	195	39	2,569	227	423	52	702	3,271		377	377			58	58	435	3,706		24	401	1,830	1,396	377		3,603
24	Ballina (Reticulator)	2,310	370	19	41	91	10	2,841	741	62	18	821	3,662		461	461					461	4,123		39	500	124		461	3,519	4,104
22	Lismore (Reticulator)	1,951	697	0	58	74	0	2,780	191	*114*	0	*305*	*3,085*									*3,085*		5	5	211			3,074	3,285
25	Kempsey (Groundwater)	1,635	414	243	356	124	13	2,785	*396*	280	140	*816*	*3,601*		84	84					84	*3,685*	25	12	96		3,498	84		3,582
27	Byron (Reticulator)	1,678	733	0	0	0	0	2,411	336	47	0	383	2,794		242	242					242	3,036		125	367	428		242	2,407	3,077
20	Goulburn Mulwaree	1,655	251	304	10	533	47	2,800	*154*	*108*	15	*277*	*3,077*		179	179			15	15	194	*3,271*	4	1,551	1,730	2,967		179	10	3,156
26	Essential Energy	2,235	273	1,064	0	225	25	3,822	318	*105*		*423*	*4,245*		669	669			793	793	1,462	*5,707*			669			669	4,935	5,604
28A	Goldenfields (Reticulator) (NO SGE)	1,979	678	6	2,221	308	150	5,342	*356*	*176*	61	*593*	*5,935*					23	93	116	116	*6,051*								5,821
28B	Goldenfields (Bulk Supplier) (NO SGE)	0	0	0	0	0	0		26	20	*0*	*46*	*440*									440	9,207			4,243	4,542		422	9,207
	Totals (excluding bulk suppliers) for LWUs with >10,000 Properties												*178,910*	*65*	*7,370*	*7,435*		*42*	*5,993*	*6,035*	*13,500*	*191,970*	*22,483*	*14,007*	*21,442*	*143,400*	*26,471*	*7,659*	*30,102*	*207,662*
	LWUs with 4,001 - 10,000 Properties																													
111	Armidale Regional	1,941	266	245	96	457	99	3,104	346	61	28	435	3,539						69	69	69	3,608		827	827	3,570			56	3,626
120	Snowy Monaro (Unfiltered)	1,257	421	182	67	118	28	2,073	*138*	*92*	0	*230*	*2,303*		51	51		83	22	105	156	*2,459*	5	13	64	2,413	53	51		2,517
30	Griffith	3,913	1,231	0	405	222	194	5,965	377	*245*	20	*642*	*6,607*					161	554	715	715	*7,322*		247	247				7,191	7,191
31	Lithgow	1,219	216	95	0	0	0	1,530	*102*	*68*		*170*	*1,700*					2		2	2	*1,702*				1,453			785	2,238
32	Mid-Western Regional	1,381	228	46	4	136	64	1,859	*152*	142	12	*306*	*2,165*					1	91	92	92	*2,257*		54	54	2,348	574			2,922
116	Hilltops (Reticulator)	1,019	172	91	0	102	72	1,456	112	*36*	12	*160*	*1,616*		186	186					186	*1,802*		4	190	156	9	186	1,735	2,086
33	Richmond Valley	973	374	1,136	10	0	1	2,494	249	53	14	316	2,810		1	1					1	2,811		375	376	2,479		1	578	3,058

Table 8: 2015-16 NSW urban water supplied

	WATER UTILITY	POTABLE URBAN WATER SUPPLIED (ML) (Excludes bulk water)											NON-POTABLE URBAN WATER SUPPLIED (ML) (Excludes bulk water)							TOTAL URBAN WATER SUPPLIED	BULK WATER EXPORTS (Potable + Non-potable)	RECYCLED WATER		WATER SOURCES FOR URBAN WATER USE (ML)				
		REVENUE WATER (Potable)							NON-REVENUE WATER (Potable) See Table 8A			Total Potable Urban Water Supplied	Recycled[11]			Storm water	Non-potable excluding recycled			Total Non-Potable								
		Residential	Commercial	Industrial	Rural	Institutional	Public Parks & Gardens	Total Revenue Water	Losses		Unbilled	Total Non-Revenue Water	Revenue + Non-Revenue Water	Res	Non Res	Total Recycled Urban Water	Urban Storm water Used	Res	Non Res	Total Non Potable	Including Recycled and Stormwater Use	(Potable + Non-potable) including Recycled and Stormwater Use	See Table 8A[11]	NON-URBAN See Table 8A[11]	TOTAL (Urban + Non-Urban) see also Table 15	Surface Water	Ground Water	Recycled Water	Bulk Purchase	Total Sourced Water Excluding Non Urban Recycled
		W8.1	W9.1					W8.1 + W9.1	Real Loss (Leakage)[9]	Apparent Loss (illegal use, meter error)	(Fire Fighting, Flushing, Public Amenities)	W10.1	W11.1 = W8.1 + W9.1 + W10.1	W20	W21 + W25-W25.1	W20+W21+W25-W25.1	W28.4	W8.2	W9.2 + W10.2	W11.2 = W8.2 +W9.2+W10.2	W20+W21 +W25-W25.1 +W11.2+W28.4	W11 =W11.1+W11.2+ W20+W21+W25-W25.1+W28.4	W14 =W14.1+W14.2 +W15+W28.1	W22+ W23+ W24+ W25.1	W26	Urban Use Only				=Sum (15) to (17) and (11e)
		(1)	(2)	(3)	(4)	(5)	(6)	Sum (1) to (6) (7)	(8)	(8a)	(8b)	(8) + (8a) + (8b) (9)	(7) + (9) (10)	(11)	(11a)	(11b)	(11e)	(12a)	(12b)	(12c)	(11b)+(11e)+(12c) (12d)	(10)+(12d) (13)	(14)	(11c)	(11d)	(15) W1	(16) W2	(16b) W4	(17) W5	(17b) W7
35	Singleton	1,536	601	131	25	159	21	2,473	*165*	*98*	12	*275*	*2,748*						1,023	1,023	1,023	*3,771*				3,634				3,634
34	Nambucca (Groundwater)	824	344	49	25	66	2	1,310	155	12	8	175	1,485									1,485		49	49		1,558			1,558
36	Parkes	1,427	208	0	119	138	174	2,066	*332*	66	87	*485*	*2,551*		155	155		28	2,259	2,287	2,442	*4,993*	125		155	2,205	2,426	155	335	5,121
41	Muswellbrook	1,366	306	25	0	104	114	1,915	154	70	10	234	2,149		863	863					863	3,012			863	2,229	43	863		3,135
37	Inverell	1,000	200	300	10	0	200	1,710	*116*	100	0	*216*	*1,926*									*1,926*				120	25		2,305	2,450
121	Snowy Valleys	1,002	158	226	54	54	30	1,524	181	31	18	230	1,754		185	185		5	44	49	234	1,988		28	213	1,906	18	185		2,109
114	Federation	1,408	285	781	2	29	117	2,622	428	18	13	459	3,081						16	16	16	3,097		26	26	3,209				3,209
40	Central Tablelands (NO SGE)	798	204	212	285	43	27	1,569	244	7	68	319	1,888									1,888	63			1,861	155			2,016
39	Cowra	967	656	164	0	23	49	1,859	250	0	1,205	1,455	3,314					96		96	96	3,410	5			3,283	12		120	3,415
38	Moree Plains (Groundwater)	2,725	350	0	15	0	63	3,153	288	120	25	433	3,586		392	392		21	13	34	426	4,012	25	263	655	526	2,777	392		3,695
117	Murray River (Dual Supply)	603	225	0	47	11	9	895	75	*24*	0	*99*	*994*					736	252	988	988	*1,982*		133	133	2,223			110	2,333
45	Upper Hunter	1,035	229	504	1	10	120	1,899	607	41	0	648	2,547		89	89					89	2,636		205	294	1,978	275	89		2,342
46	Narrabri (Groundwater)	1,216	855	0	0	6	14	2,091	456	385	67	908	2,999									2,999		398	398		2,608			2,608
44	Gunnedah (Groundwater)	1,513	741	0	55	196	151	2,656	*115*	*115*	0	*230*	*2,886*									*2,886*		542	542		2,547			2,547
47	Bellingen (Unfiltered)	569	445	0	0	0	0	1,014	121	63	28	212	1,226									1,226	8			137	1,097			1,234
48	Leeton	1,515	178	188	59	57	368	2,365	*240*	60	0	*300*	*2,665*									*2,665*				2,365				2,365
	Totals (excluding bulk suppliers) for 4,000 - 10,000 Properties												*58,540*	*0*	*1,922*	*1,922*		*1,133*	*4,343*	*5,476*	*7,398*	*65,940*	*231*	*3,164*	*5,086*	*38,095*	*14,177*	*1,922*	*13,215*	*67,409*
	LWUs with 1,501 - 4,000 Properties																													
115	Cootamundra-Gundagai (Reticulator)	543	98	48	2	48	7	746	*66*	*13*	4	*83*	*829*		435	435					435	*1,264*		307	742			435	788	1,223
51	Forbes	1,372	474	6	0	107	28	1,987	*369*	46	56	*471*	*2,458*						220	220	220	*2,678*	380	253	253	2,845	105			2,950
53	Berrigan (Dual Supply)	850	190	0	25	80	90	1,235	120	14	0	134	1,369		629	629	30	590	450	1,040	1,699	3,068			629	2,010		629		2,669
54	Edward River	1,748	455	0	0	0	231	2,434	*162*	*108*	0	*270*	*2,704*									*2,704*		54	54	2,315				2,315
55	Warrumbungle	619	271	0	0	0	0	890	280	30	0	310	1,200					16	13	29	29	1,229		83	83	644	585			1,229
56	Yass Valley	562	126	0	0	0	25	713	101	7	127	235	948									948	2			915	35			950
60	Glen Innes Severn	375	90	0	0	31	1	497	43	11	1	55	552									552				515	37			552
59	Lachlan	1,563	357	0	119	28	44	2,111	*323*	28	21	*372*	*2,483*		116	116		31	3	34	150	*2,633*	24		116	1,056	583	116	92	1,847
61	Liverpool Plains	513	77	46	16	22	80	754	*97*	28	5	*130*	*884*						*15*	15	15	*899*	55			268	689			957
74	Wentworth (Dual Supply)	389	222	0	0	2	0	613	*41*	*27*		68	681					1,059		1,059	1,059	*1,740*	2			2,300				2,300
67	Cobar	623	75	43	20	13	51	825	*55*	*37*		92	*917*					156	153	309	309	*1,226*							1,400	1,400
66	Cobar WB (NO SGE)		*0*		0	0	0		*20*	*14*	0	*34*	*305*					43	*1,942*	1,985	1,985	*2,290*	1,218			3,918				3,918
62	Narromine (Groundwater)	798	161	0	1	24	44	1,028	80	*33*	0	*113*	*1,141*						13	13	13	*1,154*				13	1,269			1,282
63	Narrandera (Groundwater)	895	150	0	15	5	300	1,365	135	235	450	820	2,185									2,185					1,825			1,825
68	Tenterfield	240	64	2	2	2	4	314	*21*	*14*	0	*35*	*349*		51	51					51	*400*	61		51	442		51	10	503
73	Upper Lachlan	250	25	0	0	15	30	320	*23*	30	15	*68*	*388*									*388*		50	50	377	5			382
79	Walgett (Dual Supply)	486	160	0	0	0	0	646	*43*	*29*	0	*72*	*718*					355	113	468	468	*1,186*				954	560			1,514
70	Kyogle	227	43	27	27	21	6	351	*23*	*16*	0	*39*	*390*		38	38					38	*428*			38	326	3	38	61	428
80	Greater Hume	411	57	0	57	6	8	539	*71*	19	20	*110*	*649*		57	57					57	*706*			57		190	57	414	661
75	Coonamble (Groundwater)	856	48	0	0	20	140	1,064	*71*	*44*	3	*118*	*1,182*									*1,182*	6	54	54		1,147			1,147
	Totals (excluding bulk suppliers) for 1,500 - 4,000 Properties												*22,030*	*0*	*1,326*	*1,326*		*2,210*	*980*	*3,190*	*4,540*	*28,860*	*1,748*	*801*	*2,127*	*18,898*	*7,033*	*1,326*	*2,765*	*30,052*

Table 8: 2015-16 NSW urban water supplied

WATER UTILITY	POTABLE URBAN WATER SUPPLIED (ML) (Excludes bulk water)												NON-POTABLE URBAN WATER SUPPLIED (ML) (Excludes bulk water)							TOTAL URBAN WATER SUPPLIED	BULK WATER EXPORTS (Potable + Non-potable)	RECYCLED WATER		WATER SOURCES FOR URBAN WATER USE (ML)				
	REVENUE WATER (Potable)							NON-REVENUE WATER (Potable) See Table 8A				Total Potable Urban Water Supplied	Recycled[11]			Storm water	Non-potable excluding recycled			Total Non-Potable								
	Residential	Commercial	Industrial	Rural	Institutional	Public Parks & Gardens	Total Revenue Water	Losses		Unbilled	Total Non-Revenue Water		Res	Non Res	Total Recycled Urban Water	Urban Storm water Used	Res	Non Res	Total Non Potable	Including Recycled and Stormwater Use	(Potable + Non-potable) including Recycled and Stormwater Use	See Table 8A[11]	NON-URBAN See Table 8A[11]	TOTAL (Urban + Non-Urban) see also Table 15	Surface Water	Ground Water	Recycled Water	Bulk Purchase	Total Sourced Water Excluding Non Urban Recycled
	W8.1	W9.1					W8.1 + W9.1	Real Loss (Leakage)[9]	Apparent Loss (illegal use, meter error)	(Fire Fighting, Flushing, Public Amenities)	W10.1	W11.1 = W8.1 + W9.1 + W10.1	W20	W21 + W25-W25.1	W20+W21+W25-W25.1	W28.4	W8.2	W9.2 + W10.2	W11.2 = W8.2 +W9.2+W10.2	W20+W21 +W25-W25.1 +W11.2+W28.4	W11 =W11.1+W11.2+ W20+W21+W25-W25.1+W28.4	W14 =W14.1+W14.2 +W15+W28.1	W22+ W23+ W24+ W25.1	W26	Urban Use Only				=Sum (15) to (17) and (11e)
	(1)	(2)	(3)	(4)	(5)	(6)	Sum (1) to (6) (7)	(8)	(8a)	(8b)	(8) + (8a) + (8b) (9)	(7) + (9) (10)	(11)	(11a)	(11b)	(11e)	(12a)	(12b)	(12c)	(11b)+(11e)+(12c) (12d)	(10)+(12d) (13)	(14)	(11c)	(11d)	(15) W1	(16) W2	(16b) W4	(17) W5	(17b) W7
LWUs with 200 - 1,500 Properties																													
81 Gwydir	375	45	0	8	50	153	631	70	11	90	171	802	9	9					9	811			9	397	396	9		802
85 Uralla	263	25	0	0	1	14	303	*10*	3	25	*38*	*341*								*341*				340				340
87 Bourke (Dual Supply)	325	7	0	0	0	0	332	35	6		41	373					1,011	285	1,296	1,296	1669				1,556				1,556
84 Gilgandra (Groundwater)	595	170	18	0	0	10	793	68	*19*	0	*87*	*880*					20	18	38	38	*918*		221	221		861			861
86 Hay (Dual Supply)	160	44	0	0	17	0	204	95	4	0	99	303					446	260	706	706	1009				1,280				1,280
83 Oberon (Reticulator)	167	25	335	34	20	20	601	*49*	33	15	*97*	*698*						15	15	15	*713*				616				616
118 Murrumbidgee (Groundwater)	734	25	0	0	1	0	760	*51*	*34*	*0*	*85*	*845*					382	13	395	395	*1240*				505	826			1,331
92 Carrathool (Groundwater)	362	39	0	11	0	3	415	*108*	*35*	*42*	185	600					71	644	715	715	1315	280				1,023		843	1,866
89 Bogan	395	155	0	0	3	34	587	*79*	*16*	*45*	140	727						4	4	4	731		60	60	2,011				2,011
91 Cabonne	153	40	5	0	0	0	198	*35*	*6*	*2*	43	241	62	62			42	8	50	112	353		17	79	283	10	62		355
96 Warren (Dual Supply)	257	69	0	0	0	0	326	*35*	*25*	*33*	93	419					279	95	374	374	793				415	326			741
98 Walcha	101	53	0	3	9	6	172	*22*	*2*	*1*	*25*	*197*						5	5	5	*202*	2			154				154
100 Balranald (Dual Supply)	228	42	0	0	0	0	270	*18*	*12*	0	*30*	*300*					550	150	700	700	*1000*				960				960
103 Central Darling (Dual Supply)	95	10	0	0	0	0	105	*7*	*5*	0	*12*	*117*					240	30	270	270	*387*				910	75			985
105 Brewarrina (Dual Supply)	271	25	0	0	0	0	296	*23*	*10*	0	*33*	*329*					400	150	550	550	*879*				846	90			936
Totals (excluding bulk suppliers) for 200 - 1,500 Properties												*7,170*	*0*	*71*	*71*		*3,441*	*1,677*	*5,118*	*5,189*	*12,360*	*2,036*	*298*	*369*	*10,273*	*3,607*	*71*	*843*	*14,794*
LWUs without Water Supply																													
9 Wagga Wagga (NO WS)														246	246					246	246		5,433	5,679			246		246
30A Hawkesbury														7	7					7	7		135	142			7		7
69 Temora														61	61					61	61			61			61		61
72 Bland														270	270					270	270			270			270		270
77 Junee														104	104					104	104			104			104		104
78 Blayney														301	301					301	301			301			301		301
95 Weddin																													
99 Coolamon																							75	75					
102 Lockhart														2	2					2	2			2			2		2
Total for the 81 LWUs reporting cols (1) & (2) or cols (1) & (3)	154,000	37,900	14,500	7,400	8,600	6,700		22,100			34,900	260,000	65	11,673	11,738		6,820	10,720	17,540	29,340	292,970	1,800	23,780	35,500	185,160	46,750	11,962	46,500	290,370
% of Total Potable Supply (Col(10))	58%	15%	6%	3%	3%	3%		9%			13%																		
TOTAL for all LWUs (excluding double counting for bulk water exports)[3]												270,000	70	11,670	11,740		6,830	12,990	19,820	31,600	300,000	26,500	23,800	35,500	210,700	51,300	12,000	46,900	321,000

Table 8: 2015-16 NSW urban water supplied

Notes:

1. Source: Data provided by the 92 regional NSW water utilities for the *2015-16 NSW Water Supply and Sewerage Benchmarking Report* . 84 of these utilities are responsible for water supply.
   Columns (11) and (11a) report the volume of recycled water use and include a further 8 utilities which are responsible for sewerage only.
2. The volumes of water supplied by Sydney and Hunter Water Corporations and Water NSW were obtained from the *National Performance Report 2015-16* and have not been included in the totals shown above.
3. The total water supplied for all regional water utilities shown in the bottom line of the above table excludes double counting where water is supplied by a bulk supplier.
   Similarly, the total water sourced shown in the bottom line of the table excludes double counting between bulk suppliers and reticulators.
4. Incomplete Data: Where a water utility has not reported its residential use (col (1)), the residential use has been calculated based on the average percentage of 58% of the Total Potable Urban Water Supplied shown in Note 8.
   Where a water utility has not reported its total potable Urban Water Supplied (col (10)), the previous years' reported value has been used. These values are shown in ***italics bold*** (see also Note 6).
5. Where a LWU has only reported data for 'residential' use but not for 'commercial' or for 'industrial' use, the reported 'residential' value has been reduced and a 'commercial/industrial' component has been included.
   In this case, the 'residential' component has been calculated based on the average percentage of 58% of the Total Urban Water Supplied shown in Note 8 below, and is shown in italics bold.
6. Non-Revenue Water: Non-Revenue Water includes Unbilled Water (Unbilled Authorised Supply - fire fighting and mains flushing - refer also to Notes 9 and 10 of section 6), Real Losses (mostly Leakage)
   and Apparent Losses (under registration of customer meters and illegal use).
   Leakage studies for over 40 NSW LWUs together with Statewide analysis of Non-Revenue Water for NSW water utilities, indicate Leakage is a minimum of 6% of potable Urban Water Supplied (range 6% to 35%) while
   Non-Revenue Water is a minimum of 10% (comprising Leakage [minimum 6%] and Apparent Loss plus Unbilled Water [minimum 4%]). Recent analysis of reported data for utilities with over 10,000 connected properties
   tends to corroborate these minimum values. Therefore, for those utilities reporting Non-Revenue Water of less than 10% (col (9)), the Non-Revenue Water has been increased to 10% of the Urban Water
   Supplied (col (10)) (shown in ***italics bold***), unless the LWU has provided evidence of a lower value of Leakage under Note 7 below.
   In such a case, the adopted value for Non-Revenue Water is the reported Leakage plus 4%.
7. Real Losses (mostly Leakage): Leakage is a component of Non-Revenue Water. As described in Note 6 above, a minimum of 6% of the Total Urban Water Supplied (potable) has been adopted for Leakage, unless evidence of
   a lower value has been provided by the LWU. Therefore, unless corroborated by evidence, (eg. a reservoir drop test, detailed waste metering or night flow analysis (see Table 10)),
   reported Leakage of less than 6% (column (8)) has been increased to 6% (shown in ***italics bold***).
8. Potable Water Supplied: The above analysis shows that the total 2015-16 urban water supplied for regional NSW was 300,000 ML (column (13)), of which 270,000 ML (i.e. 90%) (column (10)) was potable water.
   The average uses as a percentage of the total **potable** water supplied were:
   - Residential - 58% (column (1))
   - Commercial - 15% (column (2))
   - Industrial - 6% (column (3))
   - Non-Revenue Water (NRW) - 13% (column (9))

   In addition, the rural, institutional and public parks and gardens uses were 3%, 3% and 3% of the total potable water supplied respectively (columns (4), (5) and (6)). The components of industrial and rural water supplied are shown in Table 8D on page 166.
9. Non-Potable Water Supplied: The total non-potable urban water supplied was 18,820 ML (column (12c)) which included 11,740 ML recycled urban water supply (column (11)+(11a)). These volumes are 7% and 4% respectively of the 300,000 ML **total urban water** supplied (column (13)). The non-potable urban supply was mainly for outdoor uses in dual water supplies, but also includes supplies to industry and other outdoor uses.
10. **The total urban water supplied** (column (13)) comprises the sum of the potable water supplied (column (10)) and non-potable water supplied (column (12c)) which includes recycled urban water (columns (11) & (11a)).
11. **Recycled water** used for non-potable urban water supply is shown in columns (11) & (11a). Recycled water used for non-potable non-urban water supply (agriculture, environmental and on-site use) is shown in column (11b).
    The total volume of recycled water for NSW regional water utilities is shown in column (11c). For the utilities that did not report this year but reported >10% recycled water in the previous year, the percentage recycled is
    assumed to be the same as that of the previous year (refer also to Appendix H4.7). This results in a volume of recycled water of 35,500 ML (see also Table 15) which is 20% of the total volume of sewage collected.
    Refer also to Figure 55, figures 27 and 26a of Table 4 and graph 13 of Appendix A.
12. All LWUs reported nil for Volume Sourced from Desalination (W3.1), Bulk Recycled Water Purchased (W6), Water Supplied for Environmental Flows (W13) and Bulk Recycled Water Exports (W15).

Table 8A: 2015-16 Total urban potable water supplied/produced

	WATER UTILITY	NON-REVENUE POTABLE WATER SUPPLIED[2] - (ML)													REVENUE WATER[1] Potable (ML) Excl Bulk	TOTAL URBAN WATER SUPPLIED Potable (ML)		TOTAL URBAN WATER PRODUCED Potable (ML)	BULK WATER EXPORTS			RECYCLED WATER (ML)				
		REAL LOSS[4] (Leakage)			APPARENT LOSS + UNBILLED WATER								TOTAL NON-REVENUE WATER (Real Loss + Apparent Loss + Unbilled)						W14			NON URBAN			TOTAL
					Apparent Loss			Unbilled[2]	Apparent Loss + Unbilled Water									Potable	Non Potable	Recycled	Agricultural	Environ-mental	On-site	Mngd Aquifer Recharge	URBAN + NON URBAN
		Reported	Adopted		Reported			Reported	Reported		Adopted		Reported	Adopted		Adopted		Reported	Adopted							
			See note 5	% of Total Potable (2)/(19)	Illegal Use	Under-registr'n of meters	Total (4)+(5)	Fire Fighting, Mains Flushing	Col(6) + Col(9)	% of Total Potable (10)/(19)	See note 5	% of Total Potable (12)/(19)	(1) + (10)	(2) + (12)	% of Total Potable (15)/(19)	(See Table 8 Col (7))	Col(14) + Col(17)	Col (15) + Col(17)	Col(19) + Col(20a) - W5.1	W14=W14.1+W14.2+W15							
		(1)	(2)	(3)	(4)	(5)	(6)	(9)	(10)	(11)	(12)	(13)	(14)	(15) W10.1	(16)	(17) W8.1+W9.1	(18)	(19) W11.1	(19a) W11.3	(20a) W14.1	(20b) W14.2	(20c) W15	(21) W22	(22) W23	(23) W24	(24) W25.1	(24) W26
	Sydney Water Corporation															474,000		474,000	528,620			0	4,876	10,837	15,241		43,342
	Hunter Water Corporation													12,000		56,000		68,000	68,459	484	0	0	1,087	0	180	0	5,373
LWUs with > 10,000 Properties																											
112	Central Coast Council	1,358	1,358	5%	217	276	493	73	566	2%	566	2%	1,924	1,924	7%	26,392	28,316	28,316	28,086	309					308		895
3	Shoalhaven City Council	1,263	1,263	10%	13	236	249	74	323	3%	323	3%	1,586	1,586	13%	10,840	12,426	12,426	12,426				1,222		14		1,551
4	Rous County Council	51	*66*		10	206	216	52	268		268		319	*334*		767	1,086	*1,101*	10,681	9,580							
5	MidCoast County Council	946	946	11%	188	179	367	179	546	6%	546	6%	1,492	1,492	17%	7,443	8,935	8,935	8,935				389		96		944
6	Tweed Shire Council	848	848	10%	8	148	156	42	198	2%	198	2%	1,046	1,046	12%	7,391	8,437	8,437	8,431				26		2		696
7	Port Macquarie-Hastings Council	458	458	7%	6	87	93	29	122	2%	*177*	*3%*	580	*635*	*10%*	5,756	6,336	*6,391*	6,391				76		7		340
8	Riverina Water County Council	1,204	1,204	7%	15	192	207	1,223	1,430	8%	1,430	8%	2,634	2,634	16%	14,225	16,859	16,859	16,806								
11	Albury City Council	441	*483*	*6%*	7	105	112	38	150	2%	*322*	*4%*	591	*805*	*10%*	7,239	7,830	*8,044*	8,462	418			1,076	1,427			2,503
10	Coffs Harbour City Council	436	436	8%				27	27	0%	*136*	*2%*	463	*572*	*10%*	5,228	5,691	*5,800*	5,800				539		202		1,113
13	Tamworth Regional Council	194	*695*	*7%*	6	188	194		194	2%	*298*	*3%*	388	*993*	*10%*	8,939	9,327	*9,932*	9,932				3,864		60		4,071
14	Clarence Valley Council	324	324	6%	5	148	153	300	453	8%	453	8%	777	777	14%	4,621	5,398	5,398	5,398						48		385
122	Dubbo Regional Council	253	*616*	*6%*	9	53	62	46	108	1%	*410*	*4%*	361	*1,026*	*10%*	9,236	9,597	*10,262*	10,262				2,319		280		2,599
119	Queanbeyan-Palerang Regional Council	575	575	12%	9	87	96	52	148	3%	148	3%	723	723	15%	3,995	4,718	4,718	516						42		100
15	Eurobodalla Shire Council	344	344	10%	3	208	211	17	228	7%	228	7%	572	572	17%	2,865	3,437	3,437	3,437						22		195
12	Fish River Water Supply	1,351	1,351								*0*		1,351	1,351		118	1,469	1,469	2,235	766	2,170						
16	Wingecarribee Shire Council	767	767	15%	5	65	70	31	101	2%	101	2%	868	868	17%	4,218	5,086	5,086	5,086				232				232
19	Orange City Council	144	*410*	*9%*	4	86	90	34	124	3%	124	3%	268	*534*	*12%*	4,025	4,293	*4,559*	4,559								2,051
21	Bathurst Regional Council	402	402	5%	7		7		7	0%	*306*	*4%*	409	*708*	*9%*	6,919	7,328	*7,627*	7,631	4							
23	Bega Valley Shire Council	227	227	7%	51	372	423	52	475	15%	475	15%	702	702	21%	2,569	3,271	3,271	3,271				24				401
24	Ballina Shire Council	741	741	20%	4	58	62	18	80	2%	80	2%	821	821	22%	2,841	3,662	3,662	143						39		500
22	Lismore City Council	191	191	6%	3	61	64		64	2%	*114*	*4%*	255	*305*	*10%*	2,780	3,035	*3,085*	11						5		5
25	Kempsey Shire Council	268	*396*	*11%*	140	140	280	140	420	12%	420	12%	688	*816*	*23%*	2,785	3,473	*3,601*	3,626	25			4	8			96
27	Byron Shire Council	336	336	12%	5	42	47		47	2%	47	2%	383	383	14%	2,411	2,794	2,794	387				125				367
20	Goulburn Mulwaree Council	132	*154*	*5%*	3	56	59	15	74	2%	*123*	*4%*	206	*277*	*9%*	2,800	3,006	*3,077*	3,081	4			1,551				1,730
26	Essental Energy	318	318	7%	4	76	80		80	2%	*105*	*2%*	398	*423*	*10%*	3,822	4,220	*4,245*	4,245								669
28A	Goldenfields Water Reticulator	236	*356*	*6%*	8	27	35	61	96	2%	*237*	*4%*	332	*593*	*10%*	5,342	5,674	*5,935*	114								
28B	Goldenfields Water County Council	440	26								*20*	*43%*	440	*46*		0	440	46	8,979	9,207							
	Medians (% of LWUs basis) for LWUs with >10,000 Properties			*7%*								*4%*			*12%*			*178,513*									
LWUs with 4,001 - 10,000 Properties																											
111	Armidale Regional Council	346	346	10%	5	56	61	28	89	3%	89	3%	435	435	12%	3,104	3,539	3,539	3,483				827				827
120	Snowy Monaro Regional Council	34	*138*	*6%*		1	1		1	0%	*92*	*4%*	35	*230*	*10%*	2,073	2,108	*2,303*	2,308	5					13		64
30	Griffith City Council	377	377	6%		126	126	20	146	2%	*265*	*4%*	523	*642*	*10%*	5,965	6,488	*6,607*	6,607						247		247
31	Lithgow City Council		*102*	*6%*	22		22		22	1%	*68*	*4%*	22	*170*	*10%*	1,530	1,552	*1,700*	915								
32	Mid-Western Regional Council	138	*152*	*7%*	2	140	142	12	154	7%	154	7%	292	*306*	*14%*	1,859	2,151	*2,165*	2,165				25		29		54
116	Hilltops Council	112	112	7%	3	15	18	12	30	2%	*48*	*3%*	142	*160*	*10%*	1,456	1,598	*1,616*	0						4		190
33	Richmond Valley Council	249	249	9%	3	50	53	14	67	2%	67	2%	316	316	11%	2,494	2,810	2,810	2,232				375				377
35	Singleton Council	105	*165*	*6%*	2	19	21	12	33	1%	*110*	*4%*	138	*275*	*10%*	2,473	2,611	*2,748*	2,748								
34	Nambucca Shire Council	155	155	10%	2	10	12	8	20	1%	20	1%	175	175	12%	1,310	1,485	1,485	1,485				49				49
36	Parkes Shire Council	278	*332*	*13%*	2	64	66	87	153	6%	153	6%	431	*485*	*19%*	2,066	2,497	*2,551*	2,341	125							155
41	Muswellbrook Shire Council	154	154	7%	10	60	70	10	80	4%	80	4%	234	234	11%	1,915	2,149	2,149	2,149								863
37	Inverell Shire Council	100	*116*	*6%*		100	100		100	5%	100	5%	200	*216*	*11%*	1,710	1,910	*1,926*	1,926								
121	Snowy Valleys Council	181	181	10%	3	28	31	18	49	3%	49	3%	230	230	13%	1,524	1,754	1,754	1,754						28		213
114	Federation Council	428	428	14%	3	15	18	13	31	1%	31	1%	459	459	15%	2,622	3,081	3,081	3,081						26		26
40	Central Tablelands Water	244	244	13%	6	1	7	68	75	4%	75	4%	319	319	17%	1,569	1,888	1,888	1,951	63							
39	Cowra Shire Council	250	250	8%				1,205	1,205	36%	1,205	36%	1,455	1,455	44%	1,859	3,314	3,314	3,199	5							
38	Moree Plains Shire Council	288	288	8%	50	70	120	25	145	4%	145	4%	433	433	12%	3,153	3,586	3,586	3,611	25			263				655

Table 8A: 2015-16 Total urban potable water supplied/produced

	WATER UTILITY	NON-REVENUE POTABLE WATER SUPPLIED[2] - (ML)													REVENUE WATER[1] Potable (ML) Excl Bulk	TOTAL URBAN WATER SUPPLIED Potable (ML)		TOTAL URBAN WATER PRODUCED Potable (ML)	BULK WATER EXPORTS			RECYCLED WATER (ML)					
		REAL LOSS[4] (Leakage)			APPARENT LOSS + UNBILLED WATER							TOTAL NON-REVENUE WATER (Real Loss + Apparent Loss + Unbilled)				Revenue + Non-revenue water			W14			NON URBAN				TOTAL
					Apparent Loss			Unbilled[2]	Apparent Loss + Unbilled Water										Potable	Non Potable	Recycled	Agricultural	Environ-mental	On-site	Mngd Aquifer Recharge	URBAN + NON URBAN
		Reported	Adopted		Reported			Reported	Reported		Adopted		Reported	Adopted	Adopted	Reported	Adopted	Adopted								
		(1)	See note 5 (2)	% of Total Potable (2)/(19) (3)	Illegal Use (4)	Under-registr'n of meters (5)	Total (4)+(5) (6)	Fire Fighting, Mains Flushing (9)	Col(6) + Col(9) (10)	% of Total Potable (10)/(19) (11)	See note 5 (12)	% of Total Potable (12)/(19) (13)	(1) + (10) (14)	(2) + (12) (15) W10.1	% of Total Potable (15)/(19) (16)	(See Table 8 Col (7)) (17) W8.1+W9.1	Col(14) + Col(17) (18)	Col (15) + Col(17) (19) W11.1	Col(19) + Col(20a) - W5.1 (19a) W11.3	W14=W14.1+W14.2+W15 (20a) W14.1	(20b) W14.2	(20c) W15	(21) W22	(22) W23	(23) W24	(24) W25.1	(24) W26
117	Murray River Council	75	75	8%	1	15	16		16	2%	*24*	*2%*	91	*99*	*10%*	895	986	*994*	884				133				133
45	Upper Hunter Shire Council	607	607	24%	3	38	41		41	2%	41	2%	648	648	25%	1,899	2,547	2,547	2,547				203		2		294
46	Narrabri Shire Council	456	456	15%	297	88	385	67	452	15%	452	15%	908	908	30%	2,091	2,999	2,999	2,999				398				398
44	Gunnedah Shire Council	42	*115*	*4%*	20	20	40		40	1%	*115*	*4%*	82	*230*	*8%*	2,656	2,738	*2,886*	2,886				542				542
47	Bellingen Shire Council	121	121	10%	38	25	63	28	91	7%	91	7%	212	212	17%	1,014	1,226	1,226	1,234	8							
48	Leeton Shire Council	150	*240*	*9%*	10	50	60		60	2%	60	2%	210	*300*	*11%*	2,365	2,575	*2,665*	2,665								
	Medians (% of LWUs basis) for 4,000 to 10,000 Properties			*8%*								*4%*			*12%*			*58,539*								
	LWUs with 1,501 - 4,000 Properties																										
115	Cootamundra-Gundagai Council	38	*66*	*8%*	1	10	11	4	15	2%	*17*	*2%*	53	*83*	*10%*	746	799	*829*	41					307			742
51	Forbes Shire Council	133	*369*	*15%*	11	35	46	56	102	4%	102	4%	235	*471*	*19%*	1,987	2,222	*2,458*	2,838	380				244	9		253
53	Berrigan Shire Council	120	120	9%	8	6	14		14	1%	14	1%	134	134	10%	1,235	1,369	1,369	1,369								629
54	Edward River Council	150	*162*	*6%*		20	20		20	1%	*108*	*4%*	170	*270*	*10%*	2,434	2,604	*2,704*	2,704				54				54
55	Warrumbungle Shire Council	280	280	23%	9	21	30		30	3%	30	3%	310	310	26%	890	1,200	1,200	1,200				83				83
56	Yass Valley Council	101	101	11%	3	4	7	127	134	14%	134	14%	235	235	25%	713	948	948	950	2							
60	Glen Innes Severn Shire Council	43	43	8%	1	10	11	1	12	2%	12	2%	55	55	10%	497	552	552	552								
59	Lachlan Shire Council	190	*323*	*13%*	18	10	28	21	49	2%	49	2%	239	*372*	*15%*	2,111	2,350	*2,483*	2,415	24							116
61	Liverpool Plains Shire Council	79	*97*	*11%*	10	18	28	5	33	4%	33	4%	112	*130*	*15%*	754	866	*884*	939	55							
74	Wentworth Shire Council		*41*	*6%*							*27*	*4%*		*68*	*10%*	613	613	*681*	683	2							
67	Cobar Shire Council	40	*55*	*6%*							*37*	*4%*	40	*92*	*10%*	825	865	*917*	917								
66	Cobar Water Board	115																	0								
62	Narromine Shire Council	80	80	7%	2	15	17		17	1%	*33*	*3%*	97	*113*	*10%*	1,028	1,125	*1,141*	1,141								
63	Narrandera Shire Council	135	135	6%	10	225	235	450	685	31%	685	31%	820	820	38%	1,365	2,185	2,185	2,185								
68	Tenterfield Shire Council		*21*	*6%*							*14*	*4%*		*35*	*10%*	314	314	*349*	400	61							51
73	Upper Lachlan Council	15	*23*	*6%*	5	25	30	15	45	12%	45	12%	60	*68*	*18%*	320	380	*388*	388				50				50
79	Walgett Shire Council		*43*	*6%*							*29*	*4%*		*72*	*10%*	646	646	*718*	718								
70	Kyogle Council	15	*23*	*6%*		5	5		5	1%	*16*	*4%*	20	*39*	*10%*	351	371	*390*	329								38
80	Greater Hume Shire Council	26	*71*	*11%*	13	6	19	20	39	6%	39	6%	65	*110*	*17%*	539	604	*649*	235								57
75	Coonamble Shire Council	12	*71*	*6%*	2	1	3	3	6	1%	*47*	*4%*	18	*118*	*10%*	1,064	1,082	*1,182*	1,188	6			54				54
	Medians (% of LWUs basis) for 1,500 to 4,000 Properties			*7%*								*4%*			*10%*			*22,027*								
	LWUs with 200 - 1,500 Properties																										
81	Gwydir Shire Council	70	70	9%	1	10	11	90	101	13%	101	13%	171	171	21%	631	802	802	802								9
85	Uralla Shire Council	9	*10*		1	2	3	25	28	8%	28	8%	37	*38*	*11%*	303	340	*341*	341								
87	Bourke Shire Council	35	35	9%	1	5	6		6	2%	6	2%	41	41	11%	332	373	373	373								
84	Gilgandra Shire Council	68	68	8%							*19*	*2%*	68	*87*	*10%*	793	861	*880*	880				221				221
86	Hay Shire Council	95	95	31%		4	4		4	1%	4	1%	99	99	33%	204	303	303	303								
83	Oberon Council	25	*49*	*7%*	3	30	33	15	48	7%	48	7%	73	*97*	*14%*	601	674	*698*	698								
118	Murrumbidgee Council		*51*	*6%*							*34*	*4%*		*85*	*10%*	760	760	*845*	845								
92	Carrathool Shire Council	108	108	18%		35	35	42	77	13%	77	13%	185	185	31%	415	600	600	600		280						
89	Bogan Shire Council	79	79	11%	1	15	16	45	61	8%	61	8%	140	140	19%	587	727	727	727				60				60
91	Cabonne Council	35	35	15%		6	6	2	8	3%	8	3%	43	43	18%	198	241	241	241				17				79
96	Warren Shire Council	35	35	8%	5	20	25	33	58	14%	58	14%	93	93	22%	326	419	419	419								
98	Walcha Council	2	*22*	*11%*		2	2	1	3	2%	3	2%	5	*25*	*13%*	172	177	*197*	199	2							
100	Balranald Council	1	*18*	*6%*		1	1		1	0%	*12*	*4%*	2	*30*	*10%*	270	272	*300*	300								
103	Central Darling Shire Council	2	*7*	*6%*	1		1		1	1%	*5*	*4%*	3	*12*	*10%*	105	108	*117*	117								
105	Brewarrina Shire Council		*23*	*7%*							*10*	*3%*		*33*	*10%*	296	296	*329*	329								
	Medians (% of LWUs basis) for 200 to 1,500 Properties			*9%*								*4%*			*13%*			*7,172*								

Table 8A: 2015-16 Total urban potable water supplied/produced

	WATER UTILITY	NON-REVENUE POTABLE WATER SUPPLIED[2] - (ML)													REVENUE WATER[1] Potable (ML) Excl Bulk	TOTAL URBAN WATER SUPPLIED Potable (ML)		TOTAL URBAN WATER PRODUCED Potable (ML)	BULK WATER EXPORTS			RECYCLED WATER (ML)				
		REAL LOSS[4] (Leakage)			APPARENT LOSS + UNBILLED WATER							TOTAL NON-REVENUE WATER (Real Loss + Apparent Loss + Unbilled)				Revenue + Non-revenue water			W14			NON URBAN			TOTAL
					Apparent Loss			Unbilled[2]	Apparent Loss + Unbilled Water										Potable	Non Potable	Recycled	Agricultural	Environ-mental	On-site	Mngd Aquifer Recharge	URBAN + NON URBAN
		Reported	Adopted		Reported			Reported	Reported	Adopted		Reported	Adopted		Adopted	Reported	Adopted	Adopted								
		(1)	See note 5 (2)	% of Total Potable (2)/(19) (3)	Illegal Use (4)	Under-registr'n of meters (5)	Total (4)+(5) (6)	Fire Fighting, Mains Flushing (9)	Col(6) + Col(9) (10)	% of Total Potable (10)/(19) (11)	See note 5 (12)	% of Total Potable (12)/(19) (13)	(1) + (10) (14)	(2) + (12) (15) W10.1	% of Total Potable (15)/(19) (16)	(See Table 8 Col (7)) (17) W8.1+W9.1	Col(14) + Col(17) (18)	Col (15) + Col(17) (19) W11.1	Col(19) + Col(20a) - W5.1 (19a) W11.3	W14=W14.1+W14.2+W15			(21) W22	(22) W23	(23) W24	(24) W25.1	(24) W26
																			(20a) W14.1	(20b) W14.2	(20c) W15					
LWUs without Water Supply																										
9	Wagga Wagga (NO WS)																					267	5,135	31		5,679
30A	Hawkesbury																					135				142
69	Temora																									61
72	Bland																									270
77	Junee																									104
78	Blayney																									301
95	Weddin																									
99	Coolamon																							75		75
102	Lockhart																									2
Median All LWUs (% of LWUs basis)		*Real Loss (leakage)*	*8%*											*Non-revenue Water*	*11%*											
Median All LWUs (Statewide basis)			*6%*												10%											
Total for all LWUs														37,000		230,000	266,000	262,000	21,000	2,000	0	15,100	7,100	1,600	0	35,500

Notes:

1. Revenue water supplied (potable) = Billed, Authorised water supplied (metered and unmetered).
2. Non-Revenue water supplied (potable) = Real Losses + Apparent Losses + Unbilled Water
   Real Loss is Leakage; Apparent Loss is under registration of customer meters and illegal use; Unbilled Water is authorised unbilled consumption for firefighting and mains flushing.
3. Real Losses (Leakage) in column (2) above are the same as those shown in column (8) of Table 8. They relate only to Total Urban Water Supplied (potable) and exclude bulk water exports.
4. Total Urban Water Supplied (Revenue Water (potable) plus Non-Revenue Water Supplied (potable)) in column (19) above is the same as that shown in column (10) of Table 8.
5. Minimum Losses: The minimum adopted in this report for Real Loss (Leakage) is 6% of the Total Urban Water Supplied (potable) and the minimum adopted for (Apparent Loss plus Unbilled Water) is 4%, unless the utility has provided evidence for the adoption of a lower Leakage (eg. a reservoir drop test, detailed waste metering or night flow analysis (see Table 10)).
   This results in a minimum Non-Revenue Water of 10% of Urban Water Supplied (potable). Therefore, for those utilities reporting Non-Revenue Water of less than 10% (col (14)), the Non-Revenue Water has been increased to 10% of the Urban Water Supplied (col 15) (shown in italics bold), unless the LWU has provided evidence of a lower value of Leakage under Note 6 below.
   In such a case, the adopted value for Non-Revenue Water is the reported Leakage plus 4%.
6. Real Losses (Leakage): As described in Note 5 above, a minimum of 6% of the Total Urban Water Supplied (potable) has been adopted for Leakage.
   Therefore, unless corroborated by evidence (eg. a reservoir drop test, detailed waste metering or night flow analysis (see Table 10)),
   reported Leakage of less than 6% (column (8)) has been increased to 6% (shown in italics bold).
7. Water Loss Management Programs: As shown in Table 10, 59 of the 84 reticulating local water utilities have recently carried out a water loss management program.

Table 8B: 2015-16 water supplied from source catchments in regional NSW

SOURCE CATCHMENT	POTABLE URBAN WATER SUPPLIED (ML)									RECYCLED WATER		Non-Potable Urban Water Supplied	Total Urban Water Supplied	BULK	WATER SOURCE (ML)					
	Residential	Commercial	Industrial	Rural	Institutional	Public Parks & Gardens	Unbilled Water	Non-Revenue Water	Potable Urban Water Supplied	For Urban Water Supply	For Non-urban Water Supply		Excluding BULK Exports Including Recycled	Bulk Water Exports	Surface Water	Ground Water	Desalination	Recycling	Bulk Purchases	Bulk Recycled Water Purchased
									= SUM (1) to (9)			(Excluding Bulk Exports & Recycled)	=(10)+(11)+(12)		W1	W2	W3.1	W4	W5	W6
	(1)	(2)	(3)	(4)	(5)	(7)	(8)	(9)	(10)	(11)	(11b)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
Bega	1,800	429	81	25	195	39	52	702	3,323	377	24	58	3,758		1,830	1,400		377		
Bellinger	569	445					28	212	1,254				1,254	8	137	1,100				
Castlereagh/Macquarie	17,510	4,490	2,780	382	1,370	1,210	188	4,916	32,846	2,050	3,071	3,880	38,776	2,950	32,700	7,300		2,050		
Clarence	7,160	1,880	317	544	114	183	327	1,388	11,913	747	789	63	12,723		10,760	3		747	61	
Clyde	2,190	473	6	12	144	37	17	572	3,451	173	22		3,624		3,310	128		173		
Darling	3,670	587	1,110	20	240	76		636	6,339	669		3,730	10,738	1,220	8,680	75		669	6,340	
Gwydir	4,680	663	340	49	126	446	140	929	7,373	401	263	45	7,819	25	1,920	3,200		401	2,360	
Hastings	4,360	1,040	37	34	241	48	29	635	6,424	257	83	228	6,909		6,090			257		
Hawkesbury (Country Towns only)	14,500	3,000	642	153	987	124	46	2,107	21,558	186	1,918	56	21,800	131	17,070	083		189	5,900	
Hunter (Country Towns only)	3,940	1,140	660	26	273	255	22	1,157	7,473	952	205	1,020	9,445		7,840	318		952		
Lachlan	6,610	1,980	394	523	362	358	1,454	3,226	14,907	965	320	2,690	18,562	597	12,070	3,310		965	547	
Macleay	3,360	690	448	439	515	102	141	1,205	6,900	84	12	63	7,047	27	3,190	3,500		84		
Manning	5,150	1,560	470		169	89	179	1,492	9,109	459	485		9,568		8,380	552		459		
Moonie/Macintyre	615	154	2	2	33	5	1	90	902	51			953	61	957	37		51	10	
Murray	10,750	1,860	1,090	178	803	879	71	1,954	17,585	686	2,716	2,400	20,671	418	18,000	208		686	524	
Murrumbidgee	27,510	5,370	1,940	1,720	1,440	1,880	1,979	6,886	48,725	845	6,104	3,400	52,970	9,490	15,000	21,400		1,170	26,900	
Nambucca	824	344	49	25	66	2	8	175	1,493		49		1,493			1,560				
Namoi	8,760	3,160	1,640	319	431	783	72	2,333	17,498	147	4,864	554	18,199	55	9,580	7,110		147		
Shoalhaven	6,665	2,101	1,056	721	263	34	74	1,586	12,500	315	1,236	1,640	14,455		12,690			315	83	
Snowy	648	217	94	35	61	14		119	1,187			54	1,241	3	1,240	15		31		
Tuggerah Lake	11,950	2,850	347	2	298	85		1,132	16,665			55	16,720	182	16,250			808	465	
Tweed/Richmond	12,130	3,740	1,360	971	393	92	126	3,205	22,017	1,370	572		23,387	9,580	22,990			1,370	9,580	
Totals	155,000	38,200	14,900	6,200	8,500	6,700	5,000	36,700	271,000	10,700	22,700	19,900	302,000	24,700	211,000	51,300	0	12,000	53,000	0

Note:
For water utilities which did not report their residential volume of water supplied together with commercial and/or industrial volume of water supplied, the percentages tabulated in *Table 8* were applied to their total potable urban water supplied (column 10) and the volume of water supplied for each category summed for each catchment to obtain the above values.

Table 8C: 2015-16 water conservation initiatives

	WATER UTILITY	CUSTOMER FOCUSSED MEASURES					BUSINESS FOCUSSED		OTHER MEASURES					WATER SUPPLIED				
		Customer Education Program	Retrofit Program	Rebates for Water Efficient Appliances	Rebates for Water Tanks	Max Rainwater Tank Rebate	Effluent Reuse	Water Loss Management Program	Other Demand Management Measures	Full Pay-For-Use Pricing?	Water Usage Charge per kL		Residential Revenue from Usage Charges	Average Annual Residential Water Supplied	Total Urban Water Supplied	Total Non Revenue Water	Real Losses (Leakage)	
		Yes/No	Yes/No	Yes/No	Yes/No	$	Yes/No	Yes/No		(Yes/No)	Step 1 (c/kL)	Step 2 (c/kL)	(%)	(kL/property)	(ML)	(ML)	(ML)	(L/d/ connection)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(9)	(11a)	(12)	(13)	(14) F4	(15) W12	(16) W11	(17) W10.1	(18)	(19) A10
											2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16
11	Albury City	Yes	Yes	No	No		Yes	Yes	Waterwise program, water conservation strategy, separate metering (new & existing multi-unit developments), monitoring programs & customer surveys, free water audits (non-residential), review of conservation initiatives, grey water reuse guidelines, rainwater tank guidelines.	Yes	139	234	76	223	8,236	805	483	60
111	Armidale Regional	Yes	No	No	No		Yes	No	water saving tips on website, giveaway shower timers and trigger nozzles.	Yes	247	328	72	207	3,608	435	346	90
24	Ballina (Reticulator)	Yes	Yes	Yes	Yes	1500	Yes	Yes	Voluntary permanent water saving measures, water saving tips on Council's website.	Yes	214	322	65	168	4,123	821	741	160
100	Balranald (Dual Supply)	No	No	No	No		No	No		Yes	97	160	60	304	1,000	30	18	60
21	Bathurst Regional	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	189	284	79	233	7,855	708	402	70
23	Bega Valley (Unfiltered)	Yes	No	No	No		Yes	Yes		Yes	275		64	135	3,706	702	227	50
47	Bellingen (Unfiltered)	Yes	No	No	No		No	Yes	Member of the Savewater! Alliance.	Yes	171	257	78	155	1,226	212	121	70
53	Berrigan (Dual Supply)	Yes	No	No	No		Yes	Yes	Permanent water saving rules.	Yes	94		41	272	3,068	134	120	100
72	Bland (No WS)						Yes	Yes							270			
78	Blayney (No WS)						Yes	Yes							301			
89	Bogan	Yes	Yes	No	No		Yes	Yes	Member of the Savewater! Alliance.	Yes	187		59	419	731	140	79	200
87	Bourke (Dual Supply)	Yes	No		No		No	No	Member of the Savewater! Alliance, waterwise program with local schools.	Yes	216		78	281	1,669	41	35	80
105	Brewarrina (Dual Supply)	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, installation of water meters in residential properties, water saving tips on Council's website, smart irrigation system on sporting fields.	Yes	190		74	658	879	33	23	110
27	Byron (Reticulator)	Yes	Yes	Yes	Yes	2170	Yes	Yes	Pressure reduction	Yes	247	370	71	169	3,036	383	336	90
91	Cabonne	Yes	Yes	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	190	450	61	155	353	43	35	80
92	Carrathool (Groundwater)	Yes	No	No	No		No	Yes	Tips/suggestions in Council monthly newsletter.	Yes	93		50*	446	1,315	185	108	270
112	Central Coast	Yes	No	No	Yes	500	Yes	Yes	Mandatory rain water tanks for new houses and extensions, major water user audits, promoting effluent reuse schemes, main replacement program, water saving tips on Council's website	Yes	229		67	154	29,027	1,924	1,358	30
103	Central Darling (Dual Supply)	No	No	No	No		No	Yes	Water saving tips on Council's website.	Yes	350		81	181	387	12	7	30
40	Central Tablelands (No Sge)	Yes	No	No	No		No	No	Water Saving Tips on Website through membership of Savewater! Alliance and link to their website	Yes	255		71*	196	1,888	319	244	110
14	Clarence Valley	Yes	Yes	Yes	Yes	1100	Yes	Yes	School waterwise program, water saving tips on Council's website.	Yes	237	356	76*	158	5,788	777	324	40
67	Cobar	Yes	No	No	No		No	Yes	Member of the Savewater! Alliance.	Yes	215	320	77	324	1,226	92	55	60
66	Cobar WB (Bulk Supplier) (No Sg	No	Yes	No	No		No	No							2,290			
10	Coffs Harbour	Yes	Yes	Yes	No		Yes	Yes	Rebate for water audits, separate metering of new and existing multi-unit developments, review of conservation measures, new for old showerhead replacement, showerhead and dual flush toilet rebates, Specialised Schools Education Program (Licenced by Water Corp), member of the Savewater! Alliance, water saving tips on Council's website.	Yes	271	407	76*	167	6,182	572	436	50
99	Coolamon (No WS)						Yes	Yes										
75	Coonamble (Groundwater)	No	Yes	No	No		Yes	No		Yes	80	120	71*	584	1,182	118	71	60
115	Cootamundra-Gundagai (Reticula	No	Yes	No	No		Yes	Yes		Yes	199		59	153	1,264	83	66	60
39	Cowra	Yes	Yes	No	No		No	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	305		78*	225	3,410	1,455	250	120
122	Dubbo Regional	Yes	No	No	No		Yes	No	Water saving tips on Council's website.	Yes	194		71	322	10,521	1,026	616	90
54	Edward River	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	90	130	62	553	2,704	270	162	120
26	Essential Energy	Yes	No	No	No		Yes	Yes	Rebates for dual flush toilets and specified garden products, water saving tips on Council's website.	Yes	177		57	233	5,707	423	318	80
15	Eurobodalla	Yes	Yes	Yes	Yes	1500	Yes	Yes	Member of the Savewater! Alliance, integrated water cycle management study, WaterSmart Business Program, commercial water audits and financial incentives, dual flush toilet rebates, water usage calculator, water saving tips on Council's website, meter replacement program.	Yes	352		58	117	3,610	572	344	50
114	Federation	No	No	No	No		Yes	No	AMR installed. Water saving tips on Council's website.	Yes	155	240	82	277	3,097	459	428	220
12	Fish River WS (Bulk Supplier) (No	No	No	No	No		No	No							3,747	1,351	1,351	

Table 8C: 2015-16 water conservation initiatives

	WATER UTILITY	CUSTOMER FOCUSSED MEASURES					BUSINESS FOCUSSED		OTHER MEASURES					WATER SUPPLIED				
		Customer Education Program	Retrofit Program	Rebates for Water Efficient Appliances	Rebates for Water Tanks	Max Rainwater Tank Rebate	Effluent Reuse	Water Loss Management Program	Other Demand Management Measures	Full Pay-For-Use Pricing?	Water Usage Charge per kL		Residential Revenue from Usage Charges	Average Annual Residential Water Supplied	Total Urban Water Supplied	Total Non Revenue Water	Real Losses (Leakage)	
		Yes/No	Yes/No	Yes/No	Yes/No	$	Yes/No	Yes/No		(Yes/No)	Step 1 (c/kL)	Step 2 (c/kL)	(%)	(kL/property)	(ML)	(ML)	(ML)	(L/d/ connection)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(9)	(11a)	(12)	(13)	(14) F4	(15) W12	(16) W11	(17) W10.1	(18)	(19) A10
											2015/16	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*
51	Forbes	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website, free garden mulch.	Yes	114		79	408	2,678	471	369	280
84	Gilgandra (Groundwater)	No	No	No	No		Yes	Yes	Member of the Savewater! Alliance & Lower Macquarie Water Utilities Alliance.	Yes	109		71	549	918	87	68	140
60	Glen Innes Severn	Yes	No	No	No		Yes	Yes	Water saving tips on Council's website.	Yes	225	340	53	145	552	55	43	40
28B	Goldenfields (Bulk Supplier) (No S						No	No							440	46	26	
28A	Goldenfields (Reticulator) (No Sg	Yes	No	No	No		No	Yes	Inclusion of meter reading information for customers to do overnight leakage meter readings inserted in water accounts. Also included on the website.	Yes	224		78	277	6,051	593	356	90
20	Goulburn Mulwaree	Yes	Yes	Yes	No		Yes	Yes	Showerhead and dual flush toilet rebates.	Yes	280	378	73*	162	3,271	277	154	40
80	Greater Hume	Yes	No	No	No		Yes	Yes	Water saving tips on Council's website.	Yes	170	255	62*	264	706	110	71	100
30	Griffith	Yes	Yes	Yes	No		Yes	Yes	Water saving tips on Council's website, rebates for 4 star toilets and 3 star shower roses.	Yes	69	135	83*	562	7,322	642	377	110
44	Gunnedah (Groundwater)	No	Yes	No	No		Yes	Yes	Member of Save Water Alliance	Yes	112	168	75	408	2,886	230	115	80
81	Gwydir	Yes	No	No	No		Yes	Yes		Yes	125	195	49	294	811	171	70	110
30A	Hawkesbury (No WS)						Yes	Yes							7			
86	Hay (Dual Supply)	Yes	No	No	No		No	Yes		Yes	112	168	54	139	1,009	99	95	210
116	Hilltops (Reticulator)	Yes	No	No	No		Yes	Yes	Member of the Savewater Alliance & Water saving tips on Council's website	Yes	297		63	171	1,802	160	112	40
37	Inverell	No	No	No	No		No	No		Yes	145	170	48	186	1,926	216	116	50
77	Junee (No WS)						Yes	Yes							104			
25	Kempsey (Groundwater)	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, reviewing Demand Management Policy, website links to water saving tips, bus shelter posters, themed drink bottles	Yes	230	332	56	149	3,685	816	396	90
70	Kyogle	Yes	Yes	No	Yes	670	Yes	No	Member of the Savewater! Alliance	Yes	158	200	43	137	428	39	23	30
59	Lachlan	Yes	No	No	No		Yes	Yes		Yes	235	355	83	719	2,633	372	323	350
48	Leeton	Yes	No	No	No		Yes	Yes	Separate metering of new multi-unit developments, converting town parks to raw water, restricting all new residential meters to 20mm.	Yes	96	140	66	424	2,665	300	240	150
22	Lismore (Reticulator)	Yes	Yes	No	No		Yes	No	Water Saving Tips on Council's website, information on rainwater tanks, educational centre	Yes	341		68	155	3,085	305	191	40
31	Lithgow	Yes		Yes	Yes	300	No	No	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	311	467	78	160	1,702	170	102	30
61	Liverpool Plains	Yes	No	No	No		No	Yes	Member of the Smart Water	Yes	131	213	39	205	899	130	97	100
102	Lockhart (No WS)						Yes	Yes							2			
5	MidCoast	Yes	Yes	Yes	Yes	1500	Yes	Yes	Water saving tips on Council's website and in customer newslatters.	Yes	315	352	69	139	9,394	1,492	946	70
32	Mid Western Regional	Yes	No	No	No		Yes	Yes	Water saving tips on Council website	Yes	291		80	185	2,257	306	152	50
38	Moree Plains (Groundwater)	Yes	No	No	No		Yes	Yes		Yes	158	205	82*	691	4,012	433	288	160
117	Murray River (Dual Supply)	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	97		43	152	1,982	99	75	50
118	Murrumbidgee (Groundwater)	No	No	No	No		Yes	No	Rainwater tank guidelines, encouraging retrofit program.	Yes	42	63	62*	687	1,240	85	51	100
41	Muswellbrook	Yes	No	No	No		Yes	Yes	water saving tips on Council's website. Continued application of 2 tier billing system.	Yes	169	253	71*	254	3,012	234	154	70
34	Nambucca (Groundwater)	No	No	Yes	Yes	1500	Yes	Yes	Rainwater tank rebates, water saving tips on Council's website.	Yes	283		78	139	1,485	175	155	70
46	Narrabri (Groundwater)	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	92		55	316	2,999	908	456	280
63	Narrandera (Groundwater)	No	No	No	No		Yes	No	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	105		65*	501	2,185	820	135	150
62	Narromine (Groundwater)	Yes	No	No	No		Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	120		73	423	1,154	113	80	100
83	Oberon (Reticulator)	Yes	No	No	No		No	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	288		73	152	713	97	49	100
19	Orange	Yes	Yes	Yes	Yes	650	Yes	Yes	Showerhead replacement program, Rainwater Tank Rebates, Orange Water Security website, Savewater Alliance	Yes	227	340	64	173	6,610	534	410	60
36	Parkes	Yes	No	No	No		Yes	Yes	Water efficiency information on website.	Yes	185	325	81	277	4,993	485	332	140
7	Port Macquarie-Hastings (Unfilter	Yes	No	No	No		Yes	Yes	Water Saving tips on Councils website, encourage separate water meters for multi unit developments.	Yes	275	550	70	158	6,876	635	458	40

Table 8C: 2015-16 water conservation initiatives

	WATER UTILITY	CUSTOMER FOCUSSED MEASURES					BUSINESS FOCUSSED		OTHER MEASURES					WATER SUPPLIED				
		Customer Education Program	Retrofit Program	Rebates for Water Efficient Appliances	Rebates for Water Tanks	Max Rainwater Tank Rebate	Effluent Reuse	Water Loss Management Program	Other Demand Management Measures	Full Pay-For-Use Pricing?	Water Usage Charge per kL		Residential Revenue from Usage Charges	Average Annual Residential Water Supplied	Total Urban Water Supplied	Total Non Revenue Water	Real Losses (Leakage)	
		Yes/No	Yes/No	Yes/No	Yes/No	$	Yes/No	Yes/No		(Yes/No)	Step 1 (c/kL)	Step 2 (c/kL)	(%)	(kL/property)	(ML)	(ML)	(ML)	(L/d/ connection)
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(9)	(11a)	(12)	(13)	(14) F4	(15) W12	(16) W11	(17) W10.1	(18)	(19) A10
											2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16
119	Queanbeyan-Palerang (Reticulate	Yes	Yes	Yes	Yes	1100	Yes	No	Subsidised garden mulch, free water audits, free home tune-up, free AAA shower rose, free dual flush toilet, subsidies for commercial properties.	Yes	372		71*	163	4,776	723	575	110
33	Richmond Valley	Yes	Yes	Yes	Yes		Yes	Yes	Rebates for water efficient showerheads and dual flush toilets, water saving tips on Council's website, voluntary permanent water saving measures.	Yes	212	322	74	150	2,811	316	249	100
8	Riverina (Groundwater) (No Sge)	Yes	No	No	No		No	Yes	Community awareness at regional and local expo's, school education, WTP site visits, council's website, fact sheets, customers newsletters (with bills)	Yes	140	210	76	333	16,859	2,634	1,204	120
4	Rous (Bulk Supplier) (No Sge)	Yes	No	Yes	Yes	2170	No	No	School Grants, Schools Education Programmes, Blue and Green Business Programme, Community Engagement Programmes						1,101	334	66	
3	Shoalhaven	Yes	Yes	No	Yes	500	Yes	Yes	Monitoring demand, participation in National Water Week (Competitions, Treatment Plant Tours, Tapstar show, Community display), Marketing & Education activities at Local Community Events, water saving tips on Council's website.	Yes	170		76	150	14,381	1,586	1,263	70
35	Singleton	Yes	Yes	Yes	Yes	450	Yes	No	Member of the Savewater! Alliance, rebates for rainwater tanks, WaterWise Education Program, WaterWise Compost Gardens, water saving tips on Council's website, 75% to 25% Split Billing - User Pays for Usage.	Yes	155	265	75*	258	3,771	275	165	60
120	Snowy Monaro (Unfiltered)	Yes	No	No	No		Yes	No	Member of the Savewater! Alliance, DCP rainwater tanks and dual flush toilets required in new residential developments, water saving tips on Council's website.	Yes	236	359	47*	142	2,459	230	138	50
121	Snowy Valleys	Yes	No	No	No		Yes	No		Yes	216		77*	202	1,988	230	181	80
13	Tamworth Regional	Yes	Yes	Yes	Yes	500	Yes	Yes	Member of the WEGS, separate metering for new multi-unit developments, water management plan for premises, Residential Water Saver Rebate Scheme, water saving tips on Council's website.	Yes	148	222	60	251	10,150	993	695	90
69	Temora (No WS)						Yes	Yes							61			
68	Tenterfield	No	No	No	No		Yes	Yes		Yes	296	444	51*	139	400	35	21	30
6	Tweed	Yes	No	Yes	No		Yes	Yes	Target 170L/p/d for residential customers	Yes	285	425	75	165	9,104	1,046	848	90
45	Upper Hunter	Yes	Yes	No	Yes	400	Yes	Yes	Member of the Savewater! Alliance, water saving tips on Council's website.	Yes	205	328	72*	254	2,636	648	607	360
73	Upper Lachlan	Yes	No	No	No		Yes	No	Member of the Savewater! Alliance.	Yes	282	374	54	141	388	68	23	30
85	Uralla	No	No	No	No		No	Yes	Member of the Namoi Water Alliance	Yes	225		59	189	341	38	10	20
9	Wagga Wagga (No WS)						Yes	Yes	Water saving tips on Council's website.						246			
98	Walcha	Yes	Yes	No	No		No	Yes	Walcha Council has continued with the "Water Matters" initiative showing the community how they are performing in terms of average litres of water consumed per person per day, and whether it meets the current water restriction target. This "Water Matters" is presented in the local paper called the Apsley Advocate which is delivered free to all households.	Yes	286	416	63*	133	202	25	22	60
79	Walgett (Dual Supply)	No	No	No	No		No	No	Water use restrictions throughout the year.	Yes	78	109	34*	302	1,186	72	43	60
96	Warren (Dual Supply)	Yes	No	No	No		No	Yes	Member of the Savewater! Alliance.	Yes	108	163	50	302	793	93	35	100
55	Warrumbungle	No	No	No	No		Yes	No	water restrictions.	Yes	195		54	225	1,229	310	280	240
95	Weddin (No WS)						No	Yes										
74	Wentworth (Dual Supply)	No	No	No	No		No	No		Yes	120	280	54	180	1,740	68	41	20
16	Wingecarribee	Yes	No	No	No		Yes	Yes	Water Wise Initiatives on Council's website.	Yes	178	267	71	186	5,086	868	767	120
56	Yass Valley	Yes	Yes	No	Yes	200	No	Yes	higher access charges for larger services, higher usage charges, free supply of water restrictors, rebate for rainwater tanks, compulsory rainwater tanks for new dwellings and encourages retrofitting.	Yes	300		57	186	948	235	101	90
	Total LWUs	*66*	*27*	*17*	*18*	*17*	*68*	*69*		*84*	*Median*		*Median*	*Median*	*Median*			*Median*
	Percent "Yes" (Retail)	80%	33%	21%	22%	18%	80%	75%	Percent "Yes"	100%	230		73	162	6,900			70

Table 8D: 2015-16 Components of commercial, industrial, rural and municipal water supplied

	WATER UTILITY	COMMERCIAL		INDUSTRIAL										RURAL		MUNICIPAL (Institutional, Public Parks and Gardens)				VOLUME OF WATER SUPPLIED NON-RES (Commercial, Industrial, Rural, Municipal)			TOTAL VOLUME of WATER PRODUCED	RECYCLED	URBAN STORMWATER
		Potable (ML)	Non-potable (ML)	Potable (ML)					Non-potable (ML)					Potable (ML)	Non-potable (ML)	Potable (ML)		Non-potable (ML)		Potable (ML)	Non-potable (ML)	Volume Supplied (ML)	Potable (ML)	Commercial, Industrial, Municipal (ML)	Total Volume Used (ML)
		(55)	(63a)	Total Industrial Potable	Mining (56a)	Manufacturing (56b)	Electricity Generation (56c)	Other (56d)	Total Industrial Non Potable	Mining (63b)	Manufacturing (63c)	Electricity Generation (63d)	Other (63e)	(57)	(63f)	Excluding Parks & Gardens (58)	Parks & Gardens (60)	Excluding Parks & Gardens (63g)	Parks & Gardens (63h)	W9.1 Sum(55), (56a to d), (57), (58), (60)	W9.2 Sum (63a to h) (63i)	W9 =W9.1+W9.2+ W21	W11.3 =W11.1+W14.1 - W5.1	W21 (151)	W28.4 (63j)
	Sydney Water																			528,620			528,620	9,899	
	Hunter Water																			68,459			68,459	4,106	0
LWUs with > 10,000 Properties																									
112	Central Coast	4,845	4	590		452		138						3	1	507	144	1	13	6,089	19	6,630	28,086	522	30
3	Shoalhaven	2,101	6	1,056		1,056			1,604		1,604			721	28	263	34			4,175	1,638	6,128	12,426	315	
4	Rous (Bulk Supplier) (NO SGE)	27												740						767		767	10,681		
5	MidCoast	1,563		470				470								169	89			2,291		2,750	8,935	459	
6	Tweed	1,539		203		132		71						122		228	81			2,173		2,840	8,431	667	
7	Port Macquarie-Hastings (Unfiltered)	1,036	18	37				37						34		241	48	206	4	1,396	228	1,880	6,391	256	
8	Riverina (Groundwater) (NO SGE)	1,636		872		836	36							969		661	498			4,636		4,636	16,806		
11	Albury	603	185	266				266	5				5	36		666	418	1		1,989	191	2,180	8,462		
10	Coffs Harbour	1,049		87				87							10	93	75			1,304	10	1,686	5,800	372	
13	Tamworth Regional	1,323		1,595				1,595						248	71	207	538			3,911	71	4,129	9,932	147	
14	Clarence Valley	790		203				203						517	53		102			1,612	53	2,002	5,398	337	
122	Dubbo Regional	1,504		131				131						70		816	815	36	223	3,336	259	3,595	10,262		
119	Queanbeyan-Palerang (Reticulator)	396		126				126						1		22	213			758		788	516	30	
15	Eurobodalla	473		6		6								12		144	37			672		845	3,437	173	
12	Fish River WS (Unfiltered, Bulk Supplier) (N								2,278			2,278		118						118	2,278	2,396	2,235		
16	Wingecarribee	543												142		245	18			948		948	5,086		
19	Orange	655		76		76								130		257	78			1,196		3,247	4,559	2,051	
21	Bathurst Regional	1,175		2,178		2,178			118				118	25	25	98		26	43	3,476	212	3,688	7,631		
23	Bega Valley (Unfiltered)	429		81				81						25	58	195	39			769	58	1,204	3,271	377	
24	Ballina (Reticulator)	370		19		16	1	2						41		91	10			531		992	143	461	
22	Lismore (Reticulator)	697												58		74				829		829	11		
25	Kempsey (Groundwater)	414		243		243								356		124	13			1,150		1,234	3,626	84	
27	Byron (Reticulator)	733																		733		975	387	242	
20	Goulburn Mulwaree	251	15	304				304						10		533	47			1,145	15	1,339	3,081	179	
26	Essential Energy	273	36	1,064	1,064				380	380					108	225	25	52	217	1,587	793	3,049	4,245	669	
28A	Goldenfields (Reticulator) (NO SGE)	678	8	6				6						2,221	72	308	150	4	8	3,363	92	3,455	114		
28B	Goldenfields (Bulk Supplier) (NO SGE)																					0	8,979		
	Totals for LWUs with >10,000 Properties	*25,103*	*272*	*9,613*	1,064	4,995	37	3,517	*4,385*	380	1,604	2,278	123	*6,599*	*426*	*6,167*	*3,472*	*326*	*508*	*50,954*	*5,917*	*64,212*	*178,931*	*7,341*	*30*
LWUs with 4,001 - 10,000 Properties																									
111	Armidale Regional	266	8	245				245						96	61	457	99			1,163	69	1,232	3,483		
120	Snowy Monaro (Unfiltered)	421	22	182				182						67		118	28			816	22	889	2,308	51	
30	Griffith	1,231	166											405		222	194	194	194	2,052	554	2,606	6,607		
31	Lithgow	216		95		14		81												311		311	915		
32	Mid-Western Regional	228	3	46	10	21		15						4		136	64	6	82	478	91	569	2,165		
116	Hilltops (Reticulator)	172		91		89		2								102	72			437		623	0	186	
33	Richmond Valley	374		1,136		1,136								10			1			1,521		1,522	2,232	1	

Table 8D: 2015-16 Components of commercial, industrial, rural and municipal water supplied

	WATER UTILITY	COMMERCIAL		INDUSTRIAL									RURAL		MUNICIPAL (Institutional, Public Parks and Gardens)				VOLUME OF WATER SUPPLIED NON-RES (Commercial, Industrial, Rural, Municipal)			TOTAL VOLUME of WATER PRODUCED	RECYCLED	URBAN STORMWATER
		Potable (ML)	Non-potable (ML)	Potable (ML)					Non-potable (ML)				Potable (ML)	Non-potable (ML)	Potable (ML)		Non-potable (ML)		Potable (ML)	Non-potable (ML)	Volume Supplied (ML)	Potable (ML)	Commercial, Industrial, Municipal (ML)	Total Volume Used (ML)
		(55)	(63a)	Total Industrial Potable	Mining (56a)	Manufacturing (56b)	Electricity Generation (56c)	Other (56d)	Total Industrial Non Potable	Mining (63b)	Manufacturing (63c)	Electricity Generation (63d)	Other (63e)	(57)	(63f)	Excluding Parks & Gardens (58)	Parks & Gardens (60)	Excluding Parks & Gardens (63g)	Parks & Gardens (63h)	W9.1 Sum(55), (56a to d), (57), (58), (60)	W9.2 Sum (63a to h) (63i)	W9 =W9.1+W9.2+ W21	W11.3 =W11.1+W14.1 - W5.1	W21 (151)	W28.4 (63j)
35	Singleton	601		131	131				936	936				25	86	159	21			937	1,022	1,959	2,748		
34	Nambucca (Groundwater)	344		49		32		17						25		66	2			486		486	1,485		
36	Parkes	208							2,259	2,259				119		138	174			639	2,259	3,053	2,341	155	
41	Muswellbrook	306		25	23			2								104	114			549		1,412	2,149	863	
37	Inverell	200		300				300						10			200			710		710	1,926		
121	Snowy Valleys	158	44	226		14		212						54		54	30			522	44	751	1,754	185	
114	Federation	285		781		627		154						2	16	29	117			1,214	16	1,230	3,081		
40	Central Tablelands (NO SGE)	204		212	8	191		13						285		43	27			771		771	1,951		
39	Cowra	656		164		164										23	49			892		892	3,199		
38	Moree Plains (Groundwater)	350												15			63		13	428	13	833	3,611	392	
117	Murray River (Dual Supply)	225	105						5				5	47		11	9		142	292	252	544	884		
45	Upper Hunter	229		504		504								1		10	120			864		953	2,547	89	
46	Narrabri (Groundwater)	855														6	14			875		875	2,999		
44	Gunnedah (Groundwater)	741												55		196	151			1,143		1,143	2,886		
47	Bellingen (Unfiltered)	445																		445		445	1,234		
48	Leeton	178		188				188						59		57	368			850		850	2,665		
	Totals for 4,000 - 10,000 Properties	*8,893*	*348*	*4,375*	*172*	*2,792*	*0*	*1,411*	*3,200*	*3195*	*0*	*0*	*5*	*1,279*	*163*	*1,931*	*1,917*	*200*	*431*	*18,395*	*4,342*	*24,659*	*55,170*	*1,922*	*0*
	LWUs with 1,501 - 4,000 Properties																								
115	Cootamundra-Gundagai (Reticulator)	98		48				48						2		48	7			203		634	41	431	
51	Forbes	474	10	6				6							16	107	28	125	69	615	220	835	2,838		
53	Berrigan (Dual Supply)	190	170											25		80	90		280	385	450	1,464	1,369	629	30
54	Edward River	455															231			686		686	2,704		
55	Warrumbungle	271	1																12	271	13	284	1,200		
56	Yass Valley	126															25			151		151	950		
60	Glen Innes Severn	90														31	1			122		122	552		
59	Lachlan	357	2											119		28	44		1	548	3	667	2,415	116	
61	Liverpool Plains	77		46				46						16		22	80		15	241	15	256	939		
74	Wentworth (Dual Supply)	222														2				224		224	683		
67	Cobar	75	46	43	33			10						20		13	51		107	202	153	355	917		
66	Cobar WB (NO SGE)								1,942	1,942											1,942	1,942	0		
62	Narromine (Groundwater)	161	3											1		24	44		10	230	13	243	1,141		
63	Narrandera (Groundwater)	150												15		5	300			470		470	2,185		
68	Tenterfield	64		2				2						2		2	4			74		125	400	51	
73	Upper Lachlan	25														15	30			70		70	388		
79	Walgett (Dual Supply)	160	113																	160	113	273	718		
70	Kyogle	43		27				27						27		21	6			124		162	329	38	
80	Greater Hume	57												57		6	8			128		185	235	57	
75	Coonamble (Groundwater)	48														20	140			208		208	1,188		
	Totals for 1,500 - 4,000 Properties	*3,143*	*345*	*172*	*33*	*0*	*0*	*139*	*1,942*	*1942*	*0*	*0*	*0*	*284*	*16*	*424*	*1,089*	*125*	*494*	*5,112*	*2,922*	*9,356*	*21,192*	*1,322*	*30*

Table 8D: 2015-16 Components of commercial, industrial, rural and municipal water supplied

		COMMERCIAL		INDUSTRIAL										RURAL		MUNICIPAL (Institutional, Public Parks and Gardens)				VOLUME OF WATER SUPPLIED NON-RES (Commercial, Industrial, Rural, Municipal)			TOTAL VOLUME of WATER PRODUCED	RECYCLED	URBAN STORMWATER
				Potable (ML)					Non-potable (ML)							Potable (ML)		Non-potable (ML)							
	WATER UTILITY	Potable (ML)	Non-potable (ML)	Total Industrial Potable	Mining	Manufacturing	Electricity Generation	Other	Total Industrial Non Potable	Mining	Manufacturing	Electricity Generation	Other	Potable (ML)	Non-potable (ML)	Excluding Parks & Gardens	Parks & Gardens	Excluding Parks & Gardens	Parks & Gardens	Potable (ML)	Non-potable (ML)	Volume Supplied (ML)	Potable (ML)	Commercial, Industrial, Municipal (ML)	Total Volume Used (ML)
		(55)	(63a)		(56a)	(56b)	(56c)	(56d)		(63b)	(63c)	(63d)	(63e)	(57)	(63f)	(58)	(60)	(63g)	(63h)	W9.1 Sum(55), (56a to d), (57), (58), (60)	W9.2 Sum (63a to h) (63i)	W9 =W9.1+W9.2+ W21	W11.3 =W11.1+W14.1 - W5.1	W21 (151)	W28.4 (63j)
LWUs with 200 - 1,500 Properties																									
81	Gwydir	45												8		50	153			256		265	802	9	
85	Uralla	25														1	14			40		40	341		
87	Bourke (Dual Supply)	7	150												20				100	7	270	277	373		
84	Gilgandra (Groundwater)	170	18	18	6	12											10			198	18	216	880		
86	Hay (Dual Supply)	27	44						5				5		29	17		116	66	44	260	304	303		
83	Oberon (Reticulator)	25		335		205		130						34		20	20			434		434	698		
118	Murrumbidgee (Groundwater)	25							10				10			1			3	26	13	39	845		
92	Carrathool (Groundwater)	39	6						233				233	11	325		3		80	53	644	697	600		
89	Bogan	155														3	34		4	192	4	196	727		
91	Cabonne	40	8	5		5														45	8	115	241	62	
96	Warren (Dual Supply)	69	55																40	69	95	164	419		
98	Walcha	53												3	3	9	6		2	71	5	76	199		
100	Balranald (Dual Supply)	42	50																100	42	150	192	300		
103	Central Darling (Dual Supply)	10	24												1				5	10	30	40	117		
105	Brewarrina (Dual Supply)	25	150																	25	150	175	329		
	Totals for 200 - 1,500 Properties	*757*	*505*	*358*	6	222	0	130	*248*	0	0	0	248	*56*	*378*	*101*	*240*	*116*	*400*	*1,512*	*1,647*	*3,230*	*7,174*	*71*	*0*
LWUs without Water Supply																									
9	Wagga Wagga (NO WS)																							246	
30A	Hawkesbury																							7	
69	Temora																							61	
72	Bland																							270	
77	Junee																							104	
78	Blayney																							301	
95	Weddin																								
99	Coolamon																								
102	Lockhart																							2	
	Totals for LWUs without water supply																							*991*	
	Totals for all LWUs	37,900	1,470	14,500	1,280	8,010	37	5,200	9,800	5,500	1,600	2,280	380	7,400	980	8,600	6,700	770	1,830	75,000	14,800	90,000	262,000	11,600	60

Table 9: Water supply - utility characteristics

	WATER UTILITY	ASSESSMENTS - CONNECTIONS - POPULATION																ASSETS											WORKFORCE						
		Total No of Assessments			No. of Service Connections	Connected Properties - Total		Connected Properties - Residential			New Residential Dwellings Connected			Population				Headworks Transfer Mains (raw water)	Trunk + Retic Mains	Properties Served per km of Main	Water Treatment Works	Dams	Bores	Pumping Stations	Pumping Stations / 100km of Main	Capital Expenditure (Assets, Renewals, Plant/Equip)		Capital Works Grants	Total Work Force	% Undergoing Training	Out-sourcing	Injuries	Days Lost		
					(Single + Mult + Non-res Dwellings + Fire) To Calc Losses	(Ratio of Connected Properties to Assessments)	Connected Properties (18) x (19)	(Ratio of Res Assessments to Total Assessments)	(Ratio of Res Connected Props to Res Assessments)	Connected Residential Properties (18)x(21)x(22)	(%)			(Permanent)			(Peak) (% of Permanent)	(km)	(km)	(20) / (25a)	(Providing Full Treatment) (No.)	(No.)	(No.)	(No.)	(30) / [(25a) / 100]	$/prop	Total $M	($'000)	Employees /1000 properties	(2 or more days per year)	(% of Maintenance Cost)	No.	Total (%)	Due to Injuries No.	(%)
		(18)			(18a)	(19)	(20) C4	(21)	(22)	(22a) C2	(22b)			(23) C1			(24)	(25)	(25a) A2	(26) A3	(27) A1	(28)	(29)	(30)	(30a)	(31) F28	(31a) F14	(31b) F26	(32)	(34)	(37)	(38)	(39)	(40a)	(40b)
		2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16
	Sydney Water						1,899,000			1,774,000				4,755,000	4,833,000	4,994,000			22,461	85	9					117	222	0							
	Hunter Water						242,000			228,000				550,000	558,000	564,000			4,985	49	6					125	30	373							
	Water NSW																									16								
LWUs with > 10,000 Properties																																		
112	Central Coast	131,100	133,330	135,020	119,220	1.02	137,800	0.95	1.02	131,425	0.2	0.7	0.8	318,900	322,300	323,800		121	2,163	64	3	3	34	48	2	161	22.2	0	1.0	79	4	7	6	262	1
3	Shoalhaven	51,070	51,260	51,610	47,930	0.92	47,480	0.93	0.93	44,391	1.2	1.5	1.2	89,400	89,100	89,600	390	38	1,534	31	4	4		26	2	279	13.2	0	1.5	100	0	1	4	169	1
4	Rous (Bulk Supplier) (NO SGE)	42,650	42,940	43,150		0.96	41,420	0.89	0.96	36,748	0.0	0.0	0.1	105,700	107,100	108,300		22	411		2	2	3	4			11.3	0		100	0	0	2	0	0
5	MidCoast	40,170	40,330	41,400	36,640	0.96	39,740	0.93	0.96	37,047	0.9	0.9	1.0	82,500	82,800	82,800	120	21	1,384	29	5	2	15	27	2	212	8.4	415	1.6	100		2	3	38	0
6	Tweed	34,990	35,430	35,810	25,690	0.91	32,580	0.95	0.93	31,610	0.8	1.6	1.3	78,400	79,000	79,900	130	3	718	45	3	1		27	4	97	3.2	0	2.0	18	6	2	5	11	0
7	Port Macquarie-Hastings (Unfiltered)	31,680	32,020	31,980	28,930	0.95	30,380	0.91	0.95	27,668	1.3	1.7	2.0	80,500	80,800	81,000	130		819	37	4	2	1	19	2	205	6.2	0	1.9	34	2	11	0	8	0
8	Riverina (Groundwater) (NO SGE)	30,780	31,120	33,030	28,600	0.96	31,710	0.91	0.96	28,765	1.2	1.0	1.1	70,700	71,600	76,500	110	61	1,714	19	17	3	30	37	2	1,104	35.0	0	2.9	68	0	1	3	1	0
11	Albury City	22,910	24,960	24,630	22,890	1.03	25,360	0.93	1.03	23,507	1.7	1.7	2.2	49,700	50,900	51,600	110	7	604	42	1			21	3	108	2.7	0	0.7	55	74	1	0	5	0
10	Coffs Harbour	26,480	26,660	26,660	24,640	0.94	25,060	0.94	0.94	23,455	1.3	1.6	1.7	70,200	71,300	72,300	120	24	662	38	2	2		7	1	48	1.2	0	1.8	89	0	1	5	11	0
13	Tamworth Regional	21,420	21,680	22,010	22,010	1.00	22,010	0.91	1.00	19,997	2.3	2.0	1.7	44,600	45,300	45,900	190	116	653	34	5	2	14	21	3	184	4.0	58	1.7	45	0	5	7	67	1
14	Clarence Valley	21,840	21,890	21,970	21,090	0.98	21,530	0.88	0.98	18,998	0.6	0.5	1.0	45,700	45,700	45,700	130	104	1,132	19	0	1		20	2	156	3.4	0	1.4	66	0	7	1	45	1
122	Dubbo Regional	18,420	18,820	18,980	18,670	1.09	20,700	0.88	1.09	18,302	1.0	2.0	1.4	41,300	41,800	41,900	110	13	634	33	4		9	16	3	317	6.6	0	0.8	38		19	5	2	0
119	Queanbeyan-Palerang (Reticulator)	18,260	19,210	20,400	14,930	1.02	20,820	0.95	1.03	19,857	7.5	1.6	1.8	43,600	44,500	45,600	100	8	411	51	4	2	5	9	2	59	1.2	0	0.9	54	5	0	0	0	0
15	Eurobodalla	20,820	20,830	20,980	18,670	0.94	19,720	0.95	0.94	18,776	0.9	0.9	1.0	31,200	31,400	31,600	320	36	884	22	2	1	5	14	2	149	2.9	8	1.6	100	0	1	5	13	0
12	Fish River WS (Unfiltered, Bulk Supplie	25,000	25,000	25,000		0.94	23,500	0.88	0.94	20,680	0.1	0.0		62,000	62,000	62,000		10	241		1	1		3						100					
16	Wingecarribee	19,960	20,150	20,370	18,080	0.95	19,350	0.90	0.96	17,602	1.5	1.4	1.2	40,200	40,600	41,100	120	7	673	29	2	2		15	2	112	2.2	0	1.6	13	31	2	3	6	0
19	Orange	17,190	17,520	18,020	17,930	1.00	18,020	0.91	1.00	16,387	1.7	1.4	2.5	40,900	41,400	41,800	100	49	640	28	1	3	6	8	1	546	9.8	1,623	1.2	100		0	0	0	0
21	Bathurst Regional	14,830	14,970	15,310	15,040	1.05	16,070	0.90	1.07	14,747	1.3	1.1	2.0	34,000	34,300	34,600	170	15	405	40	1	2	2	11	3	328	5.3	0	1.4	70	4	1	3	0	0
23	Bega Valley (Unfiltered)	14,680	14,650	14,710	12,500	0.98	14,420	0.92	0.98	13,300	0.9	0.8	0.7	24,400	24,600	24,800	160	94	620	23	0	3	11	18	3	260	3.7	0	1.6	100	2	0	5	15	0
24	Ballina (Reticulator)	15,250	15,440	16,390	13,000	0.93	15,240	0.90	0.93	13,718	1.2	1.6	1.2	37,500	37,800	38,300	130	0	348	44	1	1	2	4	1	108	1.6	0	0.8	50	21	0	15	0	0
22	Lismore (Reticulator)	13,620	13,640	13,350	13,460	1.05	14,020	0.89	1.06	12,550	0.4	0.4	0.5	30,800	31,600	32,000	110		344	41	0	1		5	1	316	4.4	0	1.1	100	5	4	0	0	0
25	Kempsey (Groundwater)	11,990	12,030	11,990	11,720	1.04	12,470	0.89	1.03	10,981	0.7	0.8	0.8	25,000	26,800	26,100	170	224	493	25	4	1	37	22	4	321	4.0	0	1.8	100	24	1	4	3	0
27	Byron (Reticulator)	11,620	11,690	11,930	10,190	0.96	11,450	0.87	0.96	9,936	0.9	2.6	1.6	20,700	20,700	20,700	170	1	269	43	1			8	3	243	2.8	0	0.8	100	1	0	0	0	0
20	Goulburn Mulwaree	10,080	10,860	10,960	10,170	1.03	11,290	0.91	1.03	10,219	3.0	0.9	1.8	22,500	22,500	22,500	100	94	292	39	2	2		9	3	235	2.7	0	1.6	93	27	4	3	65	2
26	Essential Energy	10,520	10,530	10,530	10,400	1.00	10,530	0.91	1.00	9,605		0.0	0.0	19,000	19,000	18,900	100	156	382	28	3	3		11	3	1,217	12.8	0	6.1	16	0	0	0	0	0
28A	Goldenfields (Reticulator) (NO SGE)	10,850	10,940	10,940	10,990	0.94	10,290	0.69	0.94	7,145	0.8	1.0	0.8	22,900	22,900	22,900	100		1,846	6	1			37	2	348	3.6	0	4.9	90	3	2	4	5	0
28B	Goldenfields (Bulk Supplier) (NO SGE)	20,900	20,520	21,040		0.94	19,780	0.74	0.94	14,647				37,600	37,600	37,600			315		3		6				1.5	0							
	Medians (% of LWUs basis excl bulk suppliers) or Totals for >10,000 Properties					*Total 639,000*				*Total 628,000*						*Total 1,390,000*		*Total 1,224*	*Total 19,624*	*Median 33*	*Total 76*	*Total 44*	*Total 180*	*Total 447*		*Median 224*	*Total 176.1*		*Median 1.6*			*Median 3.5*			
LWUs with 4,001 - 10,000 Properties																																		
111	Armidale Regional	10,080	10,260	10,390	10,330	0.98	10,140	0.92	0.98	9,370	1.1	1.1	1.7	23,700	23,900	24,000	110	72	351	29	2	5		12	3	188	1.9	0	2.0	32	5	0	4	0	0
120	Snowy Monaro (Unfiltered)	8,460	8,510	8,560	7,680	1.16	9,930	0.89	1.17	8,877	0.2	0.2	0.5	13,600	13,700	13,400	210	6	302	33	10		5	25	8	372	3.7	2,616	2.0	85	30	3	3	17	0
30	Griffith	10,470	9,970	9,830	9,830	0.85	8,360	0.84	0.84	6,962	0.8	0.9	1.5	25,600	25,400	25,700	100	1	555	15	2			4	1	130	1.1	0	2.5	90	0	1	1	31	1
31	Lithgow	8,240	8,240	8,270	8,120	0.98	8,100	0.94	0.98	7,609	0.7	0.4	0.5	20,900	16,700	16,700	100	5	117	69	1	1		4	3	88	0.7	117	1.5	100		5	7	205	7
32	Mid-Western Regional	7,780	7,970	8,070	7,860	1.02	8,230	0.90	1.03	7,483	2.4	2.0	1.8	16,700	17,200	17,300	140	20	274	30	3	1	28	13	5	105	0.9	0	1.3	100	1	7	6	25	1
116	Hilltops (Reticulator)	7,250	7,250	7,250	6,920	1.01	7,320	0.81	1.01	5,947	0.7	0.8	0.7	14,700	14,700	14,900	140	1	370	20	1	1	2	7	2	67	0.5	0	1.4	85	1	0	3	0	0
33	Richmond Valley	7,370	7,370	7,440	*6,850*	0.97	7,210	0.90	0.97	6,490				16,700	17,000	17,200	100	2	188	38	1			7	4	134	1.0	0	1.8	100	5				
35	Singleton	7,100	7,110	7,100	7,170	0.95	6,740	0.88	0.95	5,959	1.3	1.3	0.9	19,200	19,200	19,200	100	25	247	27	1		14	9	4	652	4.4	0	1.5	87	30	0	4	0	0
34	Nambucca (Groundwater)	6,680	6,690	6,760	6,130	0.95	6,420	0.92	0.95	5,907	1.2	0.9	1.0	14,400	14,500	14,500	130	1	212	30	1	1	10	2	1	61	0.4	32	1.6	40	8	0	2	0	0

Table 9: Water supply - utility characteristics

	WATER UTILITY	ASSESSMENTS - CONNECTIONS - POPULATION																ASSETS											WORKFORCE						
		Total No of Assessments			No. of Service Connections	Connected Properties - Total		Connected Properties - Residential			New Residential Dwellings Connected			Population				Headworks Transfer Mains (raw water)	Trunk + Retic Mains	Properties Served per km of Main	Water Treatment Works	Dams	Bores	Pumping Stations	Pumping Stations / 100km of Main	Capital Expenditure (Assets, Renewals, Plant/Equip)		Capital Works Grants	Total Work Force	% Undergoing Training	Out-sourcing	Injuries	Days Lost		
					(Single + Mult + Non-res Dwellings + Fire) To Calc Losses	(Ratio of Connected Properties to Assessments)	Connected Properties (18) x (19)	(Ratio of Res Assessments to Total Assessments)	(Ratio of Res Connected Props to Res Assessments)	Connected Residential Properties (18)x(21)x(22)	(%)			(Permanent)			(Peak) (% of Permanent)	(km)	(km)	(20) / (25a)	(Providing Full Treatment) (No.)	(No.)	(No.)	(No.)	(No.)	(30) / [(25a) / 100]	$/prop	Total $M	($'000)	Employees /1000 properties	(2 or more days per year)	(% of Maintenance Cost)	No.	Total (%)	Due to Injuries No.	(%)
		(18)			(18a)	(19)	(20) C4	(21)	(22)	(22a) C2	(22b)			(23) C1			(24)	(25)	(25a) A2	(26) A3	(27) A1	(28)	(29)	(30)	(30a)	(31) F28	(31a) F14	(31b) F26	(32)	(34)	(37)	(38)	(39)	(40a)	(40b)
		2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16
36	Parkes	6,250	6,280	6,310	6,620	0.95	5,990	0.86	0.95	5,143	1.0	0.5	0.6	14,000	12,400	12,900	150	70	462	13	1	2	7	12	3	1,807	10.8	7,752	2.2	69	2	50	1	40	1
41	Muswellbrook	6,130	6,160	6,190	5,980	0.94	5,840	0.91	0.96	5,388	4.2	2.6	0.3	13,200	13,300	13,500		5	165	35	3		3	9	5	288	1.7	0	1.8	60	6	3	16	0	0
37	Inverell	5,610	5,890	5,910	5,900	0.98	5,790	0.92	0.99	5,385	1.0	0.9	0.9	12,000	12,000	12,000	110		259	22	2		1	7	3	177	1.0	0	1.4	38	5	0	0	0	0
121	Snowy Valleys	5,920	5,970	5,950	5,950	0.95	5,660	0.88	0.95	4,953	0.7	1.0	0.5	10,300	10,300	10,300	130	33	253	22	6	2	5	14	6	91	0.5	50	1.2	100	0	0	0	0	0
114	Federation	5,860	5,860	6,050	5,440	0.93	5,630	0.90	0.93	5,083	1.1	1.3	1.8	10,100	9,700	9,700	190	2	182	31	3		2	8	4	331	1.9	0	1.9	95	10	2	3	7	0
40	Central Tablelands (NO SGE)	5,730	5,780	5,820	5,880	0.95	5,520	0.74	0.95	4,077	0.7	0.9	0.7	13,100	14,000	14,400	110	24	561	10	2	1	7	27	5	151	0.8	0	3.9	33	1	0	2	0	0
39	Cowra	5,540	5,600	5,600	5,630	0.95	5,320	0.81	0.95	4,292	0.7	0.7	0.7	8,600	8,600	8,600	120	2	482	11	2		2	19	4	145	0.8	0	0.6	100	0	0	2	0	0
38	Moree Plains (Groundwater)	4,710	4,740	4,740	4,820	0.97	4,600	0.87	0.96	3,944	0.0	0.8	0.1	10,600	10,600	10,600	100	9	163	28	4	2	14	4	2	261	1.2	242	2.4	100	10	2	10	16	1
117	Murray River (Dual Supply)	4,740	4,740	4,860	4,420	0.95	4,620	0.86	0.95	3,957	1.2	2.1	2.2	9,300	9,400	9,400	200	7	341	14	7	1	1	17	5	142	0.7	43	1.8	88	0	0	0	0	0
45	Upper Hunter	4,780	4,780	5,000	4,640	0.92	4,600	0.88	0.93	4,072	3.4	1.5	1.4	12,100	13,200	9,900	110	20	182	25	1	1	9	13	7	443	2.0	190	2.2	65	5	8	4	17	1
46	Narrabri (Groundwater)	4,590	4,480	4,540	4,540	0.98	4,450	0.86	0.98	3,850	0.7	0.4	0.3	12,200	12,100	12,700	100		157	28	0		10	11	7	461	2.1	1,075	2.0	100	0	9	5	96	5
44	Gunnedah (Groundwater)	4,370	4,270	3,960	4,000	1.02	4,040	0.92	1.02	3,709	1.2	1.0	1.3	10,000	10,100	10,200	120	42	184	22	4		17	21	11	200	0.8	0	2.7	82	5	1	2	5	0
47	Bellingen (Unfiltered)	4,300	4,300	4,320	4,430	0.95	4,100	0.90	0.95	3,672	0.4	0.2	0.5	9,600	9,900	9,900	110	4	167	25	2	1	4	6	4	64	0.3	0	1.0	100	5	0	3	0	0
48	Leeton	4,250	4,440	4,490	4,400	0.92	4,130	0.87	0.92	3,577	0.6	0.8	1.1	9,000	9,000	9,000	100	2	192	22	3	3		6	3	19	0.1	0	1.7	57	0	1	4	60	4
	Medians (% of LWUs basis) or totals 4,001 to 10,000 Properties			*Total 147,000*			*Total 143,000*									*Total 316,000*		*Total 353*	*Total 6,366*	*Median 25*	*Total 62*	*Total 22*	*Total 141*	*Total 257*		*Median 151*	*Total 39.1*		*Median 1.8*			*Median 3.4*			
	LWUs with 1,501 - 4,000 Properties																																	
115	Cootamundra-Gundagai (Reticulator)	4,180	4,200	4,250	3,210	0.95	4,040	0.88	0.95	3,558	0.6	0.4	0.4	8,000	8,000	8,000	150	0	106	38	1			2	2	17	0.1	0	1.5	67	10	0	4	0	0
51	Forbes	3,650	3,680	3,710	3,660	1.01	3,750	0.90	1.01	3,365	0.4	0.6	0.8	7,900	7,900	8,000	110	10	139	27	1		2	6	4	302	1.1	972	1.9	100	12	1	12	120	7
53	Berrigan (Dual Supply)	3,590	3,620	3,640	3,300	0.98	3,570	0.88	0.98	3,126	1.0	1.1	1.0	6,800	6,900	7,100	110	4	208	17	4	4		8	4	55	0.2	0	1.5	36	20	1	1	3	0
54	Edward River	3,660	3,650	3,780	3,780	0.96	3,630	0.88	0.95	3,162	0.2	0.1	0.2	6,600	6,600	6,600	170	1	149	24	1		1	5	3	43	0.2	0	1.4	40	3	0		0	0
55	Warrumbungle	3,340	3,350	3,350	3,240	0.99	3,310	0.85	0.97	2,752	0.2	0.4	0.3	5,900	5,900	5,900	100	14	149	22	4	1	11	8	5	93	0.3	40	3.8	100	25	1	5	36	1
56	Yass Valley	3,290	3,320	3,370	3,190	0.98	3,300	0.92	0.98	3,029	1.1	1.6	1.1	6,700	6,700	6,800	110	2	164	20	1	1	5	8	5	0	0.0	0	1.4	67	10	1	1	9	1
60	Glen Innes Severn	3,280	3,390	3,290	3,250	0.90	2,960	0.86	0.91	2,580	0.5	0.4	1.0	6,200	6,200	6,200	120	5	109	27	2	2	2	3	3	227	0.7	270	1.2	100	0	0	0	0	0
59	Lachlan	2,780	2,790	2,790	2,510	1.02	2,850	0.76	1.02	2,173	1.0		0.3	5,400	5,400	5,400	110	35	233	12	3	5	4	16	7	315	0.9	208	4.2	100	30	0	0	0	0
61	Liverpool Plains	2,850	2,820	2,620	2,600	0.98	2,570	0.97	0.98	2,498	0.7	0.4	0.2	5,900	5,900	5,900	110	16	132	19	1	1	12	13	10	1,498	3.8	4,343	2.3	100	5				
74	Wentworth (Dual Supply)	2,390	2,440	2,460	4,570	0.95	2,340	0.93	0.95	2,165		2.1	0.8	3,800	3,800	3,800	130		182	13	3			12	7	124	0.3	0	1.7	50		0	4	38	4
67	Cobar	2,380	2,380	2,380	2,400	0.95	2,260	0.85	0.95	1,926	0.4	0.5	0.2	6,000	6,000	5,400	110	3	116	19	1		1	6	5	0	0.0	14	1.8						
66	Cobar WB																	336			0	4		3				0			100	0		0	
62	Narromine (Groundwater)	2,230	2,240	2,280	2,300	0.95	2,160	0.87	0.95	1,889	0.4	0.1	0.6	5,200	5,100	5,100	130	9	76	28	2	2	9	3	4	904	2.0	1,064	1.4	100	1	1	0	3	0
63	Narrandera (Groundwater)	2,250	2,270	2,270	2,500	0.92	2,090	0.86	0.92	1,788	0.2		0.2	4,800	4,500	4,500	110	2	88	24	0		5	4	5	94	0.2	0	5.3	100	5	0	1	0	0
68	Tenterfield	2,120	2,090	2,090	2,090	0.95	1,980	0.87	0.95	1,730	1.0	0.3	0.5	3,700	3,700	3,700	100		69	29	2	1	1	4	6	351	0.7	398	2.0	100	0	0	0	0	0
73	Upper Lachlan	1,970	1,990	2,010	1,860	1.00	2,010	0.88	1.00	1,772	1.6	1.1	0.6	2,900	2,900	2,900	110	2	64	31	3	3	6	3	5	119	0.2	167	1.7		1	1	1	5	1
79	Walgett (Dual Supply)	2,280	2,280	2,280	1,960	0.85	1,930	0.83	0.85	1,611	0.4	0.1	0.1	6,500	6,500	6,800	180	9	110	18	2		7	10	9	28	0.1	1,513	3.6	71					
70	Kyogle	2,010	2,020	2,000	2,010	0.95	1,900	0.87	0.95	1,656	1.2	1.0	0.7	3,700	3,700	3,700	120	15	56	34	2	1	3	5	9	2,019	3.8	4,413	3.7	86	5	0	2	0	0
80	Greater Hume	1,940	1,960	2,000	1,930	0.95	1,900	0.82	0.95	1,555	2.5	2.4	2.2	4,800	4,900	4,900	100	0	152	13	1		2	2	1	242	0.5	0	1.3	100	50	0	3	0	0
75	Coonamble (Groundwater)	1,630	1,650	1,650	3,230	1.02	1,680	0.87	1.02	1,467	0.7	0.4	0.2	3,200	4,000	4,000	180	4	68	25	1		6	2	3	182	0.3	0	3.6	100	0	1	1	5	0
	Medians (% of LWUs basis) or totals 1,501 to 4,000 Properties			*Total 52,220*			*Total 50,230*									*Total 104,700*		*Total 467*	*Total 2,370*	*Median 24*	*Total 35*	*Total 25*	*Total 77*	*Total 123*		*Median 124*	*Total 15.3*		*Median 1.8*			*Median 1.2*			

Table 9: Water supply - utility characteristics

	WATER UTILITY	ASSESSMENTS - CONNECTIONS - POPULATION																ASSETS											WORKFORCE						
		Total No of Assessments			No. of Service Connections	Connected Properties - Total		Connected Properties - Residential			New Residential Dwellings Connected			Population				Headworks Transfer Mains (raw water)	Trunk + Retic Mains	Properties Served per km of Main	Water Treatment Works	Dams	Bores	Pumping Stations	Pumping Stations / 100km of Main	Capital Expenditure (Assets, Renewals, Plant/Equip)		Capital Works Grants	Total Work Force	% Undergoing Training	Out-sourcing	Injuries	Days Lost		
					(Single + Mult + Non-res Dwellings + Fire) To Calc Losses	(Ratio of Connected Properties to Assessments)	Connected Properties (18) x (19)	(Ratio of Res Assessments to Total Assessments)	(Ratio of Res Connected Props to Res Assessments)	Connected Residential Properties (18)x(21)x(22)	(%)			(Permanent)			(Peak) (% of Permanent)	(km)	(km)	(20) / (25a)	(Providing Full Treatment) (No.)	(No.)	(No.)	(No.)	(30) / [(25a) / 100]	$/prop	Total $M	($'000)	Employees /1000 properties	(2 or more days per year)	(% of Maintenance Cost)	No.	Total (%)	Due to Injuries No.	(%)
		(18)			(18a)	(19)	(20) C4	(21)	(22)	(22a) C2	(22b)			(23) C1			(24)	(25)	(25a) A2	(26) A3	(27) A1	(28)	(29)	(30)	(30a)	(31) F28	(31a) F14	(31b) F26	(32)	(34)	(37)	(38)	(39)	(40a)	(40b)
		2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16
LWUs with 200 - 1,500 Properties																																		
81	Gwydir	1,550	1,550	1,550	1,690	0.95	1,470	0.87	0.95	1,276	0.2	0.2	0.2	2,600	2,600	2,600	130	1	90	16	2		9	1	1	227	0.3	0	2.7	100	10	0	1	0	0
85	Uralla	1,420	1,440	1,480	1,440	1.01	1,490	0.92	1.02	1,392	0.6	0.8	0.4	2,900	2,900	2,900	110	0	62	24	2	1		2	3	20	0.0	0	1.7		7	0	10	0	0
87	Bourke (Dual Supply)	1,380	1,380	1,400	1,180	1.00	1,400	0.83	1.00	1,155	0.7	0.7	0.5	2,100	2,100	2,100	130	0	41	34	1		1	2	5	93	0.1	809	2.1	100	0	0	0	0	0
84	Gilgandra (Groundwater)	1,380	1,370	1,360	1,350	0.98	1,330	0.81	0.98	1,084		0.7	2.0	2,900	3,400	3,100	130	10	54	25	1		5	2	4	534	0.7	242	1.7	43	5	2	42	55	10
86	Hay (Dual Supply)	1,360	1,360	1,370	1,230	0.98	1,350	0.86	0.98	1,151	0.2	0.2	0.2	2,400	2,400	2,300	100	3	75	18	1			3	4	110	0.1	0	1.5	100	0	1	5	2	0
83	Oberon (Reticulator)	1,330	1,280	1,290	1,290	1.01	1,300	0.84	1.02	1,101	0.3	0.8	0.3	3,200	3,200	3,200	130	4	39	33	1					44	0.1	0	3.1	75	5	0	0	0	0
118	Murrumbidgee (Groundwater)	1,300	1,300	1,300	1,360	0.99	1,280	0.83	0.99	1,068	0.1		0.2	2,400	2,500	2,400	110	3	75	17	2		4	4	5	603	0.8	0	3.9	90	0	0	0	0	0
92	Carrathool (Groundwater)	1,350	1,280	1,230	1,110	0.95	1,170	0.69	0.95	811	0.2	0.9	1.1	2,000	2,000	2,000	150	18	463	3	0	3	9	19	4	963	1.1	0	5.1	100	15	0	1	0	0
89	Bogan	1,120	1,180	1,100	1,080	1.01	1,110	0.85	1.01	942	1.4	2.7	1.0	2,600	2,600	2,600	130	34	58	19	1			1	2	401	0.4	0	1.8	100	2	0	0	0	0
91	Cabonne	1,220	1,230	1,230	1,160	0.95	1,170	0.84	0.95	988	0.7	0.8	0.2	1,800	1,800	1,800	100	58	52	23	2	3	7	4	8	837	1.0	405	4.3	100	0	0	8	0	0
96	Warren (Dual Supply)	1,050	1,030	1,030	970	0.91	940	0.91	0.90	851		0.1	0.5	1,900	2,100	2,000	110	8	30	31	0		5	2	7	639	0.6	548	3.2	100	0	1	3	5	1
98	Walcha	910	910	910	940	1.01	920	0.83	1.01	760		0.4	0.3	1,700	1,700	1,700	110	17	57	16	1	1		3	5	130	0.1	176	2.2	100	0	0	0	0	0
100	Balranald (Dual Supply)	960	960	930	840	0.95	880	0.85	0.95	750		0.3	0.1	1,600	1,600	1,600	160	2	32	28	2			5	16	43	0.0	0	2.3	100	0	0	0	0	0
103	Central Darling (Dual Supply)	740	740	730	680	1.00	730	0.72	1.00	525	0.4		1.1	1,000	1,000	1,000	110	35	66	11	3	4	3	8	12	234	0.2	495	4.1	100	10	1	1	2	0
105	Brewarrina (Dual Supply)	570	550	550	550	0.86	470	0.88	0.86	412	0.9		1.5	1,500	1,600	1,600	130	7	42	11	2	1	2	2	5	1,264	0.6	426	4.3	100	3	0	0	0	0
	Medians (% of LWUs basis) or totals 200 to 1,500 Properties			*Total 17,460*			*Total 17,010*									*Total 32,900*		*Total 200*	*Total 1,236*	*Median 19*	*Total 21*	*Total 13*	*Total 45*	*Total 58*		*Median 234*	*Total 6.3*		*Median 2.7*					*Median 0.6*	
	Median All LWUs (% of LWUs basis)									*New res dwellings 0.8 %*						*Properties served per km of main*			*25*				*Capital Expenditure/prop*		*$185*			*1.8*						
	Median All LWUs (Statewide basis)									*1.1 %*									*31*							*$155*			*1.4*						

Totals (excluding bulk suppliers) — *WS assessments 881,000* — *Total WS Population 1.85 M* — *No. of water treatment works 164 (Note 1)* — *Total WS Capital Expenditure $238 M (including bulk suppliers)*

No. of LWUs with WS Services 84 — *WS connected properties 838,000* — *No. of WS dams 104* — *Total No. of WS employees 1440*

WS residential connected properties 781,000 — *Length of Transfer, Trunk & Retic mains (includes bulk suppliers) 32800km*

Notes: 1. In addition to these 164 water treatment works, the LWUs also have 78 chlorinators/aerators (see Appendix D1).

2. Refer also to section 4.2 on employees and employee awareness and training.

Table 10: Water supply - asset management and water resource management

	WATER UTILITY	ASSET MANAGEMENT																					WATER RESOURCE MANAGEMENT																	
		Real Losses (Leakage) (see also columns 2 and 3 of Table 8A, column 8 of Table 8 and columns 10, 13, 15 and 16 of Table 10A)								Non-Revenue Water (NRW) (Potable)			Main Breaks			Unplanned Interruptions to Supply			Rehabilitations			Renewals		Mains Maintenance Cost	Total Urban Water Supplied			Non-Potable Urban Water Supplied			% Water Recycled (from Table 8)		Peak Day to Average Day Water Supplied		Peak Week to Average Water Supplied		Average Annual Residential Water Supplied							
		(L/d per connection)			(kL/km/d)	(ILI)	Leakage Test (RDT#, WM#, NF#, Z#, L#, P) (See note 6)			See W10.1 (Col 9 of Table 8 & Col 15 of Table 8A) (L/d per connection)			(per 100km of Main)			(per '000 properties)			Mains (% of Total Length)	Service Connections (%)	Water Meters (%)	($'000 per 100km of Main)	(% of CRC)	($'000 per 100km of Main)	Potable + Non-potable + Recycled (Excluding Bulk Water Exports) (ML) (from Table 8)			For outdoor uses, industry excl agric (Excluding Recycled) (ML) (from Table 8)			(Total Vol Recycled (Urban + Ag Use)/Total Urban Water Supplied (%)		(%)		(%)		From Tables 6 & 8 [(1)÷(22a)] Potable (kL/property)			From Tables 6 & 8 [(1)+(11)+(12a)]÷(22a) Potable+Nonpotable (kL/property)		
		(41) A10			(41a) A11	(41b) A9	Type & Extent (41c)	Year (41d)	Result % (41e)	(41f)			(42) A8			(43) C17			(44)	(45)	(45a)	(46)	(47)	(48)	(49) W11			(50)			(51)		(52)		(53)		(56a) P2.1			(56) W12		
		2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16
	Sydney Water	81	74	76	5.0	1.3							30	26	26	183	179	190							541,492	528,825	538,904											206	201	201	####	201	201
	Hunter Water	82	91	104	5.0	1.5							30	29	27	304	267	310							73,725	69,749	72,402											181	168	166	181	168	166
LWUs with > 10,000 Properties																																									
112	Central Coast	80	50	30	1.7	1.0	Z5	2004	4.7	89	67	38	19	17	17	133	94	113	0.2	-	2.1	491	0.5	215	31,330	29,760	29,000	118	71	94	3	3	153	153	127	123	159	155	154	160	155	155
3	Shoalhaven	60	90	70	2.3	1.0	L15	2010	8	75	109	92	10	8	8	65	78	49	1.5	0.1	7.2	491	1.2	85	14,700	14,200	14,400	2,413	1,926	1,640	12	11	245	203	155	142	147	142	150	148	143	150
4	Rous (Bulk Supplier) (NO SGE)				0.4								12	10	8	1	1		1.0		0.6	1,612	1.4	158	1,480	1,310	1,100																
5	MidCoast	60	60	70	1.9	1.0	NF	2016		92	95	103	8	9	2	2	6		1.3	-	6.7	159	0.3	240	9,560	9,160	9,390				10	10	154	143	136	125	150	142	139	150	142	139
6	Tweed	60	60	90	3.2	1.1	L9, RDT	2011	6	102	87	88	8	4	8	50	19	37	0.3	0.4	3.9	334	0.4	153	9,770	9,170	9,100				6	8	240	203	152	121	184	178	165	184	178	165
7	Port Macquarie-Hastings (Unfiltered)	40	40	40	1.5	1.0	L6	2011		57	55	57	2	3	3	10	14	10	1.5	0.0	9.0	251	0.3	99	6,670	6,610	6,880	141	195	228	6	5	167	156	117	109	157	151	158	157	151	158
8	Riverina (Groundwater) (NO SGE)	80	90	120	1.9	1.2	Z4, L3	2011	6	146	143	228	19	7	19	63	57	53	0.5	0.1	3.9	541	2.1	57	15,790	15,620	16,900						202	178	166	151	324	311	333	324	311	333
11	Albury City	60	50	60	2.2	1.0		2006		88	79	87	10	5	4				0.7	0.1	0.1	240	0.3	66	7,880	7,630	8,240	194	218	192	31	30	244	238	217	204	232	205	223	232	205	223
10	Coffs Harbour	60	50	50	1.8	1.0	Z77, L13	2010	5	67	63	63	3	3	7	9	11	30	0.2	-	5.1	80	0.1	314	6,530	6,100	6,180	9	9	10	17	18	179	154	120	120	169	167	167	169	167	167
13	Tamworth Regional	90	70	90	2.9	3.2	Z5, L7	2011	7	130	99	124	7	14	9				0.6	0.0	2.9	395	0.7	203	10,280	7,970	10,200	140	140	71	54	40	155	196	137	173	287	188	251	287	188	251
14	Clarence Valley	110	110	40	0.8	1.0				179	198	99	13	11	12				0.3	0.1	7.8	242	0.6	134	6,550	6,280	5,790	63	47	53	3	7	145	149	133	142	161	147	158	161	147	158
122	Dubbo Regional	110	120	90	2.7	1.8				152	146	136	4	5	6	54	19	32	0.3	-	3.5	616	1.4	155	9,880	9,890	10,500	269	208	259	22	25	253	221	204	200	327	311	322	327	311	322
119	Queanbeyan-Palerang (Reticulator)	100	80	110	3.8	1.2				101	83	95	4	7	8	1	6	4		0.3	5.6	149	0.3	192	4,570	4,490	4,780	0	0		2	2	190	186	152	160	176	171	163	176	171	163
15	Eurobodalla	50	50	50	1.1	1.0	Z59	2007	8	75	77	79	13	13	13	93	120	132	0.6	-	9.6	238	0.5	110	3,610	3,520	3,610				7	5	188	308	168	168	119	114	117	119	114	117
12	Fish River WS (Unfiltered, Bulk Supplier				15.4								8	6		0	0		-		-				6,770	2,700	3,750	5,000	1,024	2,278												
16	Wingecarribee	130	60	120	3.1	1.3	Z10, L12	2010	9	140	71	123	12	5	12	73	14	57		0.2	0.7	148	0.4	165	5,450	4,540	5,090				4	5	209	194	144	150	200	178	186	200	178	186
19	Orange	60	60	60	1.8	1.0	L98	2011	9	74	101	81	9	7	9	73	51	58	-	0.2	2.8	389	0.7	88	7,140	7,310	6,610				39	31	172	179	141	142	174	170	173	174	170	173
21	Bathurst Regional	60	80	70	2.7	1.0	Z5	2007	5	95	102	121	8	7	15	2	2	4	0.2	0.3	2.6	271	0.4	326	7,030	7,020	7,860	1,049	1,074	228	53	0	240	169	193	151	227	223	233	227	225	235
23	Bega Valley (Unfiltered)	50	50	50	1.0	1.0	NF	2010	7	102	91	133	9	6	5	1	3	21	1.3	2.2	10.3	431	0.8	136	3,770	3,460	3,710	66	57	58	13	11			168	148	134	137	135	134	137	135
24	Ballina (Reticulator)	140	160	160	5.8	2.7	L7, P, RDT	2010	10	156	154	148	6	5	4	1	0	1	-	-	6.0	357	1.1	105	4,130	4,220	4,120				12	12	128	169	116	125	194	181	168	194	181	168
22	Lismore (Reticulator)	40	40	40	1.5	1.0				61	60	60	37	20	36	32	49	61	1.5	1.9	3.4	1,197	3.1		3,190	3,180	3,090				0	0	140	132			155	155	155	155	155	155
25	Kempsey (Groundwater)	100	100	90	2.2	1.6	L100	2008	11	184	166	179	10	7	5	72	124	29	0.2	0.5	5.2	527	1.0	200	3,750	3,780	3,690				2	3	156	158	127	116	157	156	149	157	156	149
27	Byron (Reticulator)	70	50	90	3.4	2.0	WM	2016	12	68	67	92	9	9	7	13	13	13	1.1	1.0	3.3	1,036	2.9	119	3,240	3,380	3,040	390	573		13	12	146	131			181	180	169	181	180	169
20	Goulburn Mulwaree	80	70	40	1.4	1.0	NF	2016	5	92	78	67	11	10	15	17	3	27	0.7	0.2	6.7	693	0.7	382	3,030	2,750	3,270	37	10	15	66	53	187	194	127	165	165	139	162	165	139	162
26	Essential Energy	90	80	80	2.3	1.4	Z18	2009		134	121	110	16	14	21				0.3	0.1	0.6	579		439	6,840	6,340	5,710	957	872	793	12	12	150	182	133	141	281	257	233	281	257	233
28A	Goldenfields (Reticulator) (NO SGE)	90	90	90	0.5	1.0		2009		164	161	158	10	13	13	77	96	100	0.7	0.4	1.8	46	0.4	46	6,220	6,180	6,050	132	134	116				251			284	272	277	287	275	280
28B	Goldenfields (Bulk Supplier) (NO SGE)				0.2								0	0	0							114	0.2	47	440	440	440														
	Medians (% of LWUs basis excl bulk suppliers) for >10,000 Properties		*65*	*70*	*2.2*	*1.0*	Note: ILI < 1.0 is meaningless & has been increased to 1.0						*9*	*9*	*8*	*36*	*44*	*32*				*373*		*153*	*6,670*	*6,280*	*6,050*				*10*	*10*					*159*	*172*	*166*	*159*	*172*	*166*
LWUs with 4,001 - 10,000 Properties																																									
111	Armidale Regional	140	100	90	2.7	1.2				153	127	118	28	13	19	125	70	59	1.1	1.5	4.9	366	0.6		3,880	3,370	3,610	75	64	69	27	23	210	186	178	169	228	195	207	235	195	207
120	Snowy Monaro (Unfiltered)	70	60	50	1.3	1.0				63	68	63	17	16	18	26	25	8	0.7	0.9	2.0	208	0.4	123	2,210	2,460	2,460	32	83	105	3	3	260	260	142	143	161	188	142	161	198	151
30	Griffith	100	110	110	1.9	1.0	L48, P	2011	3	186	208	210	12	13	16	22	24	11	0.9	0.2	13.6	122	0.4	34	7,080	7,220	7,320	711	720	715	2	3	253	287	196	209	505	545	562	525	567	585
31	Lithgow	40	30	30	2.4	1.0				64	52	58		58					0.9	-	0.5	448	0.6	317	1,880	1,520	1,700	1	1	2	0	0		329		178	186	132	160	186	132	160
32	Mid-Western Regional	70	60	50	1.5	1.0	L59	2011	7	125	116	102	8	9	4	71	14	28	1.5	0.1	6.4	285	0.7	273	2,650	2,570	2,260	73	94	92	0	2	250	238	191	182	204	185	185	204	185	185
116	Hilltops (Reticulator)	80	60	40	0.8	1.0	RDT	2011	7	107	79	60	11	16	19	19	34	45	1.6	0.6	4.3	130	0.5	139	2,740	2,350	1,800	0	0		9	11	178	228	147	215	249	171	171	249	171	171
33	Richmond Valley	100	80	100	3.6		L92	2011	7	127	106	120	2	3	3				1.1	1.2	-	466	1.0	105	3,020	2,850	2,810				15	13	155	169	105	119	166	172	150	166	172	150

Table 10: Water supply - asset management and water resource management

	WATER UTILITY	ASSET MANAGEMENT																					WATER RESOURCE MANAGEMENT																	
		Real Losses (Leakage) (see also columns 2 and 3 of Table 8A, column 8 of Table 8 and columns 10, 13, 15 and 16 of Table 10A)								Non-Revenue Water (NRW) (Potable)			Main Breaks			Unplanned Interruptions to Supply			Rehabilitations			Renewals		Mains Maintenance Cost	Total Urban Water Supplied			Non-Potable Urban Water Supplied			% Water Recycled (from Table 8)		Peak Day to Average Day Water Supplied		Peak Week to Average Water Supplied		Average Annual Residential Water Supplied					
		(L/d per connection)			(kL/km/d)	(ILI)	Leakage Test (RDT#, WM#, NF#, Z#, L#, P) (See note 6)			See W10.1 (Col 9 of Table 8 & Col 15 of Table 8A) (L/d per connection)			(per 100km of Main)			(per '000 properties)			Mains (% of Total Length)	Service Connections (%)	Water Meters (%)	($'000 per 100km of Main)	(% of CRC)	($'000 per 100km of Main)	Potable + Non-potable + Recycled (Excluding Bulk Water Exports) (ML) (from Table 8)			For outdoor uses, industry excl agric (Excluding Recycled) (ML) (from Table 8)			(Total Vol Recycled (Urban + Ag Use)/Total Urban Water Supplied (%)		(%)		(%)		From Tables 6 & 8 [(1)÷(22a)] Potable (kL/property)			From Tables 6 & 8 [(1)+(11)+(12a)]÷(22a) Potable+Nonpotable (kL/property)		
		(41) A10			(41a) A11	(41b) A9	Type & Extent (41c)	Year (41d)	Result % (41e)	(41f)			(42) A8			(43) C17			(44)	(45)	(45a)	(46)	(47)	(48)	(49) W11			(50)			(51)		(52)		(53)		(56a) P2.1			(56) W12		
		2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16
35	Singleton	120	70	60	1.8	1.0				146	106	112	20	9	9	48	24	32	1.2	0.8	2.2	233	1.0	56	3,010	3,740	3,770	78	1,118	1,023	0	0	225	182	187	176	297	251	258	297	251	258
34	Nambucca (Groundwater)	70	70	70	2.0	1.4	NF	2016	10	75	78	75	8	15	5					-	4.7	62	0.1	188	1,450	1,450	1,490				5	3	201	197	129	144	135	134	139	135	134	139
36	Parkes	170	160	140	2.0	1.5	NF	2012	13	212	250	222	20	34	11	2	2	4	0.9	0.2	3.7	1,423	3.5	47	4,520	4,680	4,990	1,963	1,940	2,287	4	3	227	205	183	150	247	276	277	251	280	283
41	Muswellbrook	60	60	70	2.6	1.4	L12	2010	6	111	99	110	33	38	26	2	2	3	0.6	0.2	2.6	764	1.4	141	3,250	2,990	3,010				30	29	214	238			287	245	254	287	245	254
37	Inverell	50	50	50	1.2	1.0				103	99	102	3	2	2	2	2	1	0.4	0.1	0.0	372	0.9	142	1,780	1,810	1,930				0	0	223	210	145	136	183	180	186	183	180	186
121	Snowy Valleys	70	70	80	2.0	1.0				114	97	111	10	2	4			3	0.8	0.3	9.4	123	0.3	71	1,920	1,840	1,990	35	50	49	6	11	160	146	126	119	213	203	202	220	203	203
114	Federation	150	120	220	6.4	6.1				355	156	223	7	12	14	46	46	44	1.6	0.1	94.2	242	0.7	263	3,990	3,120	3,100	776	0	16	6	1	212	237	195	184	261	287	277	261	287	277
40	Central Tablelands (NO SGE)	70	60	110	1.2	1.0				103	96	158	10	8	8	50	41	39	-	2.9	2.1	89	0.4	73	1,730	1,710	1,890						277	251	277		192	187	196	192	187	196
39	Cowra	120	110	120	1.4	1.3		2011	7	546	512	749	22	15	2			15	0.6	0.4	1.7	80	0.3	110	2,860	3,010	3,410	67	116	96	0	0	202	176	157		223	241	225	239	268	248
38	Moree Plains (Groundwater)	160	160	160	4.8	4.6	L95	2011	3	260	258	258	52	49	49	613		22	0.6	0.2	0.9	231	0.5	445	3,280	3,340	4,010	51	51	34	24	16	173	142			608	538	691	618	548	696
117	Murray River (Dual Supply)	50	80	50	0.6	1.0		2016	7	67	88	59	5	7	6	7	9	6	0.3	0.9	1.1	148	0.9	68	1,940	2,050	1,980	854	911	988	4	7	199	185	166	159	162	160	152	360	351	338
45	Upper Hunter	90	240	360	9.1	4.8	Z52	2009	6	148	266	386	21	30	41	25	27	21	0.5	1.0	16.9	1,119	2.6	219	2,390	2,700	2,640				5	11	156	129			400	306	254	400	306	254
46	Narrabri (Groundwater)	290	200	280	8.0	7.2	Z18	2011		295	376	559	118	35	57	4	3	5	3.2	0.6	1.0	1,166	3.1	216	2,880	2,610	3,000				17	13	196	158			378	308	316	378	308	316
44	Gunnedah (Groundwater)	70	80	80	1.7	1.0	L63	2010	4	146	156	156	6	8	21	7	3	10	2.2	2.5	9.5	299	0.8	341	2,970	3,100	2,890				19	19	186	147			400	427	408	400	427	408
47	Bellingen (Unfiltered)	190	70	70	2.0	1.0	VAD	2010	10	242	100	142	5	7	5	2	2	2	0.6	0.8	0.4	81	0.2	57	1,360	1,140	1,230	16	34		0	0	168	149	134	136	163	152	155	163	152	155
48	Leeton	150	150	150	3.4	3.6	L93	2011	9	205	203	199	9	10	13	14	15	16	0.5	1.2	2.4	25	0.1	328	2,580	2,700	2,670				0	0	196	213	168	180	434	431	424	434	431	424
	Medians (% of LWUs basis) for 4,000 to 10,000 Properties			*80*	*2*	*1*	Note: ILI < 1.0 is meaningless & has been increased to 1.0						*12*	*12*	*12*	*26*	*26*	*13*				*233*		*140*	*2,740*	*2,700*	*2,670*				*8*	*3*					*183*	*240*	*207*	*201*	*270*	*248*
	LWUs with 1,501 - 4,000 Properties																																								
115	Cootamundra-Gundagai (Reticulator)	80	80	60	1.7	1.0	NF	2010	8	122	123	56	34	91	92	16	15	21		1.4	2.4	25	0.1	194	1,790	1,510	1,260	0	0		48	59	143	183	136	163	250	241	153	250	241	153
51	Forbes	90	90	280	7.3	7.1	NF	2016	15	172	166	344	21	20	25	106	115	120	0.7	0.5	3.1	96	0.2	491	2,410	2,350	2,680	322	292	220	0	9.4	293	263	254	223	359	352	408	359	352	408
53	Berrigan (Dual Supply)	90	100	100	1.6	2.4	L76	2011	9	96	100	103	14	17	19	14	21	14	1.0	0.7	1.8	95	0.4		2,550	2,550	3,070	842	704	1,040	23	20	292	293	217	190	237	241	272	427	399	461
54	Edward River	110	110	120	3.0	3.0	L100	2011	6	149	146	204	58	69	77	14	25	20	0.7	-	0.7	74	0.2		1,930	1,880	2,700				3	2	333	224	322	198	476	474	553	476	474	553
55	Warrumbungle	230	210	240	5.1	3.6				227	209	257	22	13	42	1	1	14	0.7	0.4	1.4	116	0.3	197	1,150	1,010	1,230	4	10	29	6	7	219	213	151	148	224	197	225	226	201	231
56	Yass Valley	80	90	90	1.7	2.0	RDT94	2011	6	173	176	195	7	8	8	50	54	53		0.4	6.0			24	880	840	950				0	0.0	259	270	142	176	173	161	186	173	161	186
60	Glen Innes Severn	30	30	40	1.1	1.0	L81, P	2010	7	52	45	51	5	2	0	34	13	14	1.8	1.0	2.5	200	0.6	194	550	510	550				0	0.0	291	132	146		147	131	145	147	131	145
59	Lachlan	260	140	350	3.8	4.4	RDT	2011	13	301	205	358			7			16	0.9	0.2	3.8	188	0.4	177	2,000	2,030	2,630	31	29	34	6	4.4		171		129	541	517	719	554	531	734
61	Liverpool Plains	100	100	100	2.0	1.4	L13	2011	11	129	124	139	14	23	14	48	46	54	0.8	1.0	1.1	257	0.6	77	890	870	900	9	9	15	0	0.0	303	253	186	151	193	190	205	193	190	205
74	Wentworth (Dual Supply)	10	20	20	0.6					36	50	80	11	8	5	132		1	-	-	0.4	27	0.1	104	1,010	1,280	1,740	704	869	1,059	0	0.0					74	99	180	407	504	669
67	Cobar	80	70	60	1.3			2008	6	131	115	112	21			3			0.9	0.3	3.1			165	1,240	950	1,230	156		309	0	0.0		338		211	382	342	324	464	342	405
66	Cobar WB																								2,670	340	2,290	2,374	37	1,985												
62	Narromine (Groundwater)	100	160	100	2.9	2.1	L79	2011	6	171	205	143	20	19	16			0		0.8	3.9	1,908	7.5	261	1,410	1,290	1,150	95	73	13	0	0.0	329	357		357	493	452	423	493	452	423
63	Narrandera (Groundwater)	160	180	150	4.2	1.0				1035	303	1075	23	23	24	72	19	17	-	0.7	95.7	138	0.5	332	2,140	2,180	2,190				0			200		165	499	678	501	499	678	501
68	Tenterfield	30	30	30	0.8	1.0	L85	2010	6	50	48	48	16	3	19	13	13	10	1.4	0.8	8.9	948	1.5		430	400	400				11	12.8	341	232	179	149	150	143	139	150	143	139
73	Upper Lachlan	30	30	30	1.0	1.1				95	94	93	6	6	9	2	2	5	3.1	0.5	1.0	152	0.3	28	380	390	390				13	13	192	192	137	137	137	143	141	137	143	141
79	Walgett (Dual Supply)	200	200	60	1.1	1.6				525	314	102		12	45		1			1.4	0.1			84	3,410	3,260	1,190	1,000	1,000	468	0	0.0		226		202	720	720	302	1,341	1,341	522
70	Kyogle	30	30	30	1.1	1.0				57	60	56	9	4	7		9	12	-	0.4	-			241	610	490	430				16	9	190	197	109	126	143	145	137	143	145	137
80	Greater Hume	100	90	100	1.3	1.0	L73, RDT	2008	11	167	149	159	13	9	5	11	7	9		0.6	2.6	147	0.7	82	650	650	710				9	8.0	200	242		216	235	244	264	235	244	264
75	Coonamble (Groundwater)	90	120	60	2.9	2.2				150	201	192	9	13	16	3	5	3	1.5	1.7	1.7	449	1.4	146	910	1,230	*1,180*				5	5	195	202	158	164	399	603	584	399	603	584
	Medians (% of LWUs basis) for 1,500 to 4,000 Properties			*90*	*1.7*	*1.6*	Note: ILI < 1.0 is meaningless & has been increased to 1.0						*9*	*8*	*16*	*11*	*8*	*14*				*147*		*171*	*1,010*	*1,010*	*1,190*				*9*	*4*					*192*	*221*	*264*	*231*	*238*	*405*

Table 10: Water supply - asset management and water resource management

	WATER UTILITY	ASSET MANAGEMENT																					WATER RESOURCE MANAGEMENT																	
		Real Losses (Leakage) (see also columns 2 and 3 of Table 8A, column 8 of Table 8 and columns 10, 13, 15 and 16 of Table 10A)								Non-Revenue Water (NRW) (Potable)			Main Breaks			Unplanned Interruptions to Supply			Rehabilitations			Renewals		Mains Maintenance Cost	Total Urban Water Supplied			Non-Potable Urban Water Supplied			% Water Recycled (from Table 8)		Peak Day to Average Day Water Supplied		Peak Week to Average Water Supplied		Average Annual Residential Water Supplied					
		(L/d per connection)			(kL/km/d)	(ILI)	Leakage Test (RDT#, WM#, NF#, Z#, L#, P) (See note 6)			See W10.1 (Col 9 of Table 8 & Col 15 of Table 8A) (L/d per connection)			(per 100km of Main)			(per '000 properties)			Mains (% of Total Length)	Service Connections (%)	Water Meters (%)	($'000 per 100km of Main)	(% of CRC)	($'000 per 100km of Main)	Potable + Non-potable + Recycled (Excluding Bulk Water Exports) (ML) (from Table 8)			For outdoor uses, industry excl agric (Excluding Recycled) (ML) (from Table 8)			(Total Vol Recycled (Urban + Ag Use)/Total Urban Water Supplied (%)		(%)		(%)		From Tables 6 & 8 [(1)÷(22a)] Potable (kL/property)			From Tables 6 & 8 [(1)+(11)+(12a)]÷(22a) Potable+Nonpotable (kL/property)		
		(41) A10			(41a) A11	(41b) A9	Type & Extent (41c)	Year (41d)	Result % (41e)	(41f)			(42) A8			(43) C17			(44)	(45)	(45a)	(46)	(47)	(48)	(49) W11			(50)			(51)		(52)		(53)		(56a) P2.1			(56) W12		
		2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16
LWUs with 200 - 1,500 Properties																																								
81	Gwydir	100	80	110	2.1	2.0	L95	2011	6	218	179	319	30	18	12	3	3	2		1.4	2.0	371	1.6	189	1,020	820	810				2	1	287	273	218	195	393	320	294	393	320	294
85	Uralla	20	20	20	0.4	1.0	L100	2011	3	69	57	70	8	10	13	35	38	60	-	0.3	2.7	19	0.1	144	340	320	340				0	0	345	322	164	184	199	185	189	199	185	189
87	Bourke (Dual Supply)	90	80	80	2.3	2.3				73	81	80	80	159	110	684	684	674	39.0	0.4	4.3			434	1,600	1,760	1,670	1,235	1,382	1,296	0	0	196	196			284	284	281	1,114	1,243	1157
84	Gilgandra (Groundwater)	140	140	140	3.5	4.8		2000		191	187	179	21	20	33	8	8	10	1.9	4.1	1.4	1,311	2.6	169	820	930	920	21	5	38	26	24	159	254	153	170	476	521	549	492	525	567
86	Hay (Dual Supply)	50	50	210	3.5	5.3	L98	2011	12	91	93	201	106	43	13	8	8	7		-	3.7	197	0.6	119	1,430	1,470	1,010	1,067	1,095	706	0	0	110	241		138	155	159	139	1,019	1,048	527
83	Oberon (Reticulator)	90	100	100	3.4		L97	2011	7	164	194	204	8	5	8	1	1	1	2.6	-	7.5	146	0.5	13	640	720	710	12	15	15	0	0	161	217	115	139	140	148	152	140	148	152
118	Murrumbidgee (Groundwater)	130	120	100	1.9	2.9				199	206	182	13	19	8			5	-	1.7	0.8	24	0.1	67	1,340	1,340	1,240	358	377	395	6	0		288		130	447	476	687	807	867	1045
92	Carrathool (Groundwater)	70	100	270	0.6	1.0	Z77	2009	10	101	134	433	22	20	10	1		1	0.2	-	3.8	243	5.0	57	860	1,050	1,320	504	573	715	0	0		243		217	313	488	446	392	611	534
89	Bogan	350	200	200	3.7	5.1	L99	2011	10	759	315	346	23	48	60	34	24	32		4.2	5.7	612	1.1	103	870	720	730	10	30	4	3	8	263	251	181	172	381	339	419	381	339	419
91	Cabonne	80	70	80	1.8	1.5	RDT	2015	9	97	84	101		23	13	7	5	3	5.8	0.6	2.4	1,031	1.2	77	340	260	350	45	47	50	42	23	351	303	201	173	144	150	155	180	187	197
96	Warren (Dual Supply)	90	100	100	3.2	3.6	L94	2011	5	168	189	271	110	350	267	16	21	6	3.3	1.0	5.6	40	0.1	417	790	840	790	442	457	374	0	0	193		138		302	328	302	797	752	630
98	Walcha	60	60	60	1.1	4.8	RDT95	2010	11	63	60	74		7	7		14	10		0.7	10.9			46	190	170	200	5	3	5	0	0	242	206	173	118	154	124	133	154	124	133
100	Balranald (Dual Supply)	30	40	60	1.5	1.5				45	57	93	33	67	31	66		705	-	-	0.3	119	0.2	184	580	770	1,000	419	584	700	0	0	213	134	213		133	167	304	516	660	1038
103	Central Darling (Dual Supply)	30	30	30	0.3	1.0		2010		44	47	45	30	39	18	14	16	68		0.3	1.4	259	0.4	121	400	360	390	276	240	270	0	0		338		241	179	128	181	632	581	638
105	Brewarrina (Dual Supply)	130	110	110	1.5	1.9	RDT	2012	7	218	181	192	55	111	74	20	4	2		2.1	1.3	383	1.0	255	790	1,260	880	400	941	550	0	0	374	123	107	123	581	614	658	1,163	1,391	1629
	Medians (% of LWUs basis) for 200 to 1,500 Properties			*100*	*2*	*2*	Note: ILI < 1.0 is meaningless & has been increased to 1.0						*22*	*18*	*13*	*21*	*13*	*7*	*3*			*243*		*121*	*790*	*820*	*810*				*12*	*0*					*209*	*215*	*294*	*302*	*440*	*534*
	Median All LWUs (% of LWUs basis)	*Leakage*	*80*	*1.9*	*1.2*					*Main Breaks per 100km of main*		*12*	*Interruptions*		*15*			*Mains*	*0.8*	*Renewals 0.6% of CRC*						*Median % Water Recycled*		*5%*						*Av Annual Res Water Supplied*		*225*			
	Median All LWUs (Statewide basis)		*70*									*9*			*32*			*Rehabilitations*		*0.6%*																*162*					
	Totals for all LWUs (excluding bulk suppliers)	*59 LWUs reported recent leakage testing*																							*Total Urban Water Supplied 300,000 ML*			*Non-potable Water (Urban) (excl recycled) 19,820 ML*														

\+ There are 10 LWUs with a dual water supply in 2015-16; Balranald, Berrigan, Bourke, Brewarrina, Central Darling, Hay, Murray River, Walgett, Warren, Wentworth.
For these 10 LWUs, note 8 of section 6 reports the approximate total potable annual residential water supplied per property, which is shown in column 56a above. This is lower than the value reported in Column 56 as it is calculated only for those towns with a dual supply.

Notes:

1. Table 10A shows the results for leakage testing for 68 LWUs under the Regional NSW Water Loss Management Program (WLMP) in columns 10 (before leakage detection and repair) and 13 (after leakage detection and repair). Table 10A shows that following leakage detection and repair, the average leakage for these utilities has decreased from 16% to 10% of the potable water supplied (from 164 L/d to 92 L/d per connection). Column 41c above shows the type and extent of leakage testing (Note 6 below) by each utility. This column shows that the leakage testing covered 90% of the service connections for Coffs Harbour (77% of the connections were covered by zoning and flow metering (Z77) and 13% were covered by leakage detection and repair (L13)). Similarly for Mid-Western Regional, 59% of the connections were covered by leakage detection and repair (L59). Column 41d shows the latest reported year of leakage testing for the utility and has been updated from column 18 of Table 10A. In addition, where a utility has not previously reported its result for column 41e, the result in column 13 of Table 10A has been included, subject to DPI Water's acceptance test in the next paragraph.
   However, the zones covered for many other utilities was a small percentage, eg. only 9% of the service connections for Byron (Z9) and 5% for Wyong (Z5). Leakage results of under 6% for a utility have only been accepted as a valid indicator of the utility's performance by DPI Water if the leakage testing covered at least 30% of the utility's service connections. The accepted results are shown in column 41e above and indicate the following 13 utilities have valid leakage test results of under 6% (Bathurst, Boorowa, Brewarrina, Coffs Harbour, Corowa, Griffith, Gunnedah, Moree Plains, Murray, Uralla, Warren, Wyong and Young).
2. The reported Real Losses shown above for NWI indicator A10 (column 41 above) have been rounded in recognition of the significant inherent errors in the determination of distribution system leakage.
3. To compare leakage with other LWUs, LWUs with >20 connections/km should use Real Losses (L/connection/day) (column 41 above), while LWUs with <20 connections/km should use Real Losses (L/km water main/day) (column 41a above).
4. Leakage relates only to Total Urban Water Supplied (potable) and excludes bulk water exports and non-potable water supplied. Non Revenue Water (NRW) comprises Real Losses (mostly leakage), Apparent Losses (under-registration of customer meters and illegal use) and Unbilled Water supplied (eg. mains flushing).

   As indicated in section 6, Non-Revenue Water (L/connection/d) should be used for tracking system performance over time. Use of Unaccounted for water (UFW) is not appropriate and should no longer be used by LWUs.
5. 59 LWUs have reported carrying out recent leakage testing and/or leakage detection and repair (columns 41c, 41d, 41e above).
6. Reservoir Drop Test (RDT#), Waste Metering (WM#), Night Flow Metering (NF#), Zoning and Flow Metering (Z#), Leakage Detection and Repair (L#), Pressure Reduction (P), where # is the percentage of service connections covered.
   Eg. L95 for Gwydir (column 41c above) indicates that the leakage detection and repair project carried out covered 95% of the utility's service connections.

Table 10A: Estimated Real Water Losses from Regional NSW Water Loss Management Program

	WATER UTILITY	Zone	Utility Connections 2009-10 (No.)	Zone Connections	Connection Ratio Zone:Utility	ILI Before	Utility Potable Annual Water Supplied (ML) 2009-10	Estimated Water Loss - Before			Estimated Water Loss - After			Annual Water Savings (ML)	Test	Test Year	Page	Comments (MNF refers to Minimum Night Flow)
								(L/c/d)	(ML)	(%)	(L/c/d)	(ML)	(%)					
	(1)	(2)	(3)	(4)	(5)	(6) A9	(7) W11.1	(8) A10	(9)	(10)	(11) A10	(12)	(13)	(14)	(15)	(16)	(17)	(18)
29	Armidale Dumaresq	Kentucky St	7740	400	5%	2.7	2594	136	19.9	15%	65	9.5	7%	10.4	L5	2008	20	
	Ballina	Coastal Strip		450	4%	2.4		186	30.6	18%	131	21.5	13%	9.1				Pressure managed, ILI hasn't changed
	Ballina	Jameson Ave		370	3%	18.8		905	122	89%	54	7.3	5%	115				Wide Bay Water job - big leak found
24	**Ballina**	**2 Zones**	**10960**	**820**	**7%**		**4050**	**511**	**153**	**50%**			**10%**	**124**	**L7, P**	**2010**	**22**	
21	Bathurst	Eglington	13980	630	5%	1.4	5999	75	17.3	6%					Z5	2007	24	Projected water savings insignificant
	Bega Valley	Quaama		97	1%	0.3		17	0.6	2%								Tiny zone, MNF of 0.05 L/s measured
	Bega Valley	Wallaga		105	1%	0.5		24	0.9	3%								Tiny zone, MNF of 0.1 L/s measured
	Bega Valley	Pambula South		160	1%	0.4		19	1.1	2%								Tiny zone, MNF of 0.1 L/s measured
	Bega Valley	Pambula North		298	3%	5.4		365	39.7	43%								
	Bega Valley	Eden North		407	4%	0.4		24	3.6	3%								
	Bega Valley	Pambula Beach		507	4%	4.8		292	54.1	34%								
	Bega Valley	Eden South		907	8%	0.7		46	15.2	5%								
	Bega Valley	Bega		2000	17%	1.5		83	60.9	10%								
	Bega Valley	Tura		589	5%	4.2		192	41.3	22%	16	3.5	2%	37.8				
	Bega Valley	Merimbula		1709	15%	3.7		241	151	28%	110	68.6	13%	82.0				
23	**Bega Valley**	**10 Zones**	**11530**	**6779**	**59%**		**3600**	**149**	**368**	**17%**			**12%**	**120**	**WM20, Z39**	**2008**	**27**	
	Bellingen	Yellow Rock		140	3%	0.8		31	1.6	4%	27	1.4	3%	0.2				PM only
	Bellingen	Newry Island		130	3%	1.0		76	3.6	9%	13	0.6	2%	3.0				PM only
	Bellingen	Urunga		923	22%	3.6		89	30.1	11%	69	23.2	8%	6.9				Estimated reduction for leak results
	Bellingen	Mylestom		185	4%	3.8		178	12.0	22%	43	2.9	5%	9.1				Estimated reduction for leak results
	Bellingen	North Bellingen PMZ		670	16%	1.9		137	33.4	17%	28	6.9	3%	26.5				Includes trunk and retic leak detection
47	**Bellingen**	**5 Zones**	**4260**	**2048**	**48%**		**1279**	**108**	**80.7**	**13%**			**6%**	**45.7**	**L48, P**	**2011**	**29**	
	Berrigan	Barooga		671	21%	1.3		29	7.2	4%								
	Berrigan	Berrigan		470	14%	2.1		73	12.6	11%	19	3.2	3%	9.4				
	Berrigan	Finley		1018	31%	3.5		116	43.2	17%	40	14.8	6%	28.4				
	Berrigan	Tocumwal		974	30%	9.3		389	138	57%	131	46.7	19%	91.4				
53	**Berrigan**	**4 Zones**	**3250**	**3133**	**96%**		**811**	**176**	**201**	**26%**			**9%**	**129**	**L76**	**2011**	**30**	
89	Bogan	Nyngan	1080	1074	99%	16.6	582	512	201	35%	351	138	24%	63.1	L99	2011	32	Interim result
105	Brewarrina	Brewarrina	540	435	81%	12.8	226	384	61.0	34%					RDT81	2009	36	No project undertaken
	Byron	Kolora Way DMA		880	9%	0.7		46	14.7	5%								No impact from leak repairs here
	Byron	Orana Rd DMA		240	3%	2.4		159	13.9	19%	58	5.1	7%	8.8				
	Byron	Balemo Dr DMA (Net)		480	5%	6.7		455	79.7	54%	20	3.5	2%	76.2				Updated flow results August 11
27	**Byron**	**3 Zones**	**9590**	**1600**	**17%**		**2954**	**185**	**108**	**22%**			**5%**	**85.0**	**Z9, L8**	**2009**	**38**	
91	Cabonne	Molong High & Low	1110	780	70%	4.1	232	225	64.1	39%	70	20.0	12%	44.1	L70	2011	40	
	Carrathool	Goolgowi Raw		127	12%	5.9		382	17.7	15%								Lack of Council funds to proceed
	Carrathool	Goolgowi Potable		143	13%	0.9		50	2.6	2%								Lack of Council funds to proceed
	Carrathool	Hillston		553	52%	9.3		276	55.8	11%								Lack of Council funds to proceed
92	**Carrathool**	**3 Zones**	**1070**	**823**	**77%**		**1028**	**253**	**76.1**	**10%**			**10%**	**0.0**	**Z77**	**2010**	**40**	
	Clarence Valley	Iluka & Woody Head		1140	5%	0.5		35	14.5	4%								No leak detection done as ILI low already
	Clarence Valley	Maclean		1629	8%	1.4		83	49.1	10%	61	36.4	7%	12.7				
	Clarence Valley	Yamba & surrounds		3613	17%	2.1		134	176	16%	73	96.7	9%	79.4				
	Clarence Valley	Grafton		7878	37%	3.5		329	945	40%	171	492	21%	453				Big leak found
14	**Clarence Valley**	**4 Zones**	**21430**	**14260**	**67%**		**6503**	**228**	**1185**	**27%**			**15%**	**545**	**L61, Z5**	**2011**	**44**	
	Coffs Harbour	Sawtell		1433	6%	0.4		25	12.9	3%								No significant leakage
	Coffs Harbour	Toormina		4669	21%	0.5		18	30.3	2%								No significant leakage
	Coffs Harbour	South Coffs		4148	18%	1.6		95	143	12%								Council not willing to pursue this zone
	Coffs Harbour	North Coffs - Red Hill		4978	22%	0.8		42	75.9	6%								No significant leakage
	Coffs Harbour	Sandy Beach		745	3%	0.7		30	8.1	4%								No significant leakage
	Coffs Harbour	Sapphire Beach		552	2%	0.1		5	1.0	1%								No significant leakage
	Coffs Harbour	Moonee		207	1%	1.7		78	5.9	10%								Total predicted savings low - 2.2ML/y
	Coffs Harbour	Emerald Beach		693	3%	1.2		66	16.7	9%								
	Coffs Harbour	North Coffs - Macauley		3047	13%	0.7		41	45.2	5%	16	17.9	2%	27.2				
10	**Coffs Harbour**	**9 Zones**	**22620**	**20472**	**91%**		**6273**	**45**	**339**	**6%**			**5%**	**27.2**	**Z77, L13**	**2010**	**48**	
	Cooma-Monaro	CH Yallakool		285	8%	2.5		146	15.2	16%								
	Cooma-Monaro	Pine Range		520	14%	1.8		106	20.1	12%								
	Cooma-Monaro	Church Hill South		1053	28%	2.3		141	54.0	16%	91	35.0	10%	19.0				
	Cooma-Monaro	Snowy Reservoir		1166	31%	2.0		131	55.8	15%	39	16.7	4%	39.1				
50	**Cooma-Monaro**	**4 Zones**	**3780**	**3024**	**80%**		**1227**	**131**	**145**	**15%**			**9%**	**58.1**	**L59**	**2011**	**50**	
58	Cootamundra	Cootamundra	3010	2790	93%	2.0	707	138	140	21%	85	86.4	13%	53.7	L93	2010	52	

Table 10A: Estimated Real Water Losses from Regional NSW Water Loss Management Program

	WATER UTILITY	Zone	Utility Connections 2009-10 (No.)	Zone Connections	Connection Ratio Zone:Utility	ILI Before	Utility Potable Annual Water Supplied (ML) 2009-10	Estimated Water Loss - Before			Estimated Water Loss - After			Annual Water Savings (ML)	Test	Test Year	Page	Comments (MNF refers to Minimum Night Flow)
								(L/c/d)	(ML)	(%)	(L/c/d)	(ML)	(%)					
	(1)	(2)	(3)	(4)	(5)	(6) A9	(7) W11.1	(8) A10	(9)	(10)	(11) A10	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Corowa	Howlong		952	19%	0.8		35	12.2	3%								
	Corowa	Corowa LL		1844	38%	1.9		68	45.4	6%								
42	**Corowa**	**2 Zones**	**4900**	**2796**	**57%**		**2183**	**56**	**57.6**	**5%**			**5%**	**0.0**	**Z57**	**2008**	**54**	
	Cowra	ICL1		18	0.3%	NA		0	0.0	0%								New Zone with zero MNF. ILI calc not possible
	Cowra	Low Level		1746	32%	1.2		89	56.4	6%								No major change in night flow
	Cowra	High & Intermediate		2459	45%	4.2		221	198	16%	171	154	12%	44.1				
39	**Cowra**	**3 Zones**	**5470**	**4223**	**77%**		**2790**	**165**	**254**	**12%**			**10%**	**44.1**	**L42**	**2011**	**58**	
54	Deniliquin	Deniliquin	3560	3613	100%	3.9	2430	151	199	8%	118	155	6%	44.2	L100	2011	60	High industrial usage overnight
	Dubbo	Spears Drive		344	2%	1.0		38	4.7	3%	5	0.6	0%	4.1				Very low meter readings
	Dubbo	Wheelers Lane		861	6%	4.3		229	71.8	16%	56	17.6	4%	54.2				Pressure managed
	Dubbo	Snake Pit		2800	19%	2.8		125	128	9%	14	14.0	1%	114				
	Dubbo	Myall/Sheraton		267	2%	6.0		357	34.8	25%	260	25.3	18%	9.5				
	Dubbo	Websdale		835	6%	2.5		175	53.2	12%	140	42.7	10%	10.5				
	Dubbo	Luna Park		622	4%	10.7		566	129	40%	399	90.7	28%	37.8				
	Dubbo	Davidson		763	5%	6.7		422	117	30%	252	70.1	18%	47.3				
18	**Dubbo**	**7 Zones**	**14830**	**6492**	**44%**		**7692**	**227**	**538**	**16%**			**8%**	**277**	**L44**	**2011**	**64**	
26	Essential Water	Broken Hill South	10370	1867	18%	0.9	4747	28	19.1	2%					WM18	2011	56	No significant leakage
	Eurobodalla	Mystery Bay		139	1%	0.5		32	1.6	5%								
	Eurobodalla	North Narooma/HL		300	2%	0.6		38	4.2	6%								
	Eurobodalla	Bodalla		301	2%	1.0		91	10.0	15%								
	Eurobodalla	Moruya Heads		464	3%	0.9		51	8.7	8%								
	Eurobodalla	Lilli Pilli		569	3%	0.1		3	0.7	1%								
	Eurobodalla	Long Beach		670	4%	0.9		36	8.7	6%								
	Eurobodalla	South Narooma		847	5%	0.1		8	2.6	1%								
	Eurobodalla	Denhams Beach Res		862	5%	0.5		30	9.5	5%								
	Eurobodalla	Surf Beach Res Low		1042	6%	3.0		129	49.2	21%								
	Eurobodalla	Moruya T2		1162	6%	1.3		86	36.4	14%								
	Eurobodalla	Mossy Point		1313	7%	0.5		31	14.8	5%								
	Eurobodalla	Dalmeny		1445	8%	1.1		42	22.0	7%								
	Eurobodalla	Tuross Heads		1466	8%	0.4		23	12.3	4%								
	Eurobodalla	Catalina 2		3471	19%	1.1		79	101	13%	65	82.9	11%	17.7				
15	**Eurobodalla**	**14 Zones**	**17880**	**14051**	**79%**		**4034**	**55**	**281**	**9%**			**8%**	**17.7**	**Z59**	**2007**	**66**	
51	Forbes	Forbes	3540	3433	97%	5.2	1793	296	371	21%	155	194	11%	177	RDT, L97	2011	68	Estimated post project MNF
60	Glen Innes Severn	Glen Innes	3320	2700	81%	1.4	655	129	127	24%	37	36.1	7%	91.1	L81, P	2010	70	4 zones created, 2 pressure managed
	Gosford	Patonga		244	0.4%	8.8		717	63.9	115%	9	0.8	1%	63.1				Pressure reduced from 74mH to 50m
	Gosford	St Huberts		530	1%	3.0		219	42.4	35%	8	1.5	1%	41.0				Pressure reduced from 78mH to 50m
1	**Gosford**	**2 Zones**	**59510**	**774**	**1%**		**13594**	**376**	**106**	**60%**			**1%**	**104**	**L1, P**	**2011**	**72**	
20	Goulburn Mulwaree	Goulburn	9100	6973	77%	4.7	2213	296	752	44%	70	177	10%	575	L77	2011	74	
	Greater Hume	Culcairn		600	34%	2.9		89	19.4	12%								
	Greater Hume	Jindera		675	39%	0.5		81	20.0	11%								
80	**Greater Hume**	**2 Zones**	**1740**	**1275**	**73%**		**488**	**85**	**39.4**	**11%**			**11%**	**0.0**	**L73, RDT**	**2008**	**76**	
	Griffith	DMA 6 South		3282	37%	2.8		282	337	13%	71	85.1	3%	252				
	Griffith	Wyangan		251	3%	1.9		388	35.5	18%	78	7.1	4%	28.4				
	Griffith	Upper Collina		737	8%	2.3		116	31.2	5%	22	6.0	1%	25.2				
30	**Griffith**	**3 Zones**	**8970**	**4270**	**48%**		**6988**	**259**	**404**	**12%**			**3%**	**306**	**L48, P**	**2011**	**78**	
	Gunnedah	Low Zone		1210	27%	1.2		49	21.4	3%								No significant leakage
	Gunnedah	Mid Zone		2826	63%	1.4		98	101	7%	60	62.1	4%	39.3				Reservoir repairs were expensive
44	**Gunnedah**	**2 Zones**	**4460**	**4036**	**90%**		**2299**	**83**	**123**	**6%**			**4%**	**39.3**	**L63**	**2011**	**84**	
90	Guyra	Guyra	1120	900	80%	1.4	491	92	30.1	8%					RDT80	2009	86	Lack of resources
	Gwydir	Bingara		872	52%	2.3		142	45.3	14%	105	33.5	10%	11.8				
	Gwydir	Warialda		721	43%	11.5		458	121	45%	19	5.0	2%	116				One leak already found and fixed
81	**Gwydir**	**2 Zones**	**1670**	**1593**	**95%**		**626**	**285**	**166**	**28%**			**6%**	**127**	**L95**	**2011**	**88**	
	Harden	Jugiong Low		70	4%	NA		0	0.0	0%								MNF is zero, ILI calc not possible
	Harden	Jugiong High		104	6%	NA		0	0.0	0%								MNF is zero, ILI calc not possible
	Harden	Galong		214	12%	NA		0	0.0	0%								MNF is zero, ILI calc not possible
	Harden	Harden		800	43%	1.6		118	34.3	11%	101	29.6	9%	4.7				
76	**Harden**	**4 Zones**	**1850**	**1188**	**64%**		**747**	**79**	**34.3**	**7%**			**6%**	**4.7**	**L43**	**2011**	**90**	
	Hay	Hay potable		1200	49%	3.9		102	44.6	23%	66	28.8	15%	15.8				
	Hay	Hay raw		1200	49%	4.1		131	57.4	30%	37	16.4	9%	41.0				
86	**Hay**	**2 Zones**	**2430**	**2400**	**99%**		**388**	**116**	**102**	**27%**			**12%**	**56.8**	**L98**	**2011**	**92**	

Table 10A: Estimated Real Water Losses from Regional NSW Water Loss Management Program

	WATER UTILITY	Zone	Utility Connections 2009-10 (No.)	Zone Connections	Connection Ratio Zone:Utility	ILI Before	Utility Potable Annual Water Supplied (ML) 2009-10	Estimated Water Loss - Before			Estimated Water Loss - After			Annual Water Savings (ML)	Test	Test Year	Page	Comments (MNF refers to Minimum Night Flow)
								(L/c/d)	(ML)	(%)	(L/c/d)	(ML)	(%)					
	(1)	(2)	(3)	(4)	(5)	(6) A9	(7) W11.1	(8) A10	(9)	(10)	(11) A10	(12)	(13)	(14)	(15)	(16)	(17)	(18)
25	Kempsey	Kempsey	11370	11500	100%		3734	152	638	17%	146	613	16%	25.2	L100	2008	94	No meters were installed during this project, so there is no mechanism for monitoring water loss
48	Leeton	Leeton	4340	4027	93%	8.5	2956	274	403	15%	161	236	9%	167	L93	2011	96	Large industrial component
	Liverpool Plains	Wallabadah		137	5%	3.0		148	7.4	15%	22	1.1	2%	6.3				
	Liverpool Plains	Willow Tree		190	7%	16.9		880	61.0	89%	198	13.7	20%	47.3				Updated June 2011
61	**Liverpool Plains**	**2 Zones**	**2540**	**327**	**13%**		**920**	**573**	**68.4**	**58%**			**12%**	**53.6**	**L13**	**2011**	**102**	
5	MidCoast Water	Hawks Nest	32910	2346	7%	2.3	9163	175	150	23%	122	105	16%	45.3	P7	2010	106	Pressure managed only, no leak detection
	Mid-Western	Mudgee High		1664	26%	1.3		132	80.2	12%	79	48.1	7%	32.1				
	Mid-Western	Mudgee Low		2147	33%	2.2		132	103	12%	67	52.7	6%	50.8				
32	**Mid-Western**	**2 Zones**	**6490**	**3811**	**59%**		**2536**	**132**	**184**	**12%**			**7%**	**82.8**	**L59**	**2011**	**108**	
38	Moree Plains	Moree	4790	4554	95%	4.4	3183	129	215	7%	56	93.2	3%	122	L95	2011	110	
	Murray	Moama potable		2263	86%	0.6		20	16.2	3%								
	Murray	Mathoura potable		424	16%	4.4		111	17.2	15%	30	4.6	4%	12.6				
65	**Murray**	**2 Zones**	**2640**	**2687**	**100%**		**711**	**34**	**33.4**	**5%**			**3%**	**12.6**	**Z86, L16**	**2011**	**112**	
	Murrumbidgee	Coleambally		373	38%	5.4		176	24.0	9%								
	Murrumbidgee	Darlington Point		398	40%	1.9		72	10.4	4%								
101	**Murrumbidgee**	**2 Zones**	**990**	**771**	**78%**		**672**	**122**	**34.4**	**7%**			**7%**	**0.0**	**Z78**	**2010**	**114**	
	Muswellbrook	Denman		620	11%	4.9		182	41.1	15%	70	15.8	6%	25.3				
	Muswellbrook	Sandy Hollow		60	1%	5.5		315	6.9	26%	87	1.9	7%	5.0				
41	**Muswellbrook**	**2 Zones**	**5410**	**680**	**13%**		**2385**	**193**	**48.0**	**16%**			**6%**	**30.3**	**L12**	**2010**	**116**	
	Nambucca	North Macksville		720	12%	1.3		30	7.8	4%								No significant leakage
	Nambucca	Valla Beach		500	9%	0.4		9	1.6	1%								No significant leakage
	Nambucca	Scotts Head		615	11%	1.7		37	8.3	5%								No significant leakage
	Nambucca	South Macksville		440	8%	1.6		79	12.7	11%	42	6.7	6%	6.0				
	Nambucca	Bowraville		504	9%	2.8		86	15.9	12%	35	6.5	5%	9.4				
	Nambucca	Nambucca Heads		2502	43%	2.9		101	91.8	14%	51	46.8	7%	45.0				
34	**Nambucca**	**6 Zones**	**5820**	**5281**	**91%**		**1534**	**72**	**138**	**10%**			**6%**	**60.4**	**Z32, L59**	**2010**	**118**	
46	Narrabri	Mooloobar St	3980	716	18%	2.2	2295	63	16.4	4%					Z18		120	No significant leakage
62	Narromine	Narromine	2220	1758	79%	4.6	1111	145	92.7	11%	81	51.7	6%	41.0	L79	2011	124	After data estimated
83	Oberon	HL & LL combined	1360	1314	97%	5.7	568	223	107	19%	78	37.6	7%	69.4	L97	2011	126	
19	Orange	Orange	15370	15055	98%	2.2	3896	152	836	22%	61	335	9%	501	L98	2011	128	
	Palerang	Captains Flat East		250	12%	0.3		26	2.4	4%								
	Palerang	Braidwood		692	34%	0.6		22	5.5	3%								
	Palerang	Bungendore		1051	52%	2.9		113	43.5	17%	55	21.1	8%	22.4				
71	**Palerang**	**3 Zones**	**2030**	**1993**	**98%**		**490**	**71**	**51.4**	**11%**			**6%**	**22.4**	**L91**	**2011**	**130**	
	Parkes	East Zone		615	9%	3.1		232	52.1	8%								No significant results. Costs in High Zone
	Parkes	High Zone		1004	15%	4.3		227	83.2	8%	29	10.6	1%	72.6				
36	**Parkes**	**2 Zones**	**6500**	**1619**	**25%**		**6606**	**229**	**135**	**8%**			**4%**	**72.6**	**Z9, L15**	**2011**	**132**	
7	Port Macquarie-Hastings	Mill Hill	26210	1486	6%	3.0	6391	134	72.9	20%	94	50.9	14%	22.0	L6	2011	134	
	Queanbeyan	Crest		4251	37%	4.8		288	447	28%								Project not undertaken
	Queanbeyan	Greenleigh		235	2%	1.9		124	10.6	12%								Project not undertaken
	Queanbeyan	East Queanbeyan		574	5%	2.3		223	46.7	22%								Project not undertaken
17	**Queanbeyan**	**3 Zones**	**11470**	**5060**	**44%**		**4279**	**273**	**504**	**27%**			**27%**	**0.0**	**RDT44**	**2007**	**136**	
	Richmond Valley	Broadwater-Rileys		282	4%	2.2		108	11.1	8%								Leak detection/repairs done but no savings
	Richmond Valley	Woodburn		303	4%	1.6		100	11.1	8%								Leak detection/repairs done but no savings
	Richmond Valley	Coraki		525	8%	3.6		96	18.3	8%	67	12.9	5%	5.4				
	Richmond Valley	South Casino		1494	22%	1.2		57	31.3	5%	32	17.4	3%	13.9				
	Richmond Valley	Evans Head		1205	18%	2.5		91	40.1	7%	56	24.7	4%	15.4				
	Richmond Valley	North Casino		3051	45%	3.4		167	186	13%	126	140	10%	45.7				
33	**Richmond Valley**	**6 Zones**	**6850**	**6860**	**100%**		**3180**	**119**	**297**	**9%**			**7%**	**80.4**	**L92**	**2011**	**138**	
	Riverina Water	Lockhart		480	2%	3.9		122	21.3	8%								No savings achieved from leak repairs?
	Riverina Water	Henty		525	2%	0.8		46	8.8	3%								
	Riverina Water	Morven		35	0%	0.9		791	10.1	55%								
	Riverina Water	Uranquinty		308	1%	0.6		87	9.8	6%								
	Riverina Water	Boree Creek		54	0%	6.3		167	3.3	12%	56	1.1	4%	2.2				
	Riverina Water	Oakland		171	1%	4.2		181	11.3	13%	55	3.4	4%	7.9				
	Riverina Water	Walla Walla		263	1%	2.7		74	7.1	5%	13	1.2	1%	5.9				
	Riverina Water	Gregadoo		278	1%	1.8		208	21.1	14%	161	16.3	11%	4.8				
8	**Riverina Water**	**8 Zones**	**30110**	**2114**	**7%**		**15853**	**120**	**92.8**	**8%**			**6%**	**20.8**	**Z4, L3**	**2011**	**140**	

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	WATER UTILITY	Zone	Utility Connections 2009-10 (No.)	Zone Connections	Connection Ratio Zone:Utility	ILI Before	Utility Potable Annual Water Supplied (ML) 2009-10	Estimated Water Loss - Before			Estimated Water Loss - After			Annual Water Savings (ML)	Test	Test Year	Page	Comments (MNF refers to Minimum Night Flow)
								(L/c/d)	(ML)	(%)	(L/c/d)	(ML)	(%)					
	(1)	(2)	(3)	(4)	(5)	(6) A9	(7) W11.1	(8) A10	(9)	(10)	(11) A10	(12)	(13)	(14)	(15)	(16)	(17)	(18)
	Shoalhaven	Berry		899	2%	3.4		356	117	46%	221	72.5	29%	44.2		2008		
	Shoalhaven	Shoalhaven Heads		1287	3%	2.9		143	67.1	18%	59	27.7	8%	39.4		2008		
	Shoalhaven	FM 23 (Nowra)		1919	4%	1.5		122	85.2	16%	58	40.4	7%	44.8		2010		
	Shoalhaven	FM 14 (Nowra CBD/Manildra)		2807	6%	4.7		390	400	50%	326	334	42%	66.2		2010		
3	**Shoalhaven**	**4 Zones**	**45670**	**6912**	**15%**		**12902**	**265**	**669**	**34%**			**24%**	**195**	**L15**	**2010**	**144**	
	Snowy River	High Level		940	34%	1.7		110	37.8	13%								
	Snowy River	Berridale		541	20%	2.5		173	34.2	21%	62	12.2	7%	22.0				
	Snowy River	Jindabyne Low Level		245	9%	17.3		1230	110	146%	172	15.4	20%	94.6				Big leak found
52	**Snowy River**	**3 Zones**	**2750**	**1726**	**63%**		**846**	**289**	**182**	**34%**			**12%**	**117**	**L29, RDT**	**2011**	**146**	
	Tamworth	Barraba		1004	5%	2.2		86	31.6	7%								
	Tamworth	Manilla		1339	7%	3.6		164	80.1	12%	89	43.5	7%	36.6				
13	**Tamworth**	**2 Zones**	**19430**	**2343**	**12%**		**9354**	**131**	**112**	**10%**			**7%**	**36.6**	**Z5, L7**	**2011**	**148**	
68	Tenterfield	Tenterfield	2050	1740	85%	1.7	418	90	56.9	16%	35	21.9	6%	35.0	L85	2010	150	
93	Tumbarumba	Tumbarumba	1100	800	73%	0.7	302	87	25.3	12%					Z73	2009	152	
	Tumut	Brungle		47	1%	NA		0	0.0	0%								MNF is zero, ILI calc not possible
	Tumut	HL		150	3%	0.6		44	2.4	6%								
	Tumut	Talbingo		320	7%	NA		0	0.0	0%								MNF is zero, ILI calc not possible
	Tumut	Adelong		450	9%	0.6		43	7.1	6%								
	Tumut	Tumut LL		762	16%	2.1		131	36.3	18%	108	30.0	15%	6.3				
	Tumut	Batlow LL		447	9%	2.4		153	25.0	21%	105	17.2	14%	7.8				
	Tumut	Tumut ML		2071	42%	1.1		71	53.3	10%	37	28.1	5%	25.2				
43	**Tumut**	**7 Zones**	**4900**	**4247**	**87%**		**1302**	**80**	**124**	**11%**			**8%**	**39.3**	**L67**	**2011**	**154**	
	Tweed	Hartigans Hill		740	3%	0.3		13	3.6	1%								No significant leakage, no project undertaken
	Tweed	Walmsleys		1807	8%	0.9		41	26.8	4%								No significant leakage, no project undertaken
	Tweed	Razorback		2107	9%	2.7		174	134	16%	115	88.2	10%	45.6				
	Tweed	Cudgen High Level		100	0%	26.3		2260	82.5	204%	200	7.3	18%	75.2				Big leak found
6	**Tweed**	**4 Zones**	**23880**	**4754**	**20%**		**9674**	**142**	**247**	**13%**			**7%**	**121**	**L9, RDT**	**2010**	**156**	
45	Upper Hunter	Scone	3900	2031	52%	1.8	2910	121	89.6	6%					Z52	2009	158	Project not completed
85	Uralla	Uralla	1160	1308	100%	1.8	300	94	45.0	15%	18	8.8	3%	36.2	L100	2011	162	
98	Walcha	Walcha	930	880	95%	0.8	213	68	21.9	11%					RDT95	2009	164	No significant leakage
96	Warren	Warren	1000	944	94%	7.2	385	139	47.9	13%	51	17.7	5%	30.3	L94	2011	166	
57	Wellington	Wellington	3080	2800	91%	2.6	1184	180	184	17%	69	70.4	7%	114	L91	2010	168	
	Wingecarribee	Kimberley		72	0%	0.5		61	1.6	8%								
	Wingecarribee	Old Berrima		171	1%	0.9		66	4.1	8%								
	Wingecarribee	New Berrima		271	2%	0.4		27	2.7	4%								
	Wingecarribee	Bundanoon		1241	7%	0.6		36	16.1	5%								
	Wingecarribee	Mt Gil HL		201	1%	3.1		327	24.0	42%	70	5.1	9%	18.9				
	Wingecarribee	Reservoir St		84	0%	8.1		564	17.3	73%	444	13.6	57%	3.7				
	Wingecarribee	Spencer St		860	5%	1.5		108	33.8	14%	57	18.0	7%	15.8				
	Wingecarribee	Burrawang		840	5%	3.1		303	93.0	39%	116	35.6	15%	57.4				
16	**Wingecarribee**	**8 Zones**	**16920**	**3740**	**22%**		**4789**	**141**	**193**	**18%**			**9%**	**95.8**	**Z10, L12**	**2010**	**170**	
2	Wyong	Gwandalan	57050	2666	5%	7.9	12960	406	395	65%					Z5		172	Project not undertaken
	Wyong*	Warnervale trunk main		1		6.9		26400	9.6		7300	2.7		7.0				Trunk Main - Single connection
	Yass Valley	O'Connel A		320	11%	0.5		33	3.9	4%								
	Yass Valley	O'Connel B		140	5%	1.9		174	8.9	22%								
	Yass Valley	Yass LL		1977	67%	0.4		23	16.3	3%								
	Yass Valley	Moreton LL		350	12%	1.9		125	16.0	16%								
56	**Yass Valley**	**4 Zones**	**2950**	**2787**	**94%**		**838**	**44**	**45.1**	**6%**			**6%**	**0.0**	**RDT94**	**2009**	**174**	
49	Young	Young	3960	3180	80%	1.5	1523	89	104	8%	34	39.2	3%	64.5	L80	2011	176	
	Totals		**644,800**	**238,500**	**37%**		**224,600**	**154**	**13,400**	**16%**	**92**	**8,000**	**10%**	**5,500**	**68 LWUs**			

Table 10A: Estimated Real Water Losses from Regional NSW Water Loss Management Program

Notes

1. The estimated real water losses in Table 10A are from the Water Loss Management Program (WLMP) for Regional NSW Water Utilities – Final Progress and Evaluation Report 2006-2011, Australian Government, NSW Water Directorate and Local Government and Shires Associations of NSW.

2. Columns 1, 2, 4, 6, 8 and 18 of Table 10A have been obtained from Appendices 3 and 4 of the above WLMP Report. Columns 11, 14 and 15 have been obtained from Appendix 4 of the Report. Column 17 has been obtained from Appendix 1 of the Report. Columns 3 and 7 have been obtained from Table 9 (Column 18a) and Table 8 (Column 10) of the *2009-10 NSW Water Supply and Sewerage Benchmarking Report* (www.water.nsw.gov.au). Columns 5, 9, 10, 12 and 13 have been calculated as indicated in Note 6 below. Columns 15 and 16 show the type, the extent of leakage testing (Note 8 below) carried out by each utility and the year of testing and have been determined from Appendices 1, 3 and 4 of the WLMR Report and Column 5.

   Eg. for Clarence Valley, Column 15 indicates leakage detection and repair (L) was carried out for 3 zones covering 61% of the utility's service connections (calculated from columns 3 and 4 - [(1629 + 3613 + 7878) / 21430 = 61%] and is shown as L61) and that zoning and district metering was carried out for a zone covering 5% of the connections (shown as Z5) – Column 15 thus shows L61, Z5 for Clarence Valley, resulting in a coverage of 67% (column 3). Similarly, for Coffs Harbour, the testing carried out is shown in column 15 as Z77 and L13, and the overall estimated water loss is shown as 5% in column 13. This is calculated as the values in column 9 for the first 8 Zones plus the value in column 12 for Zone 9, divided by the product of the totals in columns 7 and 5,
   ie. (12.9 + 30.3 + 143.2 + 75.9 + 8.1 + 1.0 + 5.9 + 16.7 + 17.9) / (6273 x 0.91) = 5.4%.

3. Column 15 shows that leakage testing has been carried out for a total of 68 utilities. The estimated total annual water loss (ML) from the 110 zones where water loss management was undertaken (ie. leakage detection and repair and/or pressure reduction), eg. the Kentucky St zone for Armidale, is shown in Column 12. The estimated water losses **after** leakage detection and repair, as a percentage of the annual potable water supplied are shown in Column 13. The estimated water losses **before** leakage detection and repair are shown in columns 8 to 10. Note that columns 8 to 10 show the estimated water losses for 75 zones for a total of 27 water utilities, for which leakage detection and repair was not undertaken, mostly because it was not warranted as the magnitude of the identified water losses was small, eg. 8 such zones are reported above for Coffs Harbour, each with losses of 1% to 12% (column 10). However, also included are some zones with high leakage levels where a leakage reduction project was not undertaken, eg. Bega - Pambula South and Pambula Beach due to high project costs and Brewarrina due to lack of resources.

   Taking the Kentucky Street zone in Armidale as an example, the table shows that the leakage was 136 L/c/d, 19.9ML and 15% of the potable water supplied (columns 8 to 10 above) before undertaking water loss management and that the leakage was reduced to 65L/c/d, 9.5ML and 7% of the potable meter supplied (columns 11 to 13) after completion of leakage detection and repair. Similarly, the final row of this table shows that overall leakage for the zones examined for the 68 utilities was 154L/c/d, 13,400ML and 16% of the potable water supplied (columns 8 to 10) before undertaking water loss management and that the leakage was reduced to 92L/c/d, 8,000ML and 10% of the potable water supplied (columns 11 to 13) after completion of leakage detection and repair and/or pressure reduction. The total water saving was 5,500ML (with rounding, column 14).

4. Harden (3 Zones) and Tumbarumba (2 Zones) obtained a Minimum Night Flow (MNF) of zero. The water loss for these zones has therefore been shown as "0" in columns 8 to 10 above.

5. Results shown in columns 4, 8, 11 and 14 to 18 for Kempsey are from page 94 of Appendix 1 of the WLMR. Volumes for the other columns have been calculated by DPI Water in accordance with Note 6 below.

6. Calculations for columns: (10) = [(9) x 100] / (7). (13) = [(11) x 100] / (7). (9) = (8) x (3) x 365 / 10^6. (12) = (11) x (3) x 365 / 10^6. (5) = [(4) x 100] / (3).

7. Minor discrepancies in the number of service connections between columns 3 and 4 have been corrected in column 5 for Deniliquin, Kempsey, Murray and Uralla.

8. The following acronyms are used in the tables: Reservoir Drop Test (RDT#), Waste Metering (WM#), Night Flow Metering (NF#), Zoning and Flow Metering (Z#), Leakage Detection and Repair (L#), Pressure Reduction (P), where # is the percentage of service connections covered.
   Eg. L95 for Gwydir indicates that the leakage detection and repair project carried out covered 95% of the utility's service connections.

9. It is noted that only 9 LWUs in Table 10A have reported leakage of over 12%. 3 of these utilities, which have not carried out leakage detection and repair reported the following leakage results: Brewarrina (34% - project not undertaken); MidCoast Water (16% - pressure management only undertaken at Hawks Nest); and Queanbeyan (27% - project not undertaken). 6 utilities had leakage of over 12% following completion of their water loss management projects: Bogan - Leakage reduced from 38% to 24% of potable water supplied (99% of connections covered); Clarence Valley - Leakage reduced from 27% to 15% of potable water supplied (67% of connections covered); Cootamundra - Leakage reduced from 21% to 13% of potable water supplied (93% of connections covered); Kempsey - Leakage reduced from 17% to 16% of potable water supplied (100% of connections covered); Port Macquarie-Hastings - Leakage reduced from 20% to 14% of potable water supplied (6% of connections covered); and Shoalhaven - Leakage reduced from 34% to 24% of potable water supplied (16% of connections covered).

10. 30% coverage is considered to be the minimum coverage needed to adequately characterise a utility's leakage performance. Caution is therefore warranted in interpreting the results reported above for the following 17 utilities which have tested zones covering under 30% of their service connections: Armidale (5% of service connections); Ballina (7%); Bathurst (5%); Byron (17%); Essential Water (18%); Gosford (1%); MidCoast Water (7%); Muswellbrook (12%); Narrabri (18%); Parkes (26%); Port Macquarie-Hastings (6%); Riverina Water (7%); Shoalhaven (18%); Tamworth (12%); Tweed (20%); Wingecarribee (22%); and Wyong (5%). The reported leakage results accepted as a valid indicator of the utility's performance by DPI Water are shown in column 41e of Table 10. Refer also to Note 1 of Table 10.

Table 11: Water supply - financial and efficiency

	WATER UTILITY	WATER SUPPLY FINANCIAL (SEE ALSO COST RECOVERY TABLE 6)																												EFFICIENCY (SEE ALSO COST RECOVERY TABLE 6)					
		Total Revenue Water (excl. Capital Works Grants)		Revenue per property	Revenue from Rates and Charges			Operating Cost (OMA)			Ratio of OMA to Rates and Charges Revenue			Residential Revenue			Current Replacement Cost of System Assets (CRC)			Net Debt to Equity WS & Sge		WDV CRC per Property	ERRR			Return on Assets		Operating Result		Externalities (Fees to Water NSW)	Loan Payment		Operating Cost (OMA)			Management Cost		
		($'000)		($)	($'000)			($'000)			(%)			Percent of rates & charges (%)*	Res Water Supplied (% of water supplied excluding losses)	Percent from Usage Charges (%)	Written Down CRC ($M)	CRC ($M)	CRC per Assessment ($/assmnt)	(%)		($/prop)	(%) see also Table 6 Col (12)			(%)		($/property)		($/property)	($/property)		($/property)			($/property)		
		(57) F1		(57a) F5	(57b)			(57c)			(57d)			(58)	(59)	(58a) F4	(60) F9	(61)	(62)	(63) F22		(62a) F9/C4	(63a) F17			(63b)		(65)		(66)	(66a)		(67) F11**			(68)+		
		14/15	15/16	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	15/16	14/15	15/16	15/16	13/14	14/15	15/16	14/15	15/16	14/15	15/16	15/16	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16
	Sydney Water	1,340,778	1,359,222	716				763,864	734,274	758,609						81	12,700			96	103	6,700	1.9	2.3	3.0								413	391	399			
	Hunter Water	142,000	148,000	612				55,703	65,305	60,436						96	2,440			78	91	10,000	3.5	2.5	3.0								236	273	249			
	Water NSW	208,000	217,000																																			
	LWUs with > 10,000 Properties																																					
112	Central Coast	98,000	88,800	644	82,065	85,300	70,398	45,829	44,036	35,735	0.56	0.52	0.51	*90*	77	67	1,476	2,277	16,900	7	8	10,700	1.2	1.5	1.6	0.4	0.8	19	67	2.3	413	110	345	323	259	109	106	103
3	Shoalhaven	26,800	25,000	527	19,341	19,261	19,957	12,863	13,002	13,179	0.67	0.68	0.66	70	61	76	364	638	12,400	-1	-4	7,670	0.9	1.7	1.2	2.3	1.7	158	127	1.6	6	0	274	275	278	131	129	141
4	Rous (Bulk Supplier) (NO SGE)	23,000	26,600		17,019	17,409	18,206	11,114	11,048	10,702	0.65	0.63	0.59				328	476		5	2		1.7	1.8	3.0	1.3	2.5	61	174	4.4	98	51	238		258	104	123	128
5	MidCoast	31,200	34,800	876	28,473	28,360	31,811	15,844	18,481	18,411	0.56	0.65	0.58	73	69	69	434	723	17,500	22	21	10,900	0.7	0.7	0.3	-0.9	-1.2	-148	-200	1.7	809	170	411	477	463	99	126	140
6	Tweed	28,800	30,900	948	22,992	21,106	25,196	13,480	13,521	13,681	0.59	0.64	0.54	74	71	75	498	672	18,800	0	-2	15,300	2.4	1.6	2.2	0.9	1.5	104	145	8.5	180	139	423	418	420	176	185	190
7	Port Macquarie-Hastings (Unfiltered)	26,700	38,700	1,274	20,295	21,424	23,719	11,624	12,114	11,852	0.57	0.57	0.50	75	76	70	358	598	18,700	-8	-9	11,800	1.7	1.2	4.1	1.6	4.6	142	416	5.8	84	12	386	392	390	150	153	157
8	Riverina (Groundwater) (NO SGE)	30,500	32,800	1,034	22,467	25,026	26,037	10,114	8,271	7,663	0.45	0.33	0.29	73	67	76	317	452	13,700	-9	-2	10,000	5.3	7.5	5.7	7.9	5.9	376	443	3.3	30	5	338	270	236	122	72	51
11	Albury City	16,800	18,700	737	12,883	14,102	16,095	7,209	7,121	6,991	0.56	0.50	0.43	68	73	76	213	415	16,900	-6	-9	8,380	1.7	1.9	2.8	2.2	3.2	121	250	2.9	0	0	306	272	276	112	91	123
10	Coffs Harbour	22,100	23,100	922	17,364	17,419	18,166	9,857	9,887	9,726	0.57	0.57	0.54	76	75	76*	290	435	16,300	13	11	11,600	1.2	2.0	2.3	0.6	0.9	58	100	3.1	454	206	396	392	388	144	153	148
13	Tamworth Regional	20,100	22,000	1,000	18,012	15,844	18,097	11,490	11,221	11,406	0.64	0.71	0.63	66	56	60	216	377	17,100	-4	-4	9,830	3.3	2.0	2.6	2.3	2.9	68	243	23.6	58	32	536	481	518	198	201	193
14	Clarence Valley	14,900	15,800	734	11,698	11,873	13,178	8,144	8,330	7,073	0.70	0.70	0.54	68	65	76*	408	465	21,100	11	12	19,000	0.7	0.4	0.9	-0.1	0.5	-62	45	0.2	128	88	380	388	329	157	168	168
122	Dubbo Regional	23,700	22,700	1,097	18,995	20,112	18,784	10,253	9,998	9,043	0.54	0.50	0.48	74	64	71	195	270	14,200	-3	-4	9,420	3.4	5.1	5.1	4.5	4.7	378	385	10.4	110	73	511	485	437	165	166	179
119	Queanbeyan-Palerang (Reticulator)	21,400	21,000	1,009	18,007	19,706	19,949	17,054	17,721	17,092	0.95	0.90	0.86	*90*	81	71*	116	203	9,960	-16	-16	5,570	0.9	0.7	0.9	0.9	1.2	51	71	0.4	33	5	590	332	567	182	193	189
15	Eurobodalla	17,000	18,300	928	14,261	15,120	15,919	8,270	7,923	8,375	0.58	0.52	0.53	83	77	58	278	425	20,200	-1	-3	14,100	0.4	1.1	1.3	1.0	1.4	92	175	1.4	356	8	423	405	425	210	206	234
12	Fish River WS (Unfiltered, Bulk Supplier)	10,000	10,000		10,045			3,367			0.34						35	255					15.6										143			43		0
16	Wingecarribee	13,200	17,700	915	11,487	10,352	11,614	7,101	7,107	7,483	0.62	0.69	0.64	77	78	71	170	282	13,800	-4	-8	8,760	1.8	1.5	3.5	1.8	3.8	132	326	0.0	20	7	375	308	387	139	143	154
19	Orange	17,600	17,800	988	10,850	11,944	13,800	6,577	5,939	6,584	0.61	0.50	0.48	76	70	64	229	347	19,300	-12	-13	12,700	2.9	4.0	3.5	4.4	4.0	436	402	4.1	56	8	383	339	365	141	144	148
21	Bathurst Regional	15,200	16,000	996	12,678	12,978	14,393	8,287	8,561	9,692	0.65	0.66	0.67	63	50	79	168	305	19,900	-12	-12	10,400	1.8	1.6	1.4	1.7	1.5	126	122	8.1	0	0	532	545	603	154	143	186
23	Bega Valley (Unfiltered)	9,990	10,900	756	9,239	9,197	9,855	7,286	7,803	8,620	0.79	0.85	0.87	80	70	64	193	316	21,500	-3	-3	13,400	-0.6	-0.8	-1.2	-0.5	-1.0	-68	-131	3.6	0	0	506	543	598	265	298	306
24	Ballina (Reticulator)	11,600	11,900	781	9,451	9,524	9,880	9,097	9,258	9,236	0.96	0.97	0.93	74	81	65	71	116	7,090	17	15	4,660	0.3	1.2	1.6	1.8	2.1	82	91	0.7	0	0	510	246	463	150	152	143
22	Lismore (Reticulator)	11,800	12,700	906	10,553	11,495	12,062	8,809	8,765	8,956	0.83	0.76	0.74	74	70	68	79	133	9,950	-2	-2	5,610	0.2	1.6	2.5	1.3	2.3	38	88	0.2	48	30	495	270	492	127	111	124
25	Kempsey (Groundwater)	12,500	11,100	890	9,202	9,782	9,888	5,993	5,972	5,532	0.65	0.61	0.56	65	59	56	193	273	22,700	8	7	15,500	0.0	1.3	0.7	0.7	0.0	43	-42	7.1	237	100	481	477	444	188	182	179
27	Byron (Reticulator)	8,880	9,840	859	7,720	7,736	8,195	6,715	6,791	6,764	0.87	0.88	0.83	71	70	71	59	96	8,050	14	11	5,130	1.6	1.6	3.1	2.1	3.6	83	146	0.5	37	0	479	274	471	130	137	137
20	Goulburn Mulwaree	10,100	10,700	948	9,212	9,218	9,530	4,336	4,772	4,332	0.47	0.52	0.45	68	59	73*	215	311	28,300	-5	-8	19,100	1.0	0.8	1.1	0.4	0.7	45	123	1.5	160	115	418	426	384	115	149	120
26	Essential Energy	14,600	25,200	2,393	14,729	14,297	13,624	13,477	10,794	13,577	0.91	0.75	1.00	50	58	57												-238	-264		0		1,281	1,025	1,289	66	134	77
28A	Goldenfields (Reticulator) (NO SGE)	14,700	15,300	1,487	12,711	13,674	13,784	6,550	6,824	6,840	0.52	0.50	0.50	40	37	78	136	218	19,900	-13	-16	13,200	2.3	3.6	3.9	4.0	4.5	575	611	4.6	0		811	658	834	212	248	270
28B	Goldenfields (Bulk Supplier) (NO SGE)	5,510	6,000		4,775	5,231	5,612	2,871	2,933	3,016	0.60	0.56	0.54				80	173		-15	-15		0.9	0.0	0.3	0.5	0.8	17	31		0		146		151	50	60	63
	Medians (% of LWUs basis excl bulk suppliers) and *totals* for >10,000 Properties	556,680	594,340	*925*	456,524	457,490	467,749	283,611	278,193	271,561	*0.62*	*0.65*	*0.55*	*74*	*70*	*69*	7,120	11,250	*17,100*	*-3*	*-3*	*10,700*	*1.2*	*1.6*	*2.2*	*1.6*	*1.7*	*-25*	*123*	*2.9*	*52*	*10*	*423*	*392*	*431*	*147*	*151*	*151*
	LWUs with 4,001 - 10,000 Properties																																					
111	Armidale Regional	10,100	8,940	882	9,365	9,590	7,744	5,807	4,649	5,370	0.62	0.48	0.69	*90*	63	72	168	224	21,600	-7	-9	16,500	0.9	1.6	0.6	1.7	0.9	292	153	6.4	47	0	590	465	530	177	126	100
120	Snowy Monaro (Unfiltered)	6,930	7,410	746	6,549	6,431	6,842	4,436	4,112	3,503	0.68	0.64	0.51	68	61	47*	79	157	18,400	-10	-11	7,960	0.3	0.6	2.4	0.9	2.7	66	204	3.1	11	3	453	417	353	169	153	145
30	Griffith	8,900	9,890	1,183	7,865	8,398	8,784	5,565	5,946	5,958	0.71	0.71	0.68	69	66	83*	131	182	18,500	2	0	15,600	0.7	0.7	1.4	0.9	1.7	137	266		108	0	625	648	713	280	297	308
31	Lithgow	6,440	6,720	830	6,274	6,324	6,542	4,556	5,026	4,796	0.73	0.79	0.73	*90*	80	78	30	91	11,100	10	9	3,760	2.0	0.4	2.0	0.0	1.8	-6	-134	1.1	13	12	565	438	592	147	196	137
32	Mid-Western Regional	7,680	7,170	871	6,200	6,285	6,498	4,037	4,337	4,133	0.65	0.69	0.64	75	74	80	64	111	13,700	-4	-5	7,720	2.6	2.8	2.2	2.8	2.3	212	182	9.1	68	26	509	523	502	157	126	202
116	Hilltops (Reticulator)	6,620	7,290	996	5,530	6,309	6,836	4,796	5,550	5,345	0.87	0.88	0.78	67	70	63	42	102	14,000	-4	-4	5,700	-0.6	-0.7	1.8	-0.3	2.2	-73	101	0.2	7	1	283	262	325	92	118	99
33	Richmond Valley	5,710	5,570	773	5,120	5,468	5,253	4,355	4,233	4,037	0.85	0.77	0.77	57	39	74	73	87	11,700	2	3	10,200	0.3	0.9	1.0	1.0	1.1	47	62	4.8	0	0	561	457	501	287	254	250

Table 11: Water supply - financial and efficiency

	WATER UTILITY	WATER SUPPLY FINANCIAL (SEE ALSO COST RECOVERY TABLE 6)																												EFFICIENCY (SEE ALSO COST RECOVERY TABLE 6)					
		Total Revenue Water (excl. Capital Works Grants) ($'000) (57) F1		Revenue per property ($) (57a) F5	Revenue from Rates and Charges ($'000) (57b)			Operating Cost (OMA) ($'000) (57c)			Ratio of OMA to Rates and Charges Revenue (%) (57d)			Residential Revenue			Current Replacement Cost of System Assets (CRC)			Net Debt to Equity WS & Sge (%) (63) F22		WDV CRC per Property ($/prop) (62a) F9/C4	ERRR (%) see also Table 6 Col (12) (63a) F17			Return on Assets (%) (63b)		Operating Result ($/property) (65)		Externalities (Fees to Water NSW) ($/property) (66)	Loan Payment ($/property) (66a)		Operating Cost (OMA) ($/property) (67) F11**			Management Cost ($/property) (68)+		
														Percent of rates & charges (%)* (58)	Res Water Supplied (% of water supplied excluding losses) (59)	Percent from Usage Charges (%) (58a) F4	Written Down CRC ($M) (60) F9	CRC ($M) (61)	CRC per Assessment ($/assmnt) (62)																						
		14/15	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*15/16*	*15/16*	*15/16*	*14/15*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*14/15*	*15/16*	*15/16*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*
35	Singleton	4,830	7,940	1,178	4,537	4,237	4,731	3,313	3,370	3,167	0.73	0.80	0.67	66	62	75*	60	60	8,410	-36	-37	8,860	1.3	-0.5	5.0	1.7	6.9	114	580	18.0	0	0	492	480	470	151	162	160
34	Nambucca (Groundwater)	5,330	5,430	846	4,272	4,523	4,793	2,073	2,215	2,083	0.49	0.49	0.43	75	63	78	93	128	18,900	7	5	14,500	2.1	2.2	1.8	1.2	0.6	165	83	5.2	294	238	327	349	324	113	124	122
36	Parkes	7,250	8,700	1,452	6,006	6,206	6,743	3,852	3,992	4,028	0.64	0.64	0.60	76	69	81	85	187	29,700	-29	-26	14,200	0.9	1.4	3.0	3.1	4.2	361	556	15.1	0	0	634	610	638	163	215	235
41	Muswellbrook	4,860	5,200	890	4,787	4,344	4,801	4,140	3,639	3,576	0.86	0.84	0.74	68	71	71*	51	89	14,300	-21	-21	8,670	0.1	-0.5	0.3	0.8	1.8	44	147	11.9	69	29	715	607	612	248	192	218
37	Inverell	4,430	4,820	832	4,058	3,920	4,405	3,007	3,024	2,158	0.74	0.77	0.49	86	58	48	78	103	17,500	-6	-7	13,500	1.0	0.8	2.3	0.9	1.8	115	248	7.7	45	15	547	511	518	57	61	55
121	Snowy Valleys	4,450	3,760	664	4,195	4,165	3,651	2,343	2,687	2,196	0.56	0.65	0.60	89	66	77*	61	99	16,600	-1	1	10,800	0.8	0.3	0.2	-0.1	-0.1	-28	-78	4.2	136	58	418	474	388	114	162	129
114	Federation	5,140	4,190	744	3,992	4,605	3,875	2,611	2,558	2,639	0.65	0.56	0.68	78	54	82	40	60	9,850	-11	-11	7,150	1.7	3.6	1.5	4.2	1.9	239	108	6.2	0	0	479	469	469	201	113	119
40	Central Tablelands (NO SGE)	5,220	5,700	1,033	4,786	4,799	4,982	3,006	3,436	3,379	0.63	0.72	0.68	51	51	71*	53	123	21,100	-5	-8	9,510	1.0	0.1	1.1	0.1	1.1	13	96	6.5	106	36	552	626	612	263	252	258
39	Cowra	6,830	7,080	1,331	5,255	5,692	6,008	3,798	3,970	3,978	0.72	0.70	0.66	62	52	78*	53	129	23,100	6	4	9,910	0.1	2.0	2.3	1.2	1.6	-33	5	18.0	166	83	722	683	748	56	56	63
38	Moree Plains (Groundwater)	5,790	6,770	1,472	5,991	5,453	6,598	3,233	2,751	3,378	0.54	0.50	0.51	73	86	82*	50	83	17,500	3	2	10,900	3.9	4.1	4.7	3.1	3.7	328	404	9.4	185	155	707	598	734	282	208	309
117	Murray River (Dual Supply)	4,160	4,160	900	3,413	3,675	3,589	2,299	2,467	2,112	0.67	0.67	0.59	67	67	43	38	57	11,700	-11	-13	8,220	1.9	2.1	3.3	2.3	3.5	188	-90	6.0	64	5	510	517	457	116	124	105
45	Upper Hunter	6,450	5,220	1,135	4,696	4,824	4,920	3,170	2,899	3,055	0.68	0.60	0.62	66	55	72*	52	79	15,800	-12	-11	11,300	2.0	5.1	2.3	5.1	2.3	585	245	11.2	87	53	720	659	664	213	267	288
46	Narrabri (Groundwater)	3,630	4,030	906	3,719	3,517	3,625	2,035	2,108	2,411	0.55	0.60	0.67	*90*	58	55	26	59	13,000	-24	-24	5,870	6.8	2.6	3.1	4.2	4.6	225	270	7.9	0	0	453	480	542	192	267	226
44	Gunnedah (Groundwater)	4,320	4,830	1,196	3,633	3,476	3,992	1,912	2,066	1,931	0.53	0.59	0.48	69	57	75	41	68	17,200	-22	-24	10,200	3.6	3.3	4.8	4.1	5.5	283	469	6.8	0	0	429	469	478	162	168	149
47	Bellingen (Unfiltered)	2,200	2,240	546	2,273	1,930	2,089	1,483	1,600	1,597	0.65	0.83	0.76	*90*	56	78	44	59	13,700	-18	-17	10,800	1.4	-0.3	-0.2	0.9	0.9	58	84	2.6	0	0	363	391	390	186	250	*250*
48	Leeton	3,680	4,070	985	3,342	3,498	3,777	2,472	2,407	2,226	0.74	0.69	0.59	75	64	66	34	74	16,400	-19	-21	8,330	-0.4	0.4	2.0	1.1	3.0	27	171		26	0	632	549	539	140	141	141
	Medians (% of LWUs basis) and **totals** for 4,000 to 10,000 Properties	130,950	137,130	*900*	115,858	117,669	121,078	78,299	79,042	77,056	*0.67*	*0.69*	*0.66*	*73*	*63*	*74*	1,446	2,410	*16,400*	*-7*	*-9*	*9,910*	*1.0*	*0.9*	*2.0*	*1.2*	*1.9*	*115*	*153*	*6.5*	*45*	*3*	*547*	*480*	*518*	*163*	*162*	*149*
	LWUs with 1,501 - 4,000 Properties																																				
115	Cootamundra-Gundagai (Reticulator)	3,190	3,110	770	3,088	3,114	3,012	2,451	2,779	2,545	0.79	0.89	0.84	71	73	59	14	34	8,070	-15	-14	3,360	1.8	-0.3	1.0	-0.1	1.4	-10	47	1.13	0	0	315	323	339	97	143	125
51	Forbes	2,970	3,520	939	2,600	2,861	3,379	2,292	2,496	2,308	0.88	0.87	0.68	89	69	79	34	75	20,200	-16	-18	9,060	-1.7	-1.6	0.4	-0.8	1.2	-73	107	23.8	0	0	623	573	615	70	72	85
53	Berrigan (Dual Supply)	3,120	3,370	944	2,601	2,724	2,931	1,601	1,654	2,011	0.62	0.61	0.69	*90*	69	41	26	44	12,200	-19	-22	7,380	2.6	3.2	2.8	3.6	3.5	231	214	3.9	6	3	455	467	563	118	117	117
54	Edward River	2,590	2,620	722	2,356	2,540	2,571	1,929	1,847	1,559	0.82	0.73	0.61	82	72	62	37	53	14,000	-8	-11	10,300	-0.4	0.4	1.4	1.1	2.0	73	166	7.6	0	0	550	528	429	252	230	204
55	Warrumbungle	2,720	3,180	961	2,613	2,593	2,895	1,983	2,227	2,244	0.76	0.86	0.78	81	70	54	28	63	18,800	-7	-8	8,410	-0.2	-1.2	0.5	-1.1	0.7	-118	36	5.5	12	11	601	673	678	143	145	198
56	Yass Valley	3,750	4,260	1,291	3,139	3,052	3,380	1,442	1,427	1,500	0.46	0.47	0.44	*90*	79	57	41	61	18,200	18	26	12,500		3.8	3.6	1.7	1.6	386	116	6.1	290	272	448	439	455	227	218	238
60	Glen Innes Severn	1,890	2,060	696	1,811	1,813	1,985	1,215	1,188	1,294	0.67	0.66	0.65	*90*	75	53	20	37	11,300	6	5	6,760	1.2	1.2	1.6	0.3	0.7	6	23	4.9	98	60	412	390	437	199	194	192
59	Lachlan	3,430	3,720	1,305	2,923	3,406	3,687	2,517	2,483	2,457	0.86	0.73	0.67	*90*	74	83	53	102	36,700	-14	-14	18,700	-1.2	-1.0	-0.5	-0.7	0.1	-140	-24	15.2	0	0	848	798	813	152	160	203
61	Liverpool Plains	2,650	3,180	1,237	2,516	2,604	3,011	1,809	1,619	1,436	0.72	0.62	0.48	*90*	68	39	44	60	22,900	-8	-10	17,200	1.3	0.5	2.5	0.5	2.5	74	425	6.0	135	94	648	587	559	356	257	223
74	Wentworth (Dual Supply)	2,250	2,430	1,038	2,176	2,181	2,326	1,094	1,073	1,164	0.50	0.49	0.50	90	63	54	22	41	16,700	-15	-17	9,490	4.7	4.6	3.5	4.2	3.5	341	271	14.3	0	0	482	443	497	73	71	71
67	Cobar	4,320	3,310	1,465	2,984	2,925	2,948	2,769	2,293	2,670	0.93	0.78	0.91	*90*	76	77	12	27	11,500	-15	-17	5,330	-0.2	14.7	2.5	14.8	3.1	760	162	18.3	0	0	1,225	1,015	1,181	103	139	131
66	Cobar WB (Bulk Supplier)	4,040	3,340		3,949	3,515	2,969	2,757	2,437	2,041	0.70	0.69	0.69				87	165			-7		-0.6	-0.5	-0.9	-0.4	-0.8											
62	Narromine (Groundwater)	1,590	1,610	745	1,473	1,543	1,547	1,092	1,279	1,104	0.74	0.83	0.71	*90*	78	73	9	19	8,490	-29	-26	4,310	4.8	2.8	4.4	4.4	5.4	111	235	7.3	0	0	515	603	511	219	329	220
63	Narrandera (Groundwater)	1,770	1,860	890	1,815	1,726	1,790	931	1,159	945	0.51	0.67	0.53	82	66	65*	11	23	9,980	-27	-27	5,110	5.5	3.9	2.6	6.3	4.9	269	214	5.5	0	0	450	555	452	79	132	122
68	Tenterfield	1,610	1,800	909	1,418	1,469	1,648	1,059	1,087	1,121	0.75	0.74	0.68	82	76	51*	17	44	21,200	1	0	8,390	1.8	0.1	0.9	0.2	1.1	18	79	3.4	15	11	527	529	566	194	250	238
73	Upper Lachlan	1,510	1,910	950	1,606	1,438	1,795	1,013	1,152	1,215	0.63	0.80	0.68	*90*	78	54	22	36	17,800	-9	-11	10,700	1.7	-0.7	0.7	-0.8	0.7	-105	77	5.4	58	29	514	579	604	122	134	153
79	Walgett (Dual Supply)	1,540	1,890	979	1,524	1,516	1,866	3,383	985	2,115	2.22	0.65	1.13	78	75	34*	20	39	16,900	-17	-19	10,400	-12.0	5.1	-2.5	5.1	-4.4	497	-500	29.6	5	1	1,753	510	1,096	447	76	56
70	Kyogle	1,300	1,500	789	1,160	1,240	1,254	1,244	1,030	1,056	1.07	0.83	0.84	69	65	43	17	28	13,800	0	-1	8,860	-1.4	0.6	1.4	0.4	0.9	22	57	3.6	149	47	701	539	631	150	147	167
80	Greater Hume	1,580	1,870	984	1,323	1,456	1,764	1,216	1,257	1,447	0.92	0.86	0.82	75	76	62*	22	34	16,800	-7	-7	11,300	-0.8	-0.5	-0.1	-0.2	0.2	-31	12	2.8	0	0	503	320	500	140	148	147
75	Coonamble (Groundwater)	987	1,320	786	830	956	1,247	475	723	734	0.57	0.76	0.59	*90*	80	71*	14	22	13,300	-22	-24	8,290	-0.8	-1.7	0.7	-1.1	1.1	-110	60	7.3	0	0	286	430	437	63	0	*0*
	Medians (% of LWUs basis) and **totals** for 1,500 to 4,000 Properties	44,767	48,520	*944*	39,956	41,157	45,036	31,515	29,758	30,925	*0.75*	*0.74*	*0.68*	*90*	*74*	*55*	463	843	*16,700*	*-14*	*-13*	*8,860*	*-0.2*	*0.5*	*1.2*	*0.4*	*1.1*	*22*	*79*	*6.0*	*0*	*0*	*515*	*529*	*559*	*143*	*145*	*153*

Table 11: Water supply - financial and efficiency

	WATER UTILITY	WATER SUPPLY FINANCIAL (SEE ALSO COST RECOVERY TABLE 6)																												EFFICIENCY (SEE ALSO COST RECOVERY TABLE 6)					
		Total Revenue Water (excl. Capital Works Grants)		Revenue per property	Revenue from Rates and Charges			Operating Cost (OMA)			Ratio of OMA to Rates and Charges Revenue			Residential Revenue			Current Replacement Cost of System Assets (CRC)			Net Debt to Equity WS & Sge		WDV CRC per Property	ERRR			Return on Assets		Operating Result		Externalities (Fees to Water NSW)	Loan Payment		Operating Cost (OMA)			Management Cost		
		($'000)		($)	($'000)			($'000)			(%)			Percent of rates & charges (%)*	Res Water Supplied (% of water supplied excluding losses)	Percent from Usage Charges (%)	Written Down CRC ($M)	CRC ($M)	CRC per Assessment ($/assmnt)	(%)		($/prop)	(%) see also Table 6 Col (12)			(%)		($/property)		($/property)	($/property)		($/property)			($/property)		
		(57) F1		(57a) F5	(57b)			(57c)			(57d)			(58)	(59)	(58a) F4	(60) F9	(61)	(62)	(63) F22		(62a) F9/C4	(63a) F17			(63b)		(65)		(66)	(66a)		(67) F11**			(68)+		
		14/15	15/16	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	15/16	14/15	15/16	15/16	13/14	14/15	15/16	14/15	15/16	14/15	15/16	15/16	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16
LWUs with 200 - 1,500 Properties																																						
81	Gwydir	1,350	*1,430*	973	1,463	1,315	1,398	671	792	838	0.46	0.60	0.60	65	59	49	15	21	13,300	-5	-6	10,300	6.0	3.0	2.6	1.3	1.7	-14	-18	9.6	268	113	456	539	570	32	35	54
85	Uralla	921	1,040	698	896	880	1,003	683	558	663	0.76	0.63	0.66	*90*	87	59	14	16	11,000	-11	-12	9,710	0.1	0.8	0.5	1.1	0.8	136	99	2.5	0	0	478	385	445	210	135	170
87	Bourke (Dual Supply)	1,940	1,640	1,171	1,652	1,610	1,620	1,467	1,403	1,166	0.89	0.87	0.72	*90*	98	78	10	23	16,800	-13	-14	7,100	-0.9	1.5	-2.3	2.1	-1.5	153	-106	17.1	26	24	1,063	1,017	833	290	339	155
84	Gilgandra (Groundwater)	915	972	731	921	893	944	563	573	519	0.61	0.64	0.55	79	75	71	15	27	20,100	-12	-9	11,100	0.8	0.4	-0.1	1.0	0.2	9	-72	20.7	31	17	417	424	390	60	75	81
86	Hay (Dual Supply)	1,180	1,130	837	1,062	1,144	1,103	864	792	784	0.81	0.69	0.71	85	78	54	11	24	17,700	-17	-17	7,920	-0.7	0.8	0.4	1.0	0.6	77	46	7.5	0	0	650	589	581	265	235	231
83	Oberon (Reticulator)	1,440	1,770	1,362	1,305	1,406	1,743	1,224	1,088	1,243	0.94	0.77	0.71	*90*	28	73	8	12	9,640	-7	-10	6,030	-0.5	2.2	4.4	2.1	4.4	191	267		8	0	913	332	955	123	97	125
118	Murrumbidgee (Groundwater)	848	831	649	813	823	811	685	649	527	0.84	0.79	0.65	85	97	62*	10	18	13,600	-20	-19	7,640	-0.9	-0.5	0.9	0.2	1.4	-11	74	8.6	0	0	535	502	412	155	159	154
92	Carrathool (Groundwater)	1,980	1,820	1,556	1,674	1,941	1,509	1,257	1,202	1,025	0.75	0.62	0.68	*90*	87	50*	16	23	18,500	2	2	13,500	0.9	3.2	3.1	3.1	2.8	364	356	16.1	79	56	982	941	876	102	112	92
89	Bogan	2,230	2,860	2,577	1,598	1,692	1,844	1,440	1,887	2,093	0.90	1.12	1.14	*90*	67	59	14	33	30,100	-15	-15	12,500	-0.6	-0.6	2.4	-0.3	2.6	-44	332	50.3	0	0	1,263	1,586	1,886	354	508	560
91	Cabonne	900	1,180	1,009	862	869	1,157	644	609	694	0.75	0.70	0.60	74	77	61	24	46	37,100	-3	-3	20,600	-0.8	-0.8	-0.1	-0.4	0.2	-84	-73	6.5	0	0	555	521	593	105	89	89
96	Warren (Dual Supply)	675	672	715	623	662	659	529	465	514	0.85	0.70	0.78	90	79	50	7	15	14,300	-19	-17	7,480	-1.0	0.3	-0.6	0.5	-0.4	20	-67	18.7	0	0	551	471	547	186	168	165
98	Walcha	580	624	678	632	571	614	584	634	641	0.92	1.11	1.04	*90*	59	63*	16	18	20,300	-7	-7	17,500	-0.9	-1.7	-1.4	-1.6	-1.3	-271	-236	2.4	0	0	635	689	697	150	254	259
100	Balranald (Dual Supply)	1,080	1,070	1,216	882	1,062	1,057	526	499	547	0.60	0.47	0.52	83	84	60	7	16	17,400	-7	-8	8,010	2.2	2.1	2.0	1.6	1.4	251	111	13.1	149	53	578	531	622	153	105	93
103	Central Darling (Dual Supply)	1,840	789	1,081	807	741	789	1,085	697	738	1.34	0.94	0.94	*90*	90	81	26	46	62,700	-2	-4	35,500	4.4	2.2	-2.2	2.3	-2.1	791	-733	12.0	0	0	1,466	942	1,011	11	16	15
105	Brewarrina (Dual Supply)	1,050	1,020	2,170	922	976	976	714	770	695	0.77	0.79	0.71	*90*	92	74	6	16	28,200	-16	-16	12,200	6.4	-0.2	0.6	-0.5	0.6	-162	-66	16.2	70	23	1,457	1,638	1,479	473	560	579
Medians (% of LWUs basis) and totals for 200 to 1,500 Properties		18,929	18,848	*1,009*	16,112	16,585	17,227	12,936	12,618	12,687	*0.81*	*0.70*	*0.71*	*90*	*79*	*61*	198	354	17,700	*-11*	*-10*	10,300	*-0.5*	*0.8*	*0.5*	*1.0*	*0.6*	*-69*	*-18*	*12.6*	*0*	*0*	*635*	*539*	*622*	*153*	*135*	*154*
Median All LWUs (% of LWUs basis)													*0.66*	*Current Replacement Cost $/Assessment*					*16,900*		*-9*		*ERRR*		*1.6*							*OMA $ per property*		*$510*	*anagement Cost*		*$150*
Median All LWUs (Statewide basis)													*0.56*						*17,400*		*-3*				*2.3*							*$11*		*$440*			*$148*
	Totals for all LWUs (including bulk suppliers)	*$800 M Total Water Supply Revenue*			*$650 M Total Rates and Charges Revenue*			*$390 M Total OMA Cost*									*Total WS CRC $15,000M*			*Total WDC*	*$9,300M*																	

* Where the residential revenue is reported to be greater than 90% of the revenue from rates and charges, a maximum value of 90% has been adopted. This is shown in ***italics bold*** in column (58).

** The Operating Cost and Total Cost shown in the table exclude the purchase cost of water but include part of the operating cost of the bulk water provider, apportioned according to the ratio of water purchased to total water supplied to all customers. This differs from the NWI definition, as indicated in Appendix H4.5.

\+ If the reported management cost is less than $20/property or not reported, the previous year's management cost has been adopted in column (68) and is shown in ***italics bold*** . In such cases, the OMA cost per property has not been increased to include this adopted management cost.

\# The 2015-16 financial results for the amalgamated LWUs are for the period 1 July 2015 to 12 May 2016 (see Appendix L).

Table 12: Water supply - health and levels of service

	WATER UTILITY	HEALTH																	LEVELS OF SERVICE																	
		Drinking Water Management System		Water Quality Compliance (%)															Water Quality Complaints			Water Service Complaints			Customer Inquiries	Customers with Restrictions or Legal Action for non-payment of Bills per 1000 props		Incidence of Unplanned Interruptions			Average Duration of Interruptions			Drought Water Restrictions		
				Physical				Chemical						Microbiological (E. coli)																							
				(69)			(69a)	(70)			(70a)	No. zones compliant	% Pop'n with Compliance	(71)			(71a)	No. zones compliant	% Pop'n with Compliance	(per 1000 properties)			(per 1000 properties)			(per 1000 properties)	Restrictions	Legal Action	(No./1000 properties)			(Minutes)			(% of time)		
		Basis (68a)	External Assmnt (68b)	% Samples complying with 2011 NHMRC/NRMMC Guidelines			Complied ?	% Samples complying with 2011 NHMRC/NRMMC Guidelines			Complied ?	(70b)	(70c) H4	% Samples complying with 2011 NHMRC/NRMMC Guidelines			Complied ?	(71b)	(71c) H3	(73) C9			(74) C10			(74a)	(75a) C18	(75b) C19	(77) C17			(78) C15			(78a)		
			H5	*13/14*	*14/15*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*
	Sydney Water	ISO9001	0					100	100	100	Yes	0	100	100	100	100	Yes	13 of 13	100	0.4	0.4	0.4	0.2	0.2	0.2		3.20	0.60	183	179	190	151	147	136			
	Hunter Water	ADWG	0					100	100	100	Yes	0	100	100	100	100	Yes	5 of 5	100	3	3	2	0.1	0.1	0.1		6.40	0.40	304	267	310	128	136	137			
	Water NSW																																			
LWUs with > 10,000 Properties																																				
112	Central Coast	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	10	11	17	6	6	-	-	0	2	133	94	113	311	382	198	0	0	0
3	Shoalhaven	HACCP		99	100	100	Yes	100	100	100	Yes	4 of 4	100	100	100	100	Yes	4 of 4	100	0.3	0.5	0.2	0	1	1	-	0.5	0.5	65	78	49	220	135	202	0	0	0
4	Rous (Bulk Supplier) (NO SGE)	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	1	0.0	0	0	0	0	4	0	0	1	1	-	195	237		0	0	0
5	MidCoast	ADWG	Yes	99	97	96	Yes	99	100	99	Yes	4 of 5	94	100	100	100	Yes	5 of 5	100	3	3	4	2	4	2	115	0.3	0	2	6	-				9	0	0
6	Tweed	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	5	6	5	28	17	34	120	0.0	9	50	19	37	149	134	112	0	0	0
7	Port Macquarie-Hastings (Unfiltere	ADWG		99	100	100	Yes	100	100	100	Yes	5 of 5	100	100	100	100	Yes	5 of 5	100	7	6	5	14	20	17	2	0.3	0	10	14	10	174	210	121	100	100	0
8	Riverina (Groundwater) (NO SGE)	HACCP	Yes	94	100	100	Yes	100	100	99	Yes	13 of 14	91	100	100	100	Yes	14 of 14	100	3	3	3	3	2	2	0	4	8.1	63	57	53	173	185	206	0	0	0
11	Albury City	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	3	3	2	1	1	3	22	1.7	24	-	-	-	124	137	137	0	0	0
10	Coffs Harbour	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	0	0	0	0	0	0	0	3.4	0	9	11	30	120	120	120	0	0	0
13	Tamworth Regional	ADWG		89	91	100	Yes	100	100	100	Yes	7 of 7	100	99	100	100	Yes	7 of 7	100	0	0	0	56	43	40	-	0.3	0	-	-	-				60	100	100
14	Clarence Valley	ADWG		100	100	100	Yes	100	100	100	Yes	5 of 5	100	100	100	100	Yes	5 of 5	100	23	14	10	57	68	28	47	0.0	2	-	-	-		120	120	0	0	0
122	Dubbo Regional	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	0	1	0	6	7	11	58	0.6	0	54	19	32	75	131	165	0	0	0
119	Queanbeyan-Palerang (Reticulato	ADWG		98	100	100	Yes	100	100	100	Yes	5 of 5	100	100	100	100	Yes	5 of 5	100	0	0	0	21	17	23	11	0.0	10	1	6	4	180	180	180	100	100	100
15	Eurobodalla	ADWG		94	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	1	1	0	0	0	0	132	0.0	7	93	120	132	190	220	214	0	0	0
12	Fish River WS (Unfiltered, Bulk Su	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	98	100	100	Yes	1 of 1	100	0	0	0	0	0	-	-			0	0	-	600	600		0	0	0
16	Wingecarribee	ADWG		100	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	12	8	9	72	55	67	0	0.0	7	73	14	57	108	122	117	100	100	100
19	Orange	ADWG		100	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	1	1	2	53	62	82	-	0.1	0	73	51	58	238	255	135	100	100	100
21	Bathurst Regional	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	99	100	100	Yes	1 of 1	100	35	34	9	24	28	34	-	0.0	0	2	2	4	120	120	120	0	0	0
23	Bega Valley (Unfiltered)	ADWG		100	100	100	Yes	100	100	100	Yes	6 of 6	100	100	100	100	Yes	6 of 6	100	13	13	4	1	2	1	46	0.0	4	1	3	21	95	95	177	0	0	0
24	Ballina (Reticulator)	ADWG		99	100	100	Yes	100	100	100	Yes	3 of 3	100	99	100	100	Yes	3 of 3	100	4	0	0	4	0	0	58	0.0	3	1	0	1	120	120	120	0	0	0
22	Lismore (Reticulator)	ADWG		99	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	0	0	0	1	2	0	68	0.0	5	32	49	61	120	140	214	0	0	0
25	Kempsey (Groundwater)	ADWG		100	100	100	Yes	100	100	100	Yes	7 of 7	100	100	100	100	Yes	7 of 7	100	1	0	1	0	0	0	139	0.0	0	72	124	29	127	215	155	30	16	0
27	Byron (Reticulator)	ADWG		98	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	1	2	1	0	0	0	3	1.4	0	14	13	13	120	120	120	0	0	0
20	Goulburn Mulwaree	ADWG		92	98	96	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	8	5	20	28	36	51	-	7	0.1	17	3	27	180	180	180	100	100	100
26	Essential Energy	ADWG		92	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	0	0	0	0	0	0.4	-	34	0	-	-	-				0	56	100
28A	Goldenfields (Reticulator) (NO SG	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	7	5	0	1	0	1	68	1	0	77	96	100	192	205	240	0	0	0
28B	Goldenfields (Bulk Supplier) (NO S	ADWG		98	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	0	-	0	-	-	-	-			-	-	-				0	0	0
	Medians (% of LWUs basis excl bulk suppliers) for >10,000 Properties																			*2*	*3*	*2*	*5*	*5*	*5*				*36*	*35*	*31*	*147*	*163*	*146*	*0*	*0*	*0*
LWUs with 4,001 - 10,000 Properties																																				
111	Armidale Regional	ADWG		100	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	5	2	3	5	1	2	2	1	7	125	70	59	139	133	130	0	0	0
120	Snowy Monaro (Unfiltered)	ADWG		97	100	100	Yes	100	100	100	Yes	10 of 10	100	100	100	100	Yes	10 of 10	100	3	2.8	4	16	19	21	0	0	1	26	25	8	120	120	120	0	0	0
30	Griffith	ADWG		100	100	100	Yes	100	100	100	Yes	2 of 2	100	99	100	100	Yes	2 of 2	100	2	2	1	27	48	51	0	2	171	23	24	11	90	90	90	0	0	0
31	Lithgow	HACCP		98	100	100	Yes	100	100	100	Yes	1 of 1	100	99	100	100	Yes	1 of 1	100	10	35	12	67	74	-	-	0	66	-	-	-		180		100	100	100
32	Mid-Western Regional	ADWG		96	100	100	Yes	100	100	100	Yes	3 of 3	100	100	99	100	Yes	3 of 3	100	8	11	6	74	21	10	56	8	0	71	14	28			210	0	0	0
116	Hilltops (Reticulator)	ADWG		96	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	7	4	5	4	13	16	18	0	2	19	34	45	120	120	120	0	0	0

Table 12: Water supply - health and levels of service

	WATER UTILITY	HEALTH																	LEVELS OF SERVICE																	
		Drinking Water Management System		Water Quality Compliance (%)															Water Quality Complaints			Water Service Complaints			Customer Inquiries	Customers with Restrictions or Legal Action for non-payment of Bills per 1000 props		Incidence of Unplanned Interruptions			Average Duration of Interruptions			Drought Water Restrictions		
				Physical				Chemical						Microbiological (E. coli)							(per 1000 properties)			(per 1000 properties)			(per 1000 properties)			(No./1000 properties)			(Minutes)			(% of time)		
		Basis (68a)	External Assmnt (68b)	(69)			(69a)	(70)			(70a)	No. zones compliant	% Pop'n with Compliance	(71)			(71a)	No. zones compliant	% Pop'n with Compliance		(73) C9			(74) C10			(74a)	Restrictions (75a) C18	Legal Action (75b) C19	(77) C17			(78) C15			(78a)		
			H5	% Samples complying with 2011 NHMRC/NRMMC Guidelines			Complied ?	% Samples complying with 2011 NHMRC/NRMMC Guidelines			Complied ?	(70b)	(70c) H4	% Samples complying with 2011 NHMRC/NRMMC Guidelines			Complied ?	(71b)	(71c) H3																				
				13/14	*14/15*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*
33	Richmond Valley	HACCP		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	0	0	0	-	-	0	57			-	-	-				0	38	0
35	Singleton	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	2	4	2	38	24	23	24	0	9	48	24	32	110	120	330	0	0	0
34	Nambucca (Groundwater)	ADWG		98	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	1	2	3	13	1	9	42	8	0	-	-	0	120	120	120	100	100	0
36	Parkes	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	3	3	3	42	60	35	1	0	2	2	2	4	120	120	120	100	100	0
41	Muswellbrook	ADWG		91	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	20	18	13	2	2	1	58	0	0	2	2	3	234	270	299	0	0	0
37	Inverell	ADWG		99	100	100	Yes	100	100	100	Yes	3 of 3	100	99	100	100	Yes	3 of 3	100	1	0	0	2	1	1	1	4	0	2	2	1	60	60	60	0	0	0
121	Snowy Valleys	ADWG		98	100	100	Yes	100	100	100	Yes	6 of 6	100	100	99	100	Yes	6 of 6	100	3	2	4	4	3	2	16	0	28	-	-	3	120	120	120	41	50	50
114	Federation	ADWG		100	100	99	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	3	3	1	22	2	30	0	0	3	46	46	44	120	120	120	0	0	0
40	Central Tablelands (NO SGE)	ADWG		100	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	2	5	5	12	15	18	60	6	0	50	41	39	180	120	90	0	0	0
39	Cowra	ADWG		95	100	100	Yes	100	100	100	Yes	1 of 1	100	99	100	100	Yes	1 of 1	100	5	12	3	20	0	34	0	5	0	-	-	15	180	180	180	0	0	0
38	Moree Plains (Groundwater)	ADWG		99	100	100	Yes	100	100	100	Yes	6 of 6	100	99	100	100	Yes	6 of 6	100	6	3	6	90	87	89	121	0	0	613	-	22	60	60	60	0	0	0
117	Murray River (Dual Supply)	ADWG		100	100	100	Yes	100	100	100	Yes	7 of 7	100	99	100	100	Yes	7 of 7	100	2	1	0	3	3	2	-	0	1	7	9	6	90	90	90	100	0	100
45	Upper Hunter	ADWG		98	97	99	Yes	100	100	100	Yes	4 of 4	100	100	100	100	Yes	4 of 4	100	2	1	1	49	27	51	7	0	10	25	27	21	50	60	60	65	56	14
46	Narrabri (Groundwater)	ADWG		99	100	100	Yes	100	100	100	Yes	6 of 6	100	100	100	100	Yes	6 of 6	100	32	11	12	113	18	36	3	0	8	4	3	5	90	120	120	0	0	0
44	Gunnedah (Groundwater)	ADWG		92	98	98	Yes	98	98	99	Yes	3 of 4	99	99	99	100	Yes	4 of 4	100	0	1	2	24	33	14	5	0	0	7	3	10	180	150	150	100	100	100
47	Bellingen (Unfiltered)	ADWG		97	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	0	2	2	17	16	4	31	1	0	2	2	2	120	120	120	68	78	0
48	Leeton	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	0	0	0	1	0	0	0	0	0	14	15	16	120	120	120	0	0	0
	Medians (% of LWUs basis) for 4,000 to 10,000 Properties																			*2*	*2*	*3*							*25*	*26*	*11*	*120*	*120*	*120*	*0*	*0*	*0*
	LWUs with 1,501 - 4,000 Properties																																				
115	Cootamundra-Gundagai (Reticula	ADWG		96	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	2.0	0	2	34	55	44	5	1	3	16	15	21	90	90	90	0	0	0
51	Forbes	ADWG		98	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	4	2	1	38	53	65	1	8	0.0	106	115	120	120	120	90	36	0	0
53	Berrigan (Dual Supply)	ADWG		100	100	100	Yes	100	100	100	Yes	4 of 4	100	100	100	100	Yes	4 of 4	100	3	7	6	3	10	11	13	0	6	14	21	14	60	60	60	0	0	0
54	Edward River	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	99	100	100	Yes	1 of 1	100	1	1	1	2	3	2	10	0	0.0	14	25	20	65	90	90	0	0	0
55	Warrumbungle	ADWG		90	100	100	Yes	100	100	100	Yes	8 of 8	100	100	100	100	Yes	7 of 8	95	2	2	1	8	12	8	34	0	14.2	1	1	14	104	142	115	46	79	38
56	Yass Valley	ADWG		95	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	22	2	1	14	20	0	12	0	0.0	50	54	53	240	240	240	0	0	0
60	Glen Innes Severn	ADWG		96	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	0	0	0	0	0	0	17	2	0.0	34	13	14	180	180	180	0	40	0
59	Lachlan	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	1.4	0	0	25	-	4	42	0	0	-	-	16	100		100	0	0	0
61	Liverpool Plains	HACCP		87	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	0.7	1.8	7.8	61	75	76	6	0	0	48	46	54	40	35	30	0	49	0
74	Wentworth (Dual Supply)	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	0	6	0	22	10	28	22		4	132	-	1	30	35	35	0	0	0
67	Cobar	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	13	10	21	23	-	8	9	0	0	3	-	-	90			100	100	100
66	Cobar WB (Bulk Supplier Raw Wa																						-	-	-						60		60	0	0	0
62	Narromine (Groundwater)	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	0	0	1	16	0	1	115	0	12	-	-	1	60	60	60	0	0	0
63	Narrandera (Groundwater)	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	48	0	0	26	25	26	5	0	0	73	19	17	120	120	110	0	0	0
68	Tenterfield	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	99	100	100	Yes	3 of 3	100	5	1	0	20	2	3	1	7	0	13	13	10	180	180	180	0	0	0
73	Upper Lachlan	ADWG		83	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	0	0	0	0	1	3	7	0	0	2	2	6	120	120	120	0	0	0
79	Walgett (Dual Supply)	ADWG		85	100	100	Yes	100	100	100	Yes	3 of 3	100	99	98	99	Yes	2 of 3	42	3	0	3	-	-	-	-	0	0	-	1	-		180		100	100	100
70	Kyogle	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	99	100	100	Yes	3 of 3	100	5	2	2	16	19	15	0	0	0	-	9	12		90	90	0	69	100
80	Greater Hume	ADWG		100	100	100	Yes	97	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	0	0	0	36	16	14	27	0	0	11	7	10	90	90	90	0	0	0
75	Coonamble (Groundwater)	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	5	2	0	26	45	51	4	0	21	3	5	3	60	60	60	0	0	0
	Medians (% of LWUs basis) for 1,500 to 4,000 Properties																			*4*	*1*	*1*							*14*	*8*	*14*	*108*	*90*	*90*	*9*	*0*	*0*

Table 12: Water supply - health and levels of service

WATER UTILITY		HEALTH																LEVELS OF SERVICE																	
		Drinking Water Management System		Water Quality Compliance (%)														Water Quality Complaints			Water Service Complaints			Customer Inquiries	Customers with Restrictions or Legal Action for non-payment of Bills per 1000 props		Incidence of Unplanned Interruptions			Average Duration of Interruptions			Drought Water Restrictions		
				Physical				Chemical						Microbiological (E. coli)						(per 1000 properties)			(per 1000 properties)			(per 1000 properties)			(No./1000 properties)			(Minutes)			(% of time)		
		Basis (68a)	External Assmnt (68b)	(69) % Samples complying with 2011 NHMRC/NRMMC Guidelines			(69a) Complied ?	(70) % Samples complying with 2011 NHMRC/NRMMC Guidelines			(70a) Complied ?	No. zones compliant (70b)	% Pop'n with Compliance (70c) H4	(71) % Samples complying with 2011 NHMRC/NRMMC Guidelines			(71a) Complied ?	No. zones compliant (71b)	% Pop'n with Compliance (71c) H3	(73) C9			(74) C10			(74a)	Restrictions (75a) C18	Legal Action (75b) C19	(77) C17			(78) C15			(78a)		
		H5		*13/14*	*14/15*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*
LWUs with 200 - 1,500 Properties																																			
81	Gwydir	ADWG		100	100	100	Yes	99	100	100	Yes	3 of 3	100	99	100	100	Yes	3 of 3	100	19	6	3	0	0	0	-	0	14	3	3	2	180	180	180	16	0	25
85	Uralla	ADWG		100	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	4	1	4	10	6	0	8	0	0	35	38	60	120	120	120	12	0	22
87	Bourke (Dual Supply)	ADWG		80	100	100	Yes	100	100	100	Yes	1 of 1	100	98	100	100	Yes	1 of 1	100	0	0	0	23	33	37	0	0		684	684	674	45	60	60	9	0	16
84	Gilgandra (Groundwater)	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	13	4	7	36	33	51	7	0	6	8	8	10	90	75	75	0	0	0
86	Hay (Dual Supply)	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	0	0	4	10	10	19	4	0	0	8	8	7	120	120	120	0	0	0
83	Oberon (Reticulator)	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	3	0	0	4	4	4	4	0	0	2	1	1	120	120	120	0	0	0
118	Murrumbidgee (Groundwater)	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	8	3	1	14	-	0	0	0	0	-	-	5	200			0	0	0
92	Carrathool (Groundwater)	ADWG		100	100	100	Yes	100	100	100	Yes	3 of 3	100	100	100	100	Yes	3 of 3	100	2	1	2	12	7	13	57	0	0	1	-	1	180	0	60	100	0	0
89	Bogan	ADWG		100	100	100	Yes	96	100	100	Yes	1 of 1	100	98	100	100	Yes	1 of 1	100	0	0	0	47	105	164	-	0	0	34	24	32	95	171	211	33	0	0
91	Cabonne	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	1	0	1	1	1	3	0	1	1	7	5	3	150	180	120	0	0	25
96	Warren (Dual Supply)	ADWG		100	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	100	Yes	2 of 2	100	9	20	10	13	16	11	7	0	0	16	21	6	120	120	120	0	0	0
98	Walcha	ADWG		100	100	100	Yes	100	100	100	Yes	1 of 1	100	100	100	100	Yes	1 of 1	100	0	0	0	19	3	1	0	0	0	-	14	10		120	120	16	100	58
100	Balranald (Dual Supply)	ADWG		96	100	100	Yes	100	100	100	Yes	2 of 2	100	100	100	99	Yes	1 of 2	73	0.0	6	0.0	-	-	1	11	0	0	66	-	705	90	90	45	0	0	0
103	Central Darling (Dual Supply)	ADWG		97	100	95	Yes	98	100	100	Yes	2 of 2	100	98	100	100	Yes	2 of 2	100	60	50	69	114	46	58	14	0	0	14	16	69	240	120	60	0	66	27
105	Brewarrina (Dual Supply)	ADWG		95	100	100	Yes	100	100	100	Yes	2 of 2	100	99	100	100	Yes	2 of 2	100	4	9	0	10	64	2	2	4	0	20	4	2	15	60	15	0	0	0
Medians (% of LWUs) for 200 to 1,500 Properties																				*1*	*2*	*1*								*27*	*13*	*7*	*110*	*110*	*120*	*6*	*0*	*0*

Median All LWUs (% of LWUs basis)	*Physical*	*100*	*Chemical*	*100*	*Microbiological*	*100*	*Quality Complaints*	*2*	*Service*	*10*	*Interruption Incidence*	*15*	*Duration*	*120*	*Restrictions*	*0*
Median All LWUs (Statewide basis)		*100*		*100*		*100*		*3*	*Complaints*	*4*		*32*		*150*		*0*

Totals for all LWUs (including bulk suppliers)

Physical 82 LWUs complied
(100% of 82 LWUs)
99% of 3700 samples complied

Chemical 82 LWUs complied
(100% of 82 LWUs)
99.8% of 3080 samples complied

E. coli 82 LWUs complied
(100% of 82 LWUs)
99.9% of 21600 samples complied

31 LWUs applied restrictions for non payment of bills

21 LWUs applied drought water restrictions (ie. 26% of the LWUs)

84 LWUs (100%) have a Drinking Water Management System

NOTES:

1. *Where chemical water quality is compliant (column 70 - health related) the 95th percentile of results does not exceed the guideline value for each chemical. Refer also to Appendix H4.6 and to Note 7 of Appendix D1.*
2. *Where the compliance for microbiological water quality (column 71 - health related) is equal to or greater than 98%, the LWU is compliant. Refer also to Appendix H4.6 and to Note 7 of Appendix D1.*
3. *Physical water quality (column 69 - aesthetic) is compliant if the mean of results is within the Guideline values. Refer also to Appendix H4.6 and to Note 7 of Appendix D1.*
4. *The public drinking water supply for 99.8% of the urban population in regional NSW complied with the 2011 ADWG for microbiological water quality (cols 71 and 71a).*

Table 13: Water supply - benchmarking cost data (operation, maintenance and management)

	WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST[2]												MANAGEMENT COST				OMA[1]			O & M Cost Components for TYPE of ASSET															
		Total O&M Cost	Components (1) - Process					Components (2) - Type of Asset						Components				Total OMA Cost	Components		PUMPING STATION					WATER MAIN					TREATMENT					
			Maintenance	Operation	Energy	Chemicals	Bulk Purchase	Dams & Weirs	Mains	Reservoirs	Pumping Stations	Water Treatment	Other Excl Bulk Purchas	Admin	Engineering & Supervision	Total Management Cost			Head works	Distri-bution	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost	Energy Cost	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost		O&M Cost	Operation Cost	Maintenance Cost	Chemical			
		$/prop	($/property)					($/property)						($/property)		($/prop)	(c/kL)	($/prop)	($/property)		(c/kL)	($'000/pumping station)				(c/kL)	($'000/100km)			(c/kL)	($/property)					
		(79a)	(79)	(80)	(81)	(82)	(82a)	(83)	(84)	(85)	(86)	(87)	(88)	(89)	(90)	(91a)	(91)	(91b)	(92)	(93)	(94)	(95)	(96)	(97)	(98)	(100)	(101)	(102)	(103)	(104)	(105)	(106)	(107)			
		2015/16						2015/16						2015/16				2015/16	2015/16		2015/16					2015/16				2015/16						
LWUs with > 10,000 Properties																																				
112	Central Coast	156	57	73	12	12	1	14	58	12	23	45	2	66	37	103	49	259	104	83	11	67	16	16	35	27	373	158	215	21	26	7	12			
3	Shoalhaven	137	40	70	15	12	0	4	53	6	21	43	9	97	43	141	46	278	50	228	7	39	7	5	27	17	163	78	85	14	23	8	12			
4	Rous (Bulk Supplier) (NO SGE)	130	49	45	17	20		8	16	7	25	56	17	91	38	128	50	258	245	13	10	264	4	84	175	6	158		158	22	23	13	20			
5	MidCoast	323	106	165	40	12		1	89	10	50	83	89	83	57	140	59	463	139	324	21	74	6	9	59	38	257	17	240	35	63	8	12			
6	Tweed	230	98	86	19	25	2	14	38	8	28	75	65	139	51	190	68	420	231	189	10	33	6	4	23	14	175	22	153	27	42	9	25			
7	Port Macquarie-Hastings (Unfiltered)	233	89	112	15	11	6	16	63	9	28	41	70	92	65	157	69	390	117	273	12	45	1	20	24	28	233	135	99	18	17	13	11			
8	Riverina (Groundwater) (NO SGE)	184	77	39	56	12	1	0	55	9	63	30	26	10	41	51	10	236	156	80	12	54	0	6	48	10	102	45	57	6		18	12			
11	Albury City	153	32	53	58	7	4	0	26	10	65	38	11	110	13	123	36	276	99	80	19	79		9	70	8	108	42	66	11	23	8	7			
10	Coffs Harbour	240	117	102	5	13	3	15	105	21	8	68	21	108	40	148	60	388	155	233	3	28	7	2	18	43	397	83	314	27	39	15	13			
13	Tamworth Regional	325	109	155	6	16	39	38	83	8	17	140	0	70	123	193	42	518	316	202	4	18	5	7	6	18	279	76	203	30	94	30	16			
14	Clarence Valley	160	96	44	4	16	0	13	74	13	7	39	14	125	43	168	63	329	16	312	2	7	1	2	4	28	142	8	134	15	18	5	16			
122	Dubbo Regional	258	75	133	9	39	2	0	53	6	14	163	19	145	34	179	35	437	306	131	3	19	2	5	12	10	174	19	155	32	105	19	39			
119	Queanbeyan-Palerang (Reticulator)	378	45	77	8	3	245	3	72	7	16	11	22	154	34	189	82	567		567	7	37	16	2	19	32	367	175	192	5	8	1	3			
15	Eurobodalla	191	63	101	17	11	0	4	105	10	22	35	15	234	0	234	128	425	119	306	12	31	3	4	24	58	235	125	110	19	20	4	11			
12	Fish River WS (Unfiltered, Bulk Supplier)								0	0	0	0	0									0				0	0			0						
16	Wingecarribee	232	102	40	5	15	70	1	57	9	8	59	29	134	21	154	59	387	271	116	3	10	2	2	7	22	165		165	22	33	11	15			
19	Orange	218	39	122	37	19	0	21	63	0	45	62	27	83	65	148	40	365	216	150	12	101	17		84	17	177	89	88	17	39	4	19			
21	Bathurst Regional	417	170	206	8	34	0	47	149	11	11	199	0	91	95	186	38	603	289	314	2	16	1	2	12	31	593	267	326	41	109	56	34			
23	Bega Valley (Unfiltered)	291	110	145	24	13	0	37	140	26	43	38	8	90	216	306	119	598	245	353	17	34	5	11	19	54	325	188	136	15	14	11	13			
24	Ballina (Reticulator)	320	55	31	2	0	231	0	29	4	3	9	43	118	25	143	53	463	14	449	1	11	3		9	11	128	24	105	3	7	2				
22	Lismore (Reticulator)	368	55	89	5	0	220	0	61	2	6	0	79	92	32	124	56	492		492	3	18	1	3	14	28	249	249		0						
25	Kempsey (Groundwater)	265	126	91	32	16	0	13	81	0	51	111	9	91	88	179	60	444	257	186	17	29		11	18	27	205	5	200	37	71	24	16			
27	Byron (Reticulator)	335	30	89	0	5	211	0	54	20	0	21	29	119	18	137	52	471	24	448	0	0				20	231	113	119	8	15	1	5			
20	Goulburn Mulwaree	264	144	89	5	21	5	37	100	6	6	69	40	94	26	120	41	384	177	207	2	8	0	2	6	35	388	5	382	24	42	6	21			
26	Essential Energy	1212	558	352	191	112		0	185	45	313	670	0	40	37	77	14	1289	774	516	58	299	30	87	182	34	510	70	439	124	280	278	112			
28A	Goldenfields (Reticulator) (NO SGE)	564	176	78	122	12	175	0	136	16	169	30	38	135	135	270	46	834	425	409	29	47	0	13	34	23	76	30	46	5	10	8	12			
28B	Goldenfields (Bulk Supplier) (NO SGE)	88	24	20	31	13		0	15	2	36	28	7	32	32	63	13	151			7					3	91	44	47	6	9	6	13			
	Medians (% of LWUs basis excl bulk suppliers) for >10,000 Properties	*261*	*93*	*89*	*14*	*13*	*2*	*4*	*68*	*9*	*21*	*44*	*21*	*96*	*41*	*151*	*52*	*431*	*166*	*253*	*8*	*32*	*3*	*5*	*19*	*27*	*232*	*76*	*153*	*19*	*30*	*8*	*13*			
LWUs with 4,001 - 10,000 Properties																																				
111	Armidale Regional	429		393	5	31	0	42	146	8	-25	141	117	55	46	100	28	530	259	270	-7	-21	-25		4	41	421	421		40	110		31			
120	Snowy Monaro (Unfiltered)	208	70	107	21	10	0	0	62	14	39	57	35	83	61	145	58	353	190	162	16	15	4	2	9	25	205	83	123	23	34	13	10			
30	Griffith	405	60	247	8	34	57	0	109	1	11	162	65	254	54	308	35	713	321	392	1	24	1	6	17	12	165	131	34	18	112	16	34			
31	Lithgow	455	124	131	5	15	181	13	106	37	13	102	2	59	78	137	65	592			6	27	2	15	9	50	734	417	317	49	59	29	15			
32	Mid-Western Regional	300	135	106	14	32	13	0	91	23	32	141	0	81	122	202	74	502	246	256	12	20	6	5	9	33	273		273	52	82	27	32			
116	Hilltops (Reticulator)	226	100	43	5	5	73	2	83	6	7	24	31	74	25	99	40	325	36	289	3	8		3	5	34	163	24	139	10	4	15	5			
33	Richmond Valley	250	50	83	12	25	80	1	36	6	15	97	15	171	79	250	64	501	285	215	4	15		3	12	9	139	34	105	25	61	12	25			
35	Singleton	310	48	212	22	20	7	0	61	3	28	174	36	84	76	160	29	470	47	423	5	21	2	3	17	11	166	110	56	31	132	22	20			

Table 13: Water supply - benchmarking cost data (operation, maintenance and management)

	WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST[2]												MANAGEMENT COST				OMA[1]			O & M Cost Components for TYPE of ASSET															
		Total O&M Cost	Components (1) - Process					Components (2) - Type of Asset						Components				Total OMA Cost	Components		PUMPING STATION					WATER MAIN					TREATMENT				
			Maintenance	Operation	Energy	Chemicals	Bulk Purchase	Dams & Weirs	Mains	Reservoirs	Pumping Stations	Water Treatment	Other Excl Bulk Purchas	Admin	Engineering & Supervision	Total Management Cost			Head works	Distri-bution	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost	Energy Cost	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost	O&M Cost	Operation Cost	Maintenance Cost	Chemical
		$/prop	($/property)					($/property)						($/property)		($/prop)	(c/kL)	($/prop)	($/property)		(c/kL)	($'000/pumping station)				(c/kL)	($'000/100km)			(c/kL)	($/property)				
		(79a)	(79)	(80)	(81)	(82)	(82a)	(83)	(84)	(85)	(86)	(87)	(88)	(89)	(90)	(91a)	(91)	(91b)	(92)	(93)	(94)	(95)	(96)	(97)	(98)	(100)	(101)	(102)	(103)	(104)	(105)	(106)	(107)				
		2015/16						2015/16						2015/16				2015/16	2015/16		2015/16					2015/16				2015/16						
34	Nambucca (Groundwater)	202	125	42	36	0	0	0	62	33	41	18	49	68	54	122	53	324	195	130	18	131		16	116	27	188		188	8		18				
36	Parkes	403	98	103	132	34	37	16	36	11	147	74	82	204	31	235	28	638	160	479	17	73	8		66	4	47		47	9	36	5	34			
41	Muswellbrook	394	248	33	34	54	26	0	42	4	60	197	66	133	85	218	42	612	380	233	12	39	1	16	22	8	148	7	141	38	8	135	54			
37	Inverell	463	89	220	98	37	18	0	63	7	116	113	145	42	13	55	17	518	414	104	35	96		15	81	19	142		142	34	75		37			
121	Snowy Valleys	259	180	28	35	16	0	0	36	8	46	128	40	99	30	129	37	388	178	210	13	19	1	3	14	10	81	10	71	37	20	92	16			
114	Federation	350	134	171	25	19	0	0	108	9	44	142	46	119	0	119	22	469	352	117	8	31	6	8	18	20	334	71	263	26	94	29	19			
40	Central Tablelands (NO SGE)	355	166	116	38	35	0	16	74	13	56	122	73	210	47	258	73	612	294	318	16	12	1	3	8	21	73		73	35	45	43	35			
39	Cowra	685	144	390	73	32	46	0	118	14	89	130	288	7	56	63	10	748	262	486	14	25	5		20	18	130	20	110	20	68	30	32			
38	Moree Plains (Groundwater)	425	247	144	7	28	0	75	158	10	13	160	10	290	19	309	35	734	95	140	1	15	1	6	8	18	445		445	18	90	42	28			
117	Murray River (Dual Supply)	352	114	142	36	27	32	2	74	3	52	177	12	60	45	105	25	457	274		12	14	2	2	10	17	100	32	68	41	99	52	27			
45	Upper Hunter	376	122	188	53	13	0	19	138	31	93	50	44	107	181	288	50	664	246	418	16	33	8	6	19	24	349	130	219	9	31	5	13			
46	Narrabri (Groundwater)	316	124	128	44	19	0	0	97	12	44	38	125	118	108	226	34	542	325	217	7	18			18	14	275	59	216	6	18		19			
44	Gunnedah (Groundwater)	329	232	5	82	4	7	0	155	23	128	4	12	91	58	149	21	478	119	358	18	25		9	16	22	341		341	1		0	4			
47	Bellingen (Unfiltered)	140	46	53	34	7	0	0	40	7	40	46	7	200	50	250	83	390	148	241	13	27		4	23	13	98	40	57	15	33	6	7			
48	Leeton	398	211	101	17	37	32	0	152	0	22	181	10	75	66	141	22	539	323	216	3	15		4	12	24	328		328	28	101	43	37			
	Medians (% of LWUs basis) for 4,000 to 10,000 Properties	*352*	*124*	*116*	*34*	*25*	*7*	*0*	*83*	*9*	*41*	*122*	*40*	*91*	*54*	*149*	*35*	*518*	*253*	*241*	*12*	*21*	*2*	*5*	*16*	*19*	*166*	*59*	*140*	*25*	*61*	*24*	*26*			
	LWUs with 1,501 - 4,000 Properties																																			
115	Cootamundra-Gundagai (Reticulator)	214	75	71	0	8	60	0	55	4	0	57	38	61	63	125	40	339	34	305	0	0				17	208	14	194	18	37	13	8			
51	Forbes	531	281	112	2	57	80	0	182	2	3	262	2	67	17	85	10	615	394	222	0	2		1	1	22	491		491	32	110	95	57			
53	Berrigan (Dual Supply)	446		420	5	0	21	0	165	0	30	216	15	47	70	117	14	563	197	366	3	13	11		2	19	283	283		25	216					
54	Edward River	225	13	161	51	0	0	0	55	0	63	106	1	182	22	204	27	429	309	116	8	46		9	37	7	134	134		14	106					
55	Warrumbungle	480	223	178	48	31	0	5	91	31	76	189	87	193	5	198	53	678	237	441	21	32	8	4	20	25	203	6	197	51	104	54	31			
56	Yass Valley	216	12	128	39	37	0	1	12	22	46	98	36	122	116	238	83	455	250	205	16	19	3		16	4	24		24	34	61		37			
60	Glen Innes Severn	245	173		43	29	0	0	71	6	47	91	31	19	173	192	103	437	175	262	25	46		4	42	38	194		194	49		61	29			
59	Lachlan	610	216	219	104	49	23	0	145	10	126	268	39	92	111	203	22	813			14	22		4	18	16	177		177	29	219		49			
61	Liverpool Plains	336	205	46	58	28	0	15	45	11	111	84	72	219	4	223	60	559	335	224	30	22	3	8	11	12	87	10	77	23	2	54	28			
74	Wentworth (Dual Supply)	427	145	169	51	34	27	0	91	3	81	172	53	49	21	71	9	497	313	184	11	16	3	3	10	12	116	12	104	23	103	35	34			
67	Cobar	1051	330	650	0	72	0	0	118	33	0	900	0	74	56	131	24	1181			0	0				22	230	66	165	166	614	214	72			
66	Cobar WB (Bulk Supplier)																11				34	395	70	22	304	12										
62	Narromine (Groundwater)	291	191	48	53	0	0	0	92	15	118	54	13	157	63	220	41	511	153	358	22	85	5	42	38	17	261		261	10	31	23				
63	Narrandera (Groundwater)	330	141	86	91	12	0	0	140	1	177	12	0	114	9	122	12	452	262	190	17	93	45		48	13	332		332	1			12			
68	Tenterfield	328		253	14	40	21	4	86	3	31	175	8	206	33	238	102	566	226	340	13	15	8		7	37	246	246		75	135		40			
73	Upper Lachlan	451	64	285	62	41	0	11	74	12	133	184	36	78	75	153	79	604	302	302	69	89	39	9	41	38	233	205	28	95	124	19	41			
79	Walgett (Dual Supply)	1040	202	807	1	30	0	83	92	4	113	246	503	56	0	56	9	1096			18	22	20	2	0	15	161	77	84	40	101	115	30			
70	Kyogle	464	133	218	15	22	75	0	71	12	65	241	0	127	40	167	74	631	473	158	29	25		19	6	32	241		241	107	218		22			
80	Greater Hume	352	77	65	33	4	174	0	93	17	45	19	5	37	111	147	40	500	115	385	12	43	8	4	31	25	116	35	82	5	13	2	4			
75	Coonamble (Groundwater)	437	132	99	65	141	0	0	59	18	87	226	46	0	0	0	0	437	218	218	12	73		19	55	8	146		146	32	52	33	141			
	Medians (% of LWUs basis) for 1,500 to 4,000 Properties	*427*	*145*	*165*	*43*	*30*	*0*	*0*	*91*	*10*	*65*	*175*	*31*	*78*	*40*	*153*	*34*	*559*	*244*	*243*	*15*	*24*	*8*	*6*	*19*	*17*	*203*	*66*	*171*	*32*	*104*	*44*	*33*			

Table 13: Water supply - benchmarking cost data (operation, maintenance and management)

	WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST[2]												MANAGEMENT COST				OMA[1]			O & M Cost Components for TYPE of ASSET															
		Total O&M Cost	Components (1) - Process					Components (2) - Type of Asset						Components				Total OMA Cost	Components		PUMPING STATION					WATER MAIN					TREATMENT				
			Maintenance	Operation	Energy	Chemicals	Bulk Purchase	Dams & Weirs	Mains	Reservoirs	Pumping Stations	Water Treatment	Other Excl Bulk Purchas	Admin	Engineering & Supervision	Total Management Cost			Head works	Distri-bution	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost	Energy Cost	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost		O&M Cost	Operation Cost	Maintenance Cost	Chemical	
		$/prop	($/property)					($/property)						($/property)		($/prop)	(c/kL)	($/prop)	($/property)		(c/kL)	($'000/pumping station)				(c/kL)	($'000/100km)				(c/kL)	($/property)			
		(79a)	(79)	(80)	(81)	(82)	(82a)	(83)	(84)	(85)	(86)	(87)	(88)	(89)	(90)	(91a)	(91)	(91b)	(92)	(93)	(94)	(95)	(96)	(97)	(98)	(100)	(101)	(102)	(103)	(104)	(105)	(106)	(107)				
		2015/16						2015/16						2015/16				2015/16	2015/16		2015/16					2015/16				2015/16						
LWUs with 200 - 1,500 Properties																																				
81	Gwydir	516	195	156	116	48	0	0	169	13	207	114	12	44	11	54	10	570	308	262	38	305	108	26	171	31	277	88	189	21	14	52	48			
85	Uralla	275	195	1	1	78	0	25	60	4	3	183	0	113	56	170	74	445	343	102	1	3		2	1	26	144		144	80		105	78			
87	Bourke (Dual Supply)	678	654	7	17	0	0	7	127	4	114	267	159	49	106	155	13	833	167	666	10	80		68	12	11	434		434	22		267				
84	Gilgandra (Groundwater)	309	162	83	51	13	0	0	68	4	97	125	15	70	11	81	12	390	20	371	14	65	5	26	34	10	169		169	18	58	54	13			
86	Hay (Dual Supply)	350	234	18	52	33	13	0	66	16	104	133	18	231	0	231	31	581	395	186	14	47		23	23	9	119		119	18		100	33			
83	Oberon (Reticulator)	830	86	180	0	44	520	0	4	0	0	224	82	70	55	125	23	955	525	430	0	0				1	13		13	41	180		44			
118	Murrumbidgee (Groundwater)	258	145	5	70	27	11	0	41	11	94	88	14	39	115	154	16	412			10	30		8	23	4	69	3	67	9	1	59	27			
92	Carrathool (Groundwater)	784	244	226	252	10	51	0	226	16	446	44	0	88	4	92	7	876	263	613	33	27	12		16	17	57		57	3	32	1	10			
89	Bogan	1325	359	785	48	70	64	665	95	77	275	70	79	120	441	560	85	1886	1735	151	42	305		252	53	14	181	78	103	11			70			
91	Cabonne	504	86	385	17	15	0	59	149	18	66	186	26	89	0	89	29	593	380	214	22	19	10	4	5	49	335	258	77	62	142	29	15			
96	Warren (Dual Supply)	382	177	91	60	23	31	0	167	14	104	52	14	107	57	165	20	547	191	355	12	49	7	14	28	20	523	107	417	6	29		23			
98	Walcha	438	192	168	59	18	0	25	47	17	91	177	80	134	125	259	117	697	167	530	41	28	5	5	18	21	75	30	46	80	114	45	18			
100	Balranald (Dual Supply)	528	359	24	80	49	17	0	67	17	274	49	105	93	0	93	8	622	354	267	24	48		34	14	6	184		184	4			49			
103	Central Darling (Dual Supply)	996	430	432	52	82	0	37	125	33	75	679	47	15	0	15	3	1011	425	586	14	7	1	1	5	24	138	17	121	128	385	212	82			
105	Brewarrina (Dual Supply)	900	323	417	62	98	0	0	272	23	168	436	0	396	183	579	31	1479	887	591	9	40	16	9	15	15	305	50	255	23	281	57	98			
Medians (% of LWUs basis) for 200 to 1,500 Properties		*516*	*195*	*156*	*52*	*33*	*0*	*0*	*95*	*16*	*104*	*133*	*18*	*89*	*55*	*154*	*20*	*622*	*348*	*363*	*14*	*40*	*9*	*14*	*17*	*15*	*169*	*64*	*121*	*21*	*86*	*57*	*39*			

NOTES:

1. Operating cost is the OMA cost (operation, maintenance & administration (Col 91b)) which comprises the O & M Cost (operation & maintenance cost (Cols 79 to 82 or Cols 83 to 88)) PLUS Management Costs (Col 91a) which is made up of the Administration cost (Col 89) plus Engineering and Supervision cost (Col 90).
2. O & M cost includes a proportion of the OMA cost of the bulk supplier if appropriate or the purchase cost of water if no bulk supplier (Col 82a).
3. The 2015-16 financial results for the amalgamated LWUs are for the period 1 July 2015 to 12 May 2016 (see Appendix L).

Table 14: Sewerage - utility characteristics

	WATER UTILITY	ASSESSMENTS - CONNECTIONS - POPULATION										ASSETS								WORKFORCE							
		Total No of Assessments			Connected Properties - Total		Connected Properties - Residential			Population		Sewer Mains	Properties Served per km of Main	Sewage Treatment Works	Pumping Stations	Pumping Stations per 100km of Main	Capital Expenditure (Assets, Renewals, Plant/Equip)		Capital Works Grants	Total Work Force	% Female	% Undergoing Training	Outsourcing	Injuries	Days Lost		
					(Ratio of Connected Properties to Assessments)	Connected Properties (1) x (2)	(Ratio of Residential Assessments to Total Assessments)	(Ratio of Res Conncted Props to Res Assessments)	Connected Residential Properties (1)x(4)x(5)	Permanent	Peak (% of Permanent)	(km)	(3) / (8)	(No.)	(No.)	(11) / [(8) / 100]	$/prop	$M	($'000)	(Employees /1000 props)	(%)	(2 or more days per year)	(% of Maintenance Cost)	(No.)	Total (%)	Due to Injury (No.)	Due to Injury (%)
			(1)		(2)	(3) C8	(4)	(5)	(5a) C6	(6) C5	(7)	(8) A5	(9) A6	(10) A4	(11)	(12)	(13) F29	(13a) F15	(13b) F27	(14)	(15)	(16)	(19)	(20)	(21)	(22)	(22a)
		2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16
	Sydney Water					1,852,000			1,740,000	4,798,000		25,360	73	26			230	426	0								
	Hunter Water					231,000			219,000	540,000		5,000	46	19			252	58	0								
LWUs with > 10,000 Properties																											
112	Central Coast	127640	129,380	131,300	1.02	134,160	0.96	1.02	128,524	317,700		2,547	53	8	326	13	287	38.4	575	1.1	15	79	8	9	6	367	1
3	Shoalhaven	46910	47,250	47,580	0.89	42,150	0.94	0.90	40,226	81,600	430	1,225	34	13	219	18	201	8.5	2,288	2.0	13	100	0	2	4	15	0
5	MidCoast	36500	36,610	36,930	0.96	35,460	0.92	0.96	32,710	81,900	110	1,127	31	13	208	18	167	5.9	0	1.7	18	100		2	3	38	0
6	Tweed	33370	33,810	34,190	0.91	31,110	0.95	0.93	30,176	77,800	120	713	44	8	185	26	170	5.3	0	2.2	6	22	6	1	5	10	0
7	Port Macquarie-Hastings	28940	29,290	29,710	0.95	28,230	0.93	0.95	26,391	80,500	130	704	40	5	157	22	449	12.7	910	2.0	5	75	5	13	0	0	0
9	Wagga Wagga	25280	26,130	26,650	1.04	27,710	0.93	1.05	25,922	63,400	110	660	42	6	39	6	146	4.1	0	1.1	7	100	10	0	3	0	0
11	Albury	22160	24,210	24,570	0.99	24,330	0.93	0.99	22,529	50,100	110	564	43	4	58	10	235	5.7	0	0.7	18	15	67	0	0	0	0
10	Coffs Harbour	25310	25,500	25,500	0.93	23,710	0.94	0.93	22,246	71,000	120	633	37	4	117	18	179	4.3	70	1.7	5	93	0	3	5	25	0
13	Tamworth Regional	19350	19,680	20,000	1.00	20,000	0.92	1.00	18,347	45,900	190	564	35	4	24	4	82	1.6	0	1.7	11	37	0	4	1	14	0
119	Queanbeyan-Palerang	18380	19,000	19,400	1.02	19,800	0.93	1.03	18,538	45,200	100	445	44	4	34	8	338	6.7	74	0.7	14	48	5	0	0	0	0
122	Dubbo Regional	17130	17,500	17,800	1.09	19,420	0.90	1.10	17,703	41,200	110	507	38	6	26	5	397	7.7	0	0.8	7	33		1	2	1	0
15	Eurobodalla	19170	19,200	19,580	0.94	18,400	0.94	0.94	17,377	29,600	340	537	34	5	132	25	556	10.2	1,923	1.9	3	100	0	1	1	13	0
19	Orange	16470	16,550	16,890	1.00	16,890	0.93	1.00	15,652	41,800	100	455	37	2	28	6	111	1.9	0	1.0	12	100		1	0	0	0
21	Bathurst Regional	14300	14,700	14,880	1.08	16,070	0.91	1.08	14,551	34,000	180	408	39	1	34	8	147	2.4	0	0.8	15	38	4	3	2	0	0
16	Wingecarribee	16420	16,550	17,110	0.95	16,260	0.92	0.96	15,170	39,400	120	564	29	6	73	13	235	3.8	0	1.7	4	15	27	4	4	9	0
14	Clarence Valley	15570	15,650	15,690	0.94	14,750	0.93	0.94	13,700	32,500	120	410	36	6	94	23	1,024	15.1	1,113	2.1	7	66	0	7	1	45	1
24	Ballina	14990	15,170	15,480	0.93	14,400	0.90	0.93	13,006	37,100	130	329	44	4	117	36	207	3.0	0	1.5	0	73	17	0	13	0	0
22	Lismore	12150	12,190	12,180	1.05	12,790	0.91	1.06	11,743	29,100	110	360	36	3	33	9	303	3.9	0	1.9	0	100	5	0	0	0	0
23	Bega Valley	12430	12,430	12,490	0.98	12,240	0.93	0.98	11,393	21,000	170	405	30	10	59	15	139	1.7	0	1.9	0	100	7	0	5	15	0
20	Goulburn Mulwaree	10260	10,430	10,560	1.03	10,870	0.91	1.03	9,920	22,100	100	284	38	2	24	8	255	2.8	0	1.9	9	85	15	5	4	29	1
27	Byron	10930	11,100	11,370	0.96	10,920	0.86	0.96	9,360	20,500	170	284	38	4	82	29	112	1.2	0	1.8	5	100	1	1	0	5	0
25	Kempsey	9360	9,400	8,780	1.04	9,130	0.93	1.04	8,454	21,200	170	273	33	8	84	31	258	2.4	0	2.6	8	100	19	0	5	3	0
26	Essential Energy	9720	9,720	9,720	1.00	9,720	0.93	1.00	9,041	18,900	100	246	40	2	11	4	166	1.6	0	0.8	0	100	0	1	0	4	0
Medians (% of LWUs basis) and totals for >10,000 Properties				*578,360*						*1,303,500*		*14,244*	*38*				*207*	*150.7*		*2*	*7*			*1*	*2*		
LWUs with 4,001 - 10,000 Properties																											
111	Armidale Regional	9790	9,920	10,070	0.98	9,830	0.92	0.98	9,095	23,100	110	302	33	3	4	1	117	1.2	0	1.4	7	11	3	1	3	12	0
120	Snowy Monaro Regional	7550	7,670	7,540	1.16	8,740	0.90	1.17	7,898	12,600	220	238	37	8	30	13	116	1.0	0	2.1	11	84	30	2	3	0	0
30A	Hawkesbury	7830	7,840	7,840	0.98	7,660	0.88	0.99	6,831	24,000	100	184	42	2	24	13	80	0.6	0	2.1	0	44	0	0	4	0	0
31	Lithgow	7640	7,640	7,660	0.98	7,510	0.94	0.98	7,044	19,800	100	163	46	3	36	22	186	1.4	687	1.7	0	100		2	0	0	0
32	Mid-Western Regional	7150	7,350	7,440	1.00	7,440	0.91	1.00	6,779	15,700	140	231	32	4	14	6	124	0.9	44	1.4	20	93	1	6	7	24	1
30	Griffith	8250	8,300	8,310	0.85	7,070	0.89	0.84	6,244	25,700	100	235	30	3	30	13	127	0.9	0	3.0	5	90	0	1	0	8	0
33	Richmond Valley	7000	6,990	7,090	0.95	6,730	0.90	0.95	6,039	17,200	100	197	34	4	31	16	403	2.7	0	2.7		100					

Table 14: Sewerage - utility characteristics

	WATER UTILITY	ASSESSMENTS - CONNECTIONS - POPULATION										ASSETS								WORKFORCE							
		Total No of Assessments			Connected Properties - Total		Connected Properties - Residential			Population		Sewer Mains	Properties Served per km of Main	Sewage Treatment Works	Pumping Stations	Pumping Stations per 100km of Main	Capital Expenditure (Assets, Renewals, Plant/Equip)		Capital Works Grants	Total Work Force	% Female	% Undergoing Training	Outsourcing	Injuries	Days Lost		
					(Ratio of Connected Properties to Assessments)	Connected Properties (1) x (2)	(Ratio of Residential Assessments to Total Assessments)	(Ratio of Res Conncted Props to Res Assessments)	Connected Residential Properties (1)x(4)x(5)	Permanent	Peak (% of Permanent)	(km)	(3) / (8)	(No.)	(No.)	(11) / [(8) / 100]	$/prop	$M	($'000)	(Employees /1000 props)	(%)	(2 or more days per year)	(% of Maintenance Cost)	(No.)	Total (%)	Due to Injury (No.)	Due to Injury (%)
			(1)		(2)	(3) C8	(4)	(5)	(5a) C6	(6) C5	(7)	(8) A5	(9) A6	(10) A4	(11)	(12)	(13) F29	(13a) F15	(13b) F27	(14)	(15)	(16)	(19)	(20)	(21)	(22)	(22a)
		2013/14	*2014/15*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*	*2015/16*
41	Muswellbrook	5990	6,000	6,030	0.96	5,760	0.93	0.96	5,429	13,100		177	33	2	15	8	593	3.4	960	1.7	20	66	4	3	8	17	1
34	Nambucca	6010	6,020	5,990	0.95	5,690	0.92	0.95	5,232	12,900	140	175	33	4	54	31	91	0.5	0	1.8	10	40	9	1	2	12	1
35	Singleton	5850	5,940	5,950	0.96	5,710	0.92	0.93	5,085	16,100	100	152	38	1	15	10	238	1.4	0	1.9	28	88	20	2	4	8	0
114	Federation	5820	5,800	5,780	0.95	5,490	0.89	0.95	4,869	10,800	190	169	32	5	73	43	106	0.6	0	2.4	8	96	10	1	3	5	0
116	Hilltops	5340	5,360	5,300	1.01	5,360	0.89	1.01	4,781	12,400	150	166	32	3	9	5	464	2.5	1,200	1.8	10	90	3	0	4	0	0
121	Snowy Valleys	5500	5,510	5,490	0.95	5,220	0.88	0.95	4,609	10,300	130	195	27	7	23	12	1,191	6.2	2,059	1.3	14	100	0	0	0	0	0
36	Parkes	5290	5,340	5,370	0.95	5,100	0.88	0.95	4,473	12,300	150	147	35	4	2	1	1,466	7.5	5,180	1.7	11	23	1	1	0	3	0
37	Inverell	4850	4,710	5,010	0.97	4,860	0.97	0.97	4,700	11,600	110	126	39	4	21	17	57	0.3	0	1.4	14	29	5	0	0	0	0
45	Upper Hunter	4450	4,670	4,620	0.92	4,250	0.87	0.92	3,687	9,800	110	131	32	4	13	10	272	1.2	0	2.1	11	61	5	2	5	0	0
117	Murray River	4360	4,370	4,430	0.95	4,210	0.89	0.95	3,734	8,800	190	147	29	7	58	39	111	0.5	0	2.0	0	41	0	0	0	0	0
Medians (% of LWUs basis) and totals for 4,000 to 10,000 Properties				*102,080*						*232,200*		*2,951*	*33*				*157*	*32.1*		*2*	*11*		*1*	*3*			
LWUs with 1,501 - 4,000 Properties																											
44	Gunnedah	3850	3,850	3,980	1.03	4,100	0.92	1.03	3,755	9,200	130	115	36	2	4	3	298	1.2	0	1.5	0	100	5	0	3	0	0
46	Narrabri	4020	4,040	4,040	0.98	3,950	0.86	0.98	3,410	11,900	100	121	33	3	22	18	342	1.4	0	1.8	0	100	0	2	0	4	0
38	Moree Plains	4200	4,080	4,100	0.97	3,980	0.85	0.96	3,337	9,800	100	89	45	4	28	31	538	2.1	6	1.5	17	100	20	0	4	0	0
115	Cootamundra-Gundagai	3840	3,860	3,910	0.95	3,700	0.88	0.94	3,266	5,600	130	136	27	2	9	7	282	1.0	0	0.8	0	33	1	1	5	1	0
53	Berrigan	3590	3,650	3,710	0.98	3,640	0.88	0.98	3,185	6,900	120	110	33	4	50	45	47	0.2	0	1.5	0	36	10	1	1	3	0
39	Cowra	3730	3,730	3,750	0.95	3,560	0.91	0.95	3,257	8,700	110	100	36	1	7	7	90	0.3	0	1.1	0	100	5	0	0	0	0
48	Leeton	3480	3,540	3,560	0.94	3,340	0.86	0.94	2,890	7,900	110	101	33	3	44	44	270	0.9	0	1.8	0	67	0	0	1	0	0
54	Edward River	3310	3,380	3,390	0.96	3,250	0.88	0.95	2,827	6,600	170	109	30	1	26	24	33	0.1	0	1.2	0	25	0	0	1	0	0
51	Forbes	3180	3,200	3,200	1.00	3,200	0.88	1.00	2,831	8,000	110	89	36	1	17	19	82	0.3	0	1.9	33	100	24	0	1	0	0
47	Bellingen	3190	3,210	3,220	0.95	3,060	0.90	0.95	2,758	7,900	110	99	31	3	28	28	1,021	3.1	870	2.0	0	100	5	1	3	0	0
60	Glen Innes Severn	3090	3,030	3,100	0.91	2,820	0.86	0.91	2,436	6,200	120	111	25	2	6	5	153	0.4	0	1.2	0	100	5	0	0	0	0
80	Greater Hume	2740	2,760	2,760	0.95	2,620	0.87	0.95	2,271	6,000	100	77	34	6	21	27	253	0.7	0	1.3	0	100	67	0	2	0	0
55	Warrumbungle	2560	2,560	2,550	0.99	2,520	0.84	0.92	1,962	4,900	100	80	32	4	9	11	51	0.1	0	3.6	22	100	35	0	5	0	0
56	Yass Valley	2480	2,620	2,670	0.94	2,510	0.91	0.94	2,283	6,100	110	92	27	1	12	13	0	0.0	0	1.2	0	100	20	0	0	0	0
59	Lachlan	2110	2,130	2,140	1.03	2,200	0.85	1.03	1,872	5,000	110	76	29	3	21	28	83	0.2	0	1.8	0	100	12	0	0	0	0
69	Temora	2150	2,160	2,160	1.00	2,160	0.86	1.00	1,857	4,600	280	55	39	1	4	7	325	0.7	0	0.9	0	50	5	0	1	0	0
61	Liverpool Plains	2080	2,060	1,880	0.98	1,840	0.91	0.98	1,678	4,900	110	58	32	2	9	16	5	0.0	0	1.6	0	100					
62	Narromine	2060	2,060	2,130	0.95	2,020	0.84	0.95	1,691	5,100	130	54	37	2	13	24	314	0.6	0	1.5	33	133	0	0	0	0	0
78	Blayney	1880	1,880	1,890	1.03	1,950	0.85	1.03	1,648	3,900	110	76	26	1	7	9	175	0.3	0	1.3	0	120	8	0	2	0	0
91	Cabonne	2320	2,100	2,650	0.92	2,440	0.87	0.92	2,122	4,500	100	74	33	7	11	15	370	0.9	291	2.0	0	100	70	3	9	6	1
72	Bland	1930	1,940	1,940	0.95	1,840	0.86	0.95	1,588	3,800	110	49	38	3	10	20	44	0.1	0	1.1	0	100	10	0	0	0	0
67	Cobar	1830	1,830	1,850	0.95	1,760	0.91	0.95	1,595	5,400	110	52	34	1	5	10	0	0.0	163	1.1							
63	Narrandera	1850	1,860	1,860	0.92	1,710	0.88	0.92	1,515	4,800	110	41	42	1	4	10	381	0.7	0	1.8							

Table 14: Sewerage - utility characteristics

	WATER UTILITY	ASSESSMENTS - CONNECTIONS - POPULATION										ASSETS								WORKFORCE							
		Total No of Assessments			Connected Properties - Total		Connected Properties - Residential			Population		Sewer Mains	Properties Served per km of Main	Sewage Treatment Works	Pumping Stations	Pumping Stations per 100km of Main	Capital Expenditure (Assets, Renewals, Plant/Equip)		Capital Works Grants	Total Work Force	% Female	% Undergoing Training	Outsourcing	Injuries	Days Lost		
					(Ratio of Connected Properties to Assessments)	Connected Properties (1) x (2)	(Ratio of Residential Assessments to Total Assessments)	(Ratio of Res Conncted Props to Res Assessments)	Connected Residential Properties (1)x(4)x(5)	Permanent	Peak (% of Permanent)	(km)	(3) / (8)	(No.)	(No.)	(11) / [(8) / 100]	$/prop	$M	($'000)	(Employees /1000 props)	(%)	(2 or more days per year)	(% of Maintenance Cost)	(No.)	Total (%)	Due to Injury (No.)	Due to Injury (%)
			(1)		(2)	(3) C8	(4)	(5)	(5a) C6	(6) C5	(7)	(8) A5	(9) A6	(10) A4	(11)	(12)	(13) F29	(13a) F15	(13b) F27	(14)	(15)	(16)	(19)	(20)	(21)	(22)	(22a)
		2013/14	2014/15	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16	2015/16
68	Tenterfield	1810	1,800	1,970	0.95	1,870	0.83	0.95	1,552	3,700	99	68	28	2	5	7	229	0.4	0	2.1	0	100	5	0	0	0	0
70	Kyogle	1800	1,800	1,930	0.95	1,830	0.86	0.95	1,582	3,600	120	62	30	3	9	15	8	0.0	0	3.8	14	100	10	0	2	0	0
77	Junee	1710	1,730	1,760	0.95	1,670	0.93	0.95	1,551	4,700	120	43	39	1	0	0	0	0.0	0	1.2	0	50	20	0	0	0	0
74	Wentworth	1680	1,720	1,740	0.95	1,650	0.88	0.95	1,462	3,500	140	65	25	5	27	42	303	0.5	0	2.4		50		1	4	38	4
79	Walgett	1900	1,900	1,900	0.85	1,620	0.94	0.85	1,513	6,800	180	48	34	3	10	21	0	0.0	0	2.5	0						
73	Upper Lachlan	1530	1,530	1,530	1.00	1,530	0.85	1.00	1,307	2,800	140	56	27	3	8	14	228	0.3	0	2.0	0	100	2	1	1	5	1
Medians (% of LWUs basis) and totals for 1,500 to 4,000 Properties				*77,270*						*172,800*		*2,306*	*33*				*175*	*16.7*		*2*	*0*			*0*	*1*		
LWUs with 200 - 1,500 Properties																											
86	Hay	1300	1,300	1,340	0.98	1,320	0.87	0.98	1,139	2,300	100	34	39	1	9	26	264	0.3	0	1.5	0	100	30	1	5	2	0
83	Oberon	1200	1,230	1,240	1.02	1,260	0.85	1.02	1,070	3,200	130	38	33	1	4	11	35	0.0	0	2.4	0	100	5	0	0	0	0
84	Gilgandra	1400	1,270	1,270	0.98	1,240	0.82	0.98	1,016	3,100	130	37	34	1	17	46	151	0.2	0	1.9	0	43	10	2	21	27	5
118	Murrumbidgee	1220	1,220	1,220	1.00	1,220	0.88	1.02	1,091	2,400	110	35	35	3	17	49	146	0.2	0	4.1	0	80	0	0	0	0	0
87	Bourke	1220	1,210	1,210	1.00	1,210	0.89	1.00	1,081	2,100	130	34	36	1	8	24	1,388	1.7	0	2.5	0	100	0	0	0	0	0
75	Coonamble	1260	1,170	1,170	1.02	1,190	0.82	1.02	972	4,000	180	46	26	2	12	26	88	0.1	0	2.5	0	67	0	0	2	0	0
81	Gwydir	1210	1,220	1,220	0.95	1,150	0.90	0.95	1,036	2,600	140	41	28	2	8	20	24	0.0	0	2.6	33	100	8	0	1	0	0
85	Uralla	1110	1,120	1,140	1.00	1,140	0.91	1.01	1,050	2,500	100	35	33	1	6	17	11	0.0	0	1.3	0		5	0	10	0	0
99	Coolamon	1060	1,070	1,060	0.95	1,010	0.92	0.95	926	2,400	100	44	23	2	8	18	128	0.1	0	1.0	0	50	0		0	0	0
89	Bogan	960	950	930	1.01	940	0.86	1.01	805	2,300	150	20	47	1	4	20	26	0.0	0	2.1	0	250	0	0	0	0	0
95	Weddin	990	1,000	1,070	0.94	1,010	0.89	0.93	890	2,100	110	31	33	1	0	0	63	0.1	0	1.2	0	100	0	0	1	0	0
102	Lockhart	920	920	920	0.95	870	0.83	0.95	726	1,800	100	42	21	3	6	14	0	0.0	0	1.5	0	100	0	0	2	0	0
100	Balranald	900	900	910	0.95	860	0.89	0.95	767	1,600	160	38	23	2	10	26	30	0.0	0	2.3	0	100	0	0	0	0	0
92	Carrathool	880	880	830	0.95	790	0.74	0.95	583	1,900	150	23	34	3	12	52	0	0.0	0	2.9	0	100	5	2	0	0	0
96	Warren	860	890	890	0.92	820	0.89	0.92	730	2,000	110	17	48	2	8	47	66	0.1	0	2.4	0	100	0	0	5	0	0
98	Walcha	790	790	790	1.01	800	0.87	1.01	691	1,700	110	30	27	1	1	3	33	0.0	0	2.5	50	100	3	0	0	0	0
105	Brewarrina	590	560	560	0.86	480	0.88	0.85	416	1,500	130	16	30	3	8	50	129	0.1	0	4.2	0	100	2	0	0	0	0
103	Central Darling	380	370	380	1.00	380	0.83	1.00	313	580	110	23	17	1	5	22	0	0.0	0	2.6	0	100	10	0	0	0	0
Medians (% of LWUs basis and totals for 200 to 1,500 Properties				*18,150*						*40,080*		*584*	*33*				*49*	*3.0*		*2*	*0*			*0*	*0*		
Median All LWUs (% of LWUs basis)											*Properties served per km of main*		*34*				*Capital Expenditure $150 per property*			*1.8 employees per 1000 properties*							
Median All LWUs (Statewide basis)											*Properties served per km of main*		*38*				*Capital Expenditure $186 per property*			*1.7 employees per 1000 properties*							
Totals for all LWUs		*No. of Sewerage Assessments 776000*					*Total Sge populaton 1.75M*					*Length of Sge mains 20040km*					*Total Capital Expenditure $204M*						*Total Days Lost Due to Injury 768*			
No. of LWUs with Sge Services 86		*No. of Connected Sge properties 760000*					*No. of Sewage Treatment Works 300*					*No. of Pumping Stations 3160*					*No. of Sge Employees 1,180*			Note: Refer also to section 4.2 on employees and employee awareness of training.							

Table 15: Sewerage - asset management and resource management

No.	WATER UTILITY	ASSET MANAGEMENT																RESOURCE MANAGEMENT																									
		Infiltration			Breaks & Chokes			Overflows see also Col (31a)			Rehabilitations		Renewals		Mains Maintenance Cost	Overflows Reported to Regulator		Total Vol of Sewage Collected			Volume of Trade Waste	% Sewage Treated	% Sge Treated that was compliant	STWs compliant at all times	Percentage of Total Sewage Collected					Level of Treatment (%)			Vol of Sewage Collected per Property			Biosolids Reused			Effluent Recycled				
		(ML per 100km of Main)			(No. per 100 km of Main)			(No. per 100 km of Main)			Mains (% of Total Length)	Service Connections (%)	($'000 per 100 km of Main)	(% of CRC)	($'000 per 100 km of Main)	(No. per 100km of main)		(Res, NonRes + Trade Waste) (ML)			(ML)	(%)			Infiltration /inflow	Res	Non-Res	Trade Waste	Other	Primary Level	Secondary Level	Tertiary Level	(kL/property)			(%)			Total Volume Recycled (ML)	Volume Recycled for Urban Water (ML)	% of Total Effluent that is Recycled		
		(23)			(24) A14			(25)			(27)	(28)	(29)	(30)	(31)	(31a) E13		(32) W18			(32a) W17	(33)	(33a)	(33b)	(34)	(35)	(36)	(37)	(38)	(39a) E1	(39b) E2	(39c) E3	(39) W19			(40) E8			(41a) W26	(41b) W20+W21+W25-W25.1	(41c) W27		
		13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	13/14	14/15	15/16
	Sydney Water				61	69	58									0.4	0.7	469,579	564,424	547,783	19,040									73	4	23	261	309	296	100	100	100	43,342	12,400	10	8	8
	Hunter Water				54	54	43									0.1	0.0	64,878	71,838	70,208	4,927									0	0	0	289	316	304	85	89	88	5,373	4,100	8	6	8
LWUs with > 10,000 Properties																																											
112	Central Coast		165	157	45	44	38	36	47	32	0.4	-	1,075	1.2	80	3.6	3.1	30,427	35,487	33,418	768	100	100	8 of 8	12	68	17	2	1	0	98	3	234	269	249	100	100	100	895	587	3	2	3
3	Shoalhaven	70	63	53	8	11	13	23	20	25	0.1	0.2	323	0.6	22	0.8	4.4	8,384	9,387	9,600	104	89	100	13 of 12	7	78	14	1				89	200	224	228	100	100	100	1,551	315	32	21	18
5	MidCoast	21	54	64	6	6	8	4	6	3	1.0	-	100	0.2	97	1.3	1.8	5,658	6,850	6,903	323	100	98	11 of 12	10	70	15	5			18	82	161	195	195	100	100	100	944	459	25	14	13
6	Tweed	62	191	90	1	0	1	7	5	11	1.0	0.0	557	0.5	205	0.4	1.0	6,704	8,105	7,495	254	98	89	5 of 8	9	62	26	3			0	98	221	263	241	87	100	100	696	667	9	7	9
7	Port Macquarie-Hastings	218	144	277	30	16	27	29	21	28	0.1	0.0	388	0.7	74	1.0	0.3	8,476	7,850	8,894		100	100	4 of 5	22	73	5				0	100	308	282	315	100	100	100	340	257	4	5	4
9	Wagga Wagga	15	8	25	80	80	72	26	27	33	0.6	1.0	486	0.9	94	0.3	0.5	5,723	5,822	5,881	793	100	100	6 of 6	3	60	24	13			3	97	218	214	212	100	100	100	5,679	246	97	97	96
11	Albury				75	65	76	2	1	1	0.0	0.0	160	0.3	89	1.3	0.4	4,477	4,440	4,597	4	100	33	2 of 4		72	28				0	100	204	185	189				2,503		55	54	54
10	Coffs Harbour				76	89	97	9	7	10	0.2	0.2	119	0.1	228	3.0	0.9	5,370	7,360	5,706		100	100	4 of 4		100						100	228	310	241	100	100	100	1,113	372	27	14	19
13	Tamworth Regional				74	50	20	11	8	4	0.0	0.1	265	0.5	156	0.0	0.0	4,742	5,209	5,510	1,237	100	84	3 of 4		46	32	22			100		245	265	276	100	100		4,071	147	87	82	73
119	Queanbeyan-Palerang	95	77	73	52	61	33	36	37	22	0.0	0.0	6	0.0	56	0.8	0.7	3,996	4,048	4,229	244	100	98	2 of 5	8	78	8	6				100	213	209	214				100	58	3	3	2
122	Dubbo Regional	33	10	6	39	43	46	2	5	7	0.0	0.0	86	0.1	20	1.2	1.6	3,351	3,353	3,887	151	96	78	3 of 4	1	69	26	4			12	84	179	176	200	86	86	82	2,599		61	68	65
15	Eurobodalla	241	270	307	30	32	23	12	9	15	1.3	-	314	0.4	45	8.2	11.2	3,141	3,477	3,684	80	100	100	5 of 5	45	43	10	2		2	5	94	174	193	200	33	69	90	195	173	7	7	5
19	Orange	105	67	473	24	33	42	12	20	11	0.9	0.2	85	0.2	2	0.4	0.7	3,773	3,929	4,936	189	100	67	1 of 2	44	40	13	4		4		96	229	237	292	100	-	100	2,051	2,051	78	78	42
21	Bathurst Regional	18	18	35	84	99	162	62	63	124	0.2	0.0	152	0.3	147	0.0	0.0	4,613	4,116	3,877	513	100	87	0 of 1	4	49	34	13				100	299	259	241	100	100	100	0		100	99	0
16	Wingecarribee	91	321	234	46	22	10	31	38	47	0.9	0.2	185	0.4	132	5.0	5.7	3,504	5,202	4,528	235	100	100	6 of 6	29	50	15	5	1	0	0	99	225	331	278				232		4	3	5
14	Clarence Valley	51	57	61	45	52	40	17	23	17	0.2	0.1	199	0.2	100	0.5	0.0	2,525	2,856	2,667	53	100	88	2 of 6	9	80	8	2	1		26	74	172	194	181	58	97		385	337	7	7	14
24	Ballina		274	14	20	3	21	2	2	1	0.3	0.0	611	0.8	199	0.6	1.2	2,952	5,401	4,534		100	100	4 of 4	1	99				0		100	212	383	315	100	100	100	500	461	9	10	11
22	Lismore	226	309	45	49	50	28	1	1	1	0.0	0.1	612	0.7	273	0.6	1.1	3,743	4,008	2,881	123	100	100	3 of 3	6	68	21	4	1	5		95	293	313	225				5		1	0	0
23	Bega Valley			87	22	9	20	23	7	11	0.5	0.4	340	0.5	132	0.0	0.5	2,105	2,244	2,393		100	89	8 of 10	15	55	30				36	64	173	184	196				401	377	30	20	17
20	Goulburn Mulwaree	85	90	100	92	105	45	0	0	0	1.4	3.2	973	1.7	272	0.0	0.0	1,847	1,933	2,054	138	100	100	2 of 2	14	46	34	7			100		175	180	189				1,730	179	86	93	84
27	Byron	190	170	256	11	11	21	2	6	2	0.0	0.0	429	0.6	98	2.0	2.5	3,152	3,098	3,264	70	100	94	1 of 4	22	53	22	2	1			100	300	291	299	100	100	100	367	242	16	14	11
25	Kempsey	162	278	131	16	33	25	14	11	8	0.0	0.1	717	0.9	201	1.5	1.1	1,926	2,283	1,856	87	100	87	7 of 8	19	57	19	5				100	198	233	203	100	100	100	96	84	6	3	5
26	Essential Energy				115	129	122	4	4	2	1.6	0.0	654		355	0.0	0.0	1,380	1,358	1,283		100	100	2 of 2		60	40				100		142	140	132				669	669	51	57	52
Medians (% of LWUs basis) for >10,000 Properties		*85*	*117*	*87*	*45*	*43*	*28*	*12*	*8*	*11*	*0.2*	*0.1*	*323*	*0.5*	*100*	0.8	0.9																*213*	*233*	*225*			*Total Vol*	*27,122*		*25*	*14*	*13*
LWUs with 4,001 - 10,000 Properties																																											
111	Armidale Regional	114	278	276	74	81	82	25	42	35	1.0	0.4	230	0.6		0.0	0.0	2,413	2,442	2,518		100	99	2 of 3	33	46	21				8	93	252	252	256	88	88	94	827		41	36	33
120	Snowy Monaro Regional		13	31	47	34	19	92	56	46	1.3	1.6	384	0.6	49	0.4	1.7	1,200	1,471	1,421		100	63	4 of 8	5	85	10				16	95	137	165	163				64	51	20	6	4
30A	Hawkesbury	49	52	82	26	29	34	5	5	7	0.0	0.0	115	0.1	7	5.4	6.5	2,058	2,371	2,138	295	100	100	2 of 2	7	67	9	14	3			100	269	310	279	100	100	100	142	7	15	9	7
31	Lithgow				0	101	60		3	0	3.1	-	585	0.9	211	3.1	0.6	1,694	2,142	1,755		100	99	2 of 3		100						100	226	286	234				0		0	0	0
32	Mid-Western Regional	23	16	39	37	52	68	47	39	39	1.3	0.1	370	0.8	223	3.9	2.2	1,144	1,224	1,358		93	85	2 of 5	7	72	21					93	160	166	183				54		3	0	4
30	Griffith				57	85	106	3	8	6	0.9	0.8	270	0.4	37	0.4	0.0	1,919	2,123	2,415	37	100	98	2 of 3		86	13	2		0	3	96	274	301	342				247		0	8	9
33	Richmond Valley				5		-	7	10	25	1.5	0.4	1,289	2.0	66		0.5	1,612	1,821	1,655		100	98	3 of 4		100						100	242	274	246				377	1	22	23	16
41	Muswellbrook				1	5	11	24	11	12	2.8	0.1	802	1.6	167	5.1	2.8	967	961	955	13	100	39	0 of 2		99		1				100	169	168	166				863	863	94	93	90
34	Nambucca	41	253	95	5	6	12	15	18	33	0.0	0.0	261	0.4	88	0.6	0.6	1,128	1,475	1,163		100	79	1 of 4	14	77	9				16	84	198	258	204	100	100	100	49		5	5	4
35	Singleton				11	28	45	13	11	15	3.3	0.5	578	1.2	218	0.7	0.7	1,067	1,126	1,065	31	100	100	1 of 1		97		3				100	190	198	187				0		33	0	0

Table 15: Sewerage - asset management and resource management

	WATER UTILITY	ASSET MANAGEMENT															RESOURCE MANAGEMENT																										
		Infiltration			Breaks & Chokes			Overflows see also Col (31a)			Rehabilitations		Renewals		Mains Maintenance Cost	Overflows Reported to Regulator		Total Vol of Sewage Collected			Volume of Trade Waste	% Sewage Treated	% Sge Treated that was compliant	STWs compliant at all times	Percentage of Total Sewage Collected					Level of Treatment (%)			Vol of Sewage Collected per Property			Biosolids Reused			Effluent Recycled					
		(ML per 100km of Main)			(No. per 100 km of Main)			(No. per 100 km of Main)			Mains (% of Total Length)	Service Connections (%)	($'000 per 100 km of Main)	(% of CRC)	($'000 per 100 km of Main)	(No. per 100km of main)				(ML)	(%)			Infiltration /inflow	Res	Non-Res	Trade Waste	Other	Primary Level	Secondary Level	Tertiary Level	(kL/property)			(%)			Total Volume Recycled (ML)	Volume Recycled for Urban Water (ML)		% of Total Effluent that is Recycled		
		(23)			(24) A14			(25)			(27)	(28)	(29)	(30)	(31)	(31a) E13		(32) W18			(32a) W17	(33)	(33a)	(33b)	(34)	(35)	(36)	(37)	(38)	(39a) E1	(39b) E2	(39c) E3	(39) W19			(40) E8			(41a) W26	(41b) W20+W21+W25-W25.1		(41c) W27		
		13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	13/14	14/15	15/16
114	Federation	21	21	21	33	21	27	3	5	7	0.0	0.6	168	0.5	120	0.5	1.8	961	973	1,059	16	100	94	4 of 5	3	81	15	2			73	27	174	177	193	94	94	100	26		18	20	2
116	Hilltops	37	37	108	41	64	89	6	5	11	0.6	0.1	1,463	2.9	110	4.8	3.0	1,243	1,262	938	42	100	100	3 of 3	19	58	18	4	1	9	21	85	230	233	175	16			190	186	15	25	18
121	Snowy Valleys	0	0		33	41	25	17	2	24	2.1	0.2	3,024	7.3	59	0.0	0.0	1,123	1,013	1,137	13	100	94	4 of 7		94	5	1			15	87	215	194	218				213	185	10	9	18
36	Parkes	22	14	50	59	126	28	33	4	27	1.4	0.5	5,005	10.5	246	0.0	1.4	1,168	839	875	33	100	70	3 of 4	8	65	22	4	1		7	93	232	165	172				155	155	15	21	18
37	Inverell	57	57	57	36	32	32	2	2	2	0.0	0.0	144	0.3	229	0.0	0.0	1,153	925	1,020	20	83	99	2 of 4	7	83	8	2			83		245	202	210				0		0	0	0
45	Upper Hunter	98	92	88	15	10	13	0	7	5	4.6	0.3	882	1.7	113	0.0	0.0	1,092	900	933	9	100	94	3 of 4	12	79	8	1			100		267	210	220				294	89	1	14	31
117	Murray River	20	15	22	8	11	22	0	0	0	0.0	0.5	311	0.9	54	0.0	0.0	1,028	916	1,051	121	89	100	7 of 7	3	74	11	12		14	2	73	248	221	250	1	1	6	133		25	12	14
Medians (% of LWUs basis) for 1,500 to 4,000 Properties		*37*	*37*	*69*	*30*	*32*	*28*	*7*	*6*	*12*	*1.1*	*0.4*	*481*	*0.9*	*110*	0.4	0.6																*231*	*216*	*214*		*Total Vol*		*3,580*		*15*	*11*	*12*
LWUs with 1,501 - 4,000 Properties																																										
44	Gunnedah	45	45	43	32	20	17	43	34	29	0.0	0.4	83	0.2	158	0.0	0.0	695	753	849		79	100	2 of 2	6	72	22			3	76		176	190	207				542		85	96	81
46	Narrabri		8	20	0	57	38	8	2	5	3.3	0.6	1,086	1.4	147	0.9	0.8	721	757	776		100	100	3 of 3	3	67	30				27	73	183	191	196		74	68	398		68	55	51
38	Moree Plains	101	101	101	52	46	46	7	6	6	0.0	0.5	1,936	2.9	422	0.0	0.0	1,405	1,391	1,807	170	78	100	4 of 4	5	84	2	9		1	3	74	344	352	454				655	392	69	58	46
115	Cootamundra-Gundagai	76	74	91	119	97	101	6	5	5	0.0	0.6	768	1.9	117	6.3	0.0	761	730	817	6	100	100	2 of 2	15	68	16	1			29	71	209	200	221				742	435	88	98	91
53	Berrigan	57	69	75	77	84	89	6	9	14	0.0	0.3	155	0.4		0.0	0.0	640	695	739		100	100	4 of 4	11	78	11			9		100	182	194	203				629	629	86	79	76
39	Cowra				148	157	180	0	0	0	3.0	1.1	318	0.6	202	0.0	0.0	565	552	584		100	100	1 of 1		100						100	160	156	164				0		0	0	0
48	Leeton	10	10	10	25	19	15	0	0	0	6.9	7.9	892	1.6	188	0.0	0.0	652	831	975	149	100	100	3 of 3	1	79	4	15	1		2	98	199	249	292	100	100	100	0		2	0	0
54	Edward River	41	42	41	28	28	28	0	0	0	0.0	0.0	95	0.2	127	0.0	0.0	563	565	565		85	100	1 of 1	8	85	7				85		177	174	174				54		11	11	11
51	Forbes	36	29	42	79	70	64	18	0	0	0.0	0.3	285	0.5	178	0.0	0.0	684	663	716	44	100	100	1 of 1	5	60	29	6				100	215	207	224				253		1	1	35
47	Bellingen	62	76	45	20	22	29	3	2	6	1.0	0.3	2,293	3.6	94	1.0	3.0	617	764	559	79	100	94	2 of 3	8	78		14				100	204	250	183	59	31	1	0		0	0	0
60	Glen Innes Severn	180	59	62	94	47	47	94	47	48	1.8	0.0	377	1.9	54	0.0	0.0	613	526	529	10	100	100	2 of 2	13	78	8	2			4	96	218	191	188	100	100	100	0		12	0	0
80	Greater Hume	19	23	38	14	10	4	0	0	0	0.0	0.1	214	0.3	35	0.0	0.0	448	406	440		100	100	6 of 6	7	80	14					100	172	155	168				57	57	13	15	13
55	Warrumbungle	3	8	16	154	128	45	0	0	0	1.3	0.0	160	0.3	204	0.0	0.0	294	355	336		100	80	3 of 4	4	67	29				100		116	140	133				83		12	17	25
56	Yass Valley	15	40	27	32	29	36	3	0	0	0.0	0.4				0.0	0.0	474	474	482	27	99	100	1 of 1	5	68	20	6	1		99		203	192	192	100	100	100	0		0	0	0
59	Lachlan	12		28	62		45	0		0	0.0	0.3	205	0.4	95		0.0	484	484	530	33	100	63	2 of 3	4	75	15	6				100	223	220	241	100		100	116	116	24	24	22
69	Temora	45	37	45	213	46	73	0	19	27	3.6	0.4	1,051	2.9		0.0	0.0	335	326	330	20	100	83	0 of 1	8	76	11	6			81	18	156	151	153				61	61	35	30	19
61	Liverpool Plains	33	16	24	17	26	12	0	3	3	6.9	0.1			47	0.0	0.0	303	267	304		100	18	0 of 2	5	68	28				33	67	149	132	165				0		0	0	0
62	Narromine				24	24	9	0	0	0	13.0	0.1	928	1.7	65	0.0		328	362	506		100	100	2 of 2		100					100		167	185	250				0		5	0	0
78	Blayney	39	38	55	28	29	32	0	0	0	2.6	0.2	345	0.9		0.0	0.0	287	308	372	7	100	100	1 of 1	11	85	2	2			100		148	159	191	100	100	100	301	301	61	69	62
91	Cabonne	18		14	32	22	16	35	3	5	4.1	0.2			149	0.0	0.0	297	297	332		100	61	5 of 7	3	65	32				60	31	139	154	136		100		79	62	37	37	26
72	Bland	33	33	33	61	49	41	0	0	0	4.1	0.3	165	0.4		0.0	0.0	357	359	415		71	100	3 of 3	4	82	13		1		65	6	195	195	225				270	270	75	92	92
67	Cobar	10	10	10	0	4	0	0	2	0	-	0.0			71	0.0	0.0	435	435	*435*		100	100	1 of 1	1	92	7				100		250	250	*247*				0		46	0	0
63	Narrandera				122	183	-	2	0		-	-	1,427	2.7	295	0.0		300	300	*300*		-	29	0 of 1	-	-	-	-	-				177	175	*175*						1	1	1
68	Tenterfield	14	13	13	138	101	153	3	1	3	1.5	0.0	228	0.5		1.5	1.5	292	288	329		100	57	0 of 2	3	91	6					100	170	168	176				51	51	19	15	16
70	Kyogle	98	279	266	16	23	5	6	15	10	0.0	0.1			169	1.6	0.0	307	424	416	17	93	100	3 of 3	40	32	24	4		13	5	75	180	248	227	8	79	100	38	38	73	19	10
77	Junee	135	151	170	65	74	56	0	0	0	0.0	0.2			191	0.0		396	379	420		100	67	0 of 1	17	64	18		1			100	243	231	251				104	104	30	40	25
74	Wentworth				54	0	15	3	3	0	-	-	498	0.8	89	3.1	0.0	2,129	2,129	*2,129*		15	100	5 of 5		15			85			15	1,339	1,306	*1,290*				0		1	0	0
79	Walgett				0	2	10		0	2	0.0	0.0				0.0	2.1	290	290	230		100	75	2 of 3		100					100		180	179	142				0		83	0	0
73	Upper Lachlan	304	214	214	9	9	9	0	0	0	3.6	0.7	623	1.5	13	0.0	0.0	519	543	*543*		100	100	3 of 3	22	72	6					100	339	355	*355*				50		9	9	9
Medians (% of LWUs basis) for 1,500 to 4,000 Properties		*39*	*39*	*41*	*32*	*29*	*34*	*1*	*1*	*0*	*1.1*	*0.3*	*361*	*1*	*137*	*0.0*	*0.0*																*182*	*191*	*196*		*Total Vol*		*4,483*		*19*	*15*	*13*

Table 15: Sewerage - asset management and resource management

	WATER UTILITY	ASSET MANAGEMENT															RESOURCE MANAGEMENT																										
		Infiltration			Breaks & Chokes			Overflows see also Col (31a)			Rehabilitations		Renewals		Mains Maintenance Cost	Overflows Reported to Regulator		Total Vol of Sewage Collected			Volume of Trade Waste	% Sewage Treated	% Sge Treated that was compliant	STWs compliant at all times	Percentage of Total Sewage Collected					Level of Treatment (%)			Vol of Sewage Collected per Property			Biosolids Reused			Effluent Recycled					
		(ML per 100km of Main)			(No. per 100 km of Main)			(No. per 100 km of Main)			Mains (% of Total Length)	Service Connections (%)	($'000 per 100 km of Main)	(% of CRC)	($'000 per 100 km of Main)	(No. per 100km of main)		(Res, NonRes + Trade Waste) (ML)			(ML)	(%)			Infiltration /inflow	Res	Non-Res	Trade Waste	Other	Primary Level	Secondary Level	Tertiary Level	(kL/property)			(%)			Total Volume Recycled (ML)	Volume Recycled for Urban Water (ML)		% of Total Effluent that is Recycled		
		(23)			(24) A14			(25)			(27)	(28)	(29)	(30)	(31)	(31a) E13		(32) W18			(32a) W17	(33)	(33a)	(33b)	(34)	(35)	(36)	(37)	(38)	(39a) E1	(39b) E2	(39c) E3	(39) W19			(40) E8			(41a) W26	(41b) W20+W21+W25-W25.1		(41c) W27		
		13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	13/14	14/15	15/16
LWUs with 200 - 1,500 Properties																																										
86	Hay	54	54	59	81	81	65	0	0	0	2.9	0.4	1,026	1.6	606	0.0	0.0	287	282	237		100	100	1 of 1	8	87	4		1		100		224	220	180			0			0	0	0
83	Oberon	39	39	39	26	21	18	13	63	92	0.0	0.2			97	0.0	0.0	315	355	389	13	100	100	1 of 1	4	90	3	3				100	258	284	309			0			100	0	0
84	Gilgandra	70	71	70	35	41	68	3	11	0	2.7	0.0	505	0.8	265	0.0	0.0	257	238	259		100	100	1 of 1	10	63	27					100	188	192	209			221			100	100	85
118	Murrumbidgee	28	28	29	0	6	6	0	0	0	0.0	0.1	191	0.4	57	0.0	0.0	225	221	68		100	0	1 of 3	15	85					100		184	181	56			0			34	35	0
87	Bourke	44	44	44	129	53	18	0	3	3	0.0	0.4	4,938	9.8	262	2.9	2.9	191	200	*200*	1	90	100	1 of 1	8	90	3	1			90		157	165	*165*			0			0	0	0
75	Coonamble	13	33	28	11	9	7	4	0	0	0.0	0.4	228	0.4	102	0.0	0.0	238	281	278		94	50	0 of 2	5	84	12					94	186	236	234			54			30	22	21
81	Gwydir	56	44	56	93	78	76	51	39	29	0.0	0.2	68	0.2	93	2.4	0.0	275	250	274		100	81	1 of 2	8	76	16					100	239	217	238	10	10	10	9	9	14	8	3
85	Uralla	46	49	60	29	34	43	0	3	0	0.0	0.0	26	0.1	100	2.9	0.0	123	131	139	3	100	75	0 of 1	15	80	3	2			100		111	117	122			0			0	0	0
99	Coolamon	5	5	5	9	7	9	2	0	0	0.0	0.5	293	0.7	161	0.0	0.0	105	105	*105*		100	100	2 of 2	2	94	4				29	71	105	103	*104*			75			71	71	42
89	Bogan	50	50	50	0	0	0	0	0	0	0.0	0.1	85	0.2	545	0.0	0.0	190	180	161		100	25	0 of 1	6	57	37				100		196	188	171			60			44	14	37
95	Weddin	65	65	65	213	203	210	0	10	16	6.5	0.2	203	0.5	174	9.7	16.1	165	165	175		97	100	1 of 1	11	80	9			0	97		178	176	173			0			8	7	0
102	Lockhart				0	0	0	0	0	0	0.0	0.1			33	0.0	0.0	114	124	140		96	58	2 of 3		100					41	56	130	141	161			2	2		1	2	1
100	Balranald				18	21	-	0	0	0	0.0	0.0	68	0.2		0.0	0.0	180	184	217		100	100	2 of 2		100					100		212	216	252			0			73	0	0
92	Carrathool				65	4	48	0	0	9	-	-			113	0.0	0.0	191	101	120		100	100	3 of 3		98	3				100		230	122	152			0			1	0	0
96	Warren	12	65	65	176	441	294	0	0	0	0.0	0.5	141	0.2	318	0.0	0.0	176	176	178		100	77	1 of 2	6	76	18				100		223	215	217			0			1	0	0
98	Walcha	30		50	37	23	23	10	30	30	0.0	0.8			3	30.0	30.0	153	153	156	8	100	25	0 of 1	10	81	4	5			95		194	191	195			0			0	0	0
105	Brewarrina	31	75	38	88	6	13	0	0	0	0.0	0.8	388	0.5		0.0	0.0	198	182	194		89	84	2 of 3	3	89	8				89		396	379	404			0			57	0	0
103	Central Darling				87	26	113	9	4	9	0.0	1.3			217	0.0	8.7	45	80	53		100	100	1 of 1		100					100		118	216	140			0			0	0	0
	Medians (% of LWUs basis) for 200 to 1,500 Properties	*41.5*	*49*	*50*	*36*	*22*	*23*	*0*	*0*	*0*	*0.0*	*0.2*	*203*	*0.4*	*137*	*0.0*	*0.0*																*191*	*192*	*176*		*Total Vol*	*421*			*11*	*0*	*0*
	Median All LWUs (% of LWUs basis)					*Breaks & Chokes*	*29*		*Overflows*	*5*			*Renewals 0.6% of CRC*										*Median % sge treated that was compliant was 99%*																*Median % of Effluent Recycled*	*10*				
	Median All LWUs (Statewide basis)						*38*			*14*			*Renewals 0.5% of CRC*																														
	Totals for all LWUs																			*Total volume of sewage collected =*	*177,000 ML*				*No. of LWUs Reporting Biosolids Reuse*	*24 (ie. 28% of LWUs)*			*Total volume of effluent recycled =*	*35,500 ML*									
																									No. of LWUs Reporting Recycling for Urban use	*39 (ie. 45% of LWUs)*			*Effluent Recycled % of total volume collected =*	*20%*									
																									No. of LWUs Reporting Effluent Recycling	*60 (ie. 70% of LWUs)*													

NOTE: 1. For those councils that did not report the current year's volume of sewage collected (column (32)), either the previous year's value or the current year's volume of sewage treated has been adopted, whichever is the larger.
These adopted values are shown in bold italics in columns (32) and (39).

2 The number of LWUs reporting effluent recycling = 60 (ie. 70% of LWUs providing sewerage services)
The number of LWUs reporting effluent recycling for Urban Water Supply (ie. not for irrigation, environmental use or agriculture) = 39 (ie. 45% of LWUs providing sewerage services)

3 For the utilities that did not report the current year's volume of effluent recycled (column (41)), but reported >10% recycled water in the previous year, the percentage recycled is assumed to be the same as that of the previous year.
For such councils, the adopted value is shown in bold italics in column (41). Refer also to Appendix H4.7.

Table 16: Sewerage - financial and efficiency

	WATER UTILITY	FINANCIAL (SEE ALSO COST RECOVERY TABLE 7)																											EFFICIENCY (SEE ALSO COST RECOVERY TABLE 7)					
		Total Revenue - Sewerage (excl. Capital Works Grants) ($'000)		Revenue per property ($)	Revenue from Rates and Charges ($'000)			Operating Cost (OMA) ($'000)			Ratio of OMA to Rates and Charges Revenue (%)			Residential Revenue Vs Vol Collected		Current Replacement Cost of System Assets (CRC)			Net Debt to Equity WS & Sge (%)		Return on Assets (%)		ERRR see also Table 7 Col (11)			Operating Result ($/property)		WDV CRC per Property ($/property)	Externalities (Annual Fees to EPA) ($/property)	Loan Payment ($/property)		Operating Cost (OMA) ($/property)			Management Cost ($/property)		
														Res Revenue (% of rates and charges)	Res Vol collectd (% total excl infiltration)	Written Down CRC ($'M)	CRC ($'M)	CRC per Assessment ($/assmnt)																			
		(42) F2		(42a) F6	(42b)			(42c)			(42d)			(43)	(44)	(45) F10	(46)	(47)	(48) F22		(48a)		(48b) F18			(50)		(47a) F10/C8	(51)	(51a)		(52) F12			(54)		
		14/15	15/16	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	14/15	15/16	14/15	15/16	13/14	14/15	15/16	14/15	15/16	15/16	15/16	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16
	Sydney Water	1,335,458	1,386,239	749				488,992	515,017	535,530						32,409			96	103			1.4	1.4	2.0			17,499				272	282	289			
	Hunter Water	174,470	176,352	765				78,734	81,431	77,240						4,640			78	91			1.8	1.7	1.8			20,085				351	358	335			
LWUs with > 10,000 Properties																																				
112	Central Coast	85,100	76,200	568	71,573	76,523	68,808	49,593	47,322	31,970	0.69	0.62	0.46	83	77	1,470	2,246	17,100	7	8	0.2	1.1	-0.2	0.3	1.2	30	122	11,000	0.8	68	32	381	359	238	126	117	71
3	Shoalhaven	46,700	45,200	1,072	35,843	38,052	39,433	20,038	20,950	19,658	0.56	0.55	0.50	82	84	469	716	15,000	-1	-4	3.4	3.1	2.2	3.9	3.4	527	404	11,100	1.3	181	57	478	500	466	169	188	168
5	MidCoast	39,800	42,400	1,196	36,011	36,256	38,346	17,212	19,082	18,042	0.48	0.53	0.47	90	78	404	681	18,400	22	21	1.3	1.2	2.8	2.6	2.5	93	88	11,400	1.3	483	156	491	543	509	105	128	157
6	Tweed	33,500	35,900	1,154	25,151	27,185	29,445	15,344	16,112	15,992	0.61	0.59	0.54	83	68	610	836	24,400	0	-2	1.0	1.4	1.7	1.1	1.5	110	137	19,600	1.6	196	90	505	524	514	175	172	176
7	Port Macquarie-Hastings	24,600	32,500	1,151	20,574	21,951	23,346	13,589	13,345	13,657	0.66	0.61	0.58	90	*90*	268	418	14,100	-8	-9	1.3	3.5	2.9	1.5	4.3	33	223	9,500	1.5	138	117	494	480	484	125	126	128
9	Wagga Wagga	19,600	18,600	671	14,444	14,790	15,717	10,953	11,363	11,214	0.76	0.77	0.71	68	62	258	361	13,500	5	5	0.5	0.1	0.3	1.3	0.9	41	3	9,300	0.7	110	87	417	418	405	70	64	63
11	Albury City	20,900	23,700	974	15,308	17,730	19,648	9,422	9,412	9,679	0.62	0.53	0.49	78	72	191	355	14,400	-6	-9	4.0	5.3	4.2	4.1	5.2	283	375	7,900	0.9	94	33	429	393	398	160	120	164
10	Coffs Harbour	28,600	30,300	1,278	24,251	25,209	25,449	14,359	14,679	13,823	0.59	0.58	0.54	79	*90*	457	673	26,400	13	11	-0.8	-0.1	0.5	0.1	0.8	-182	-45	19,300	0.3	650	259	610	619	583	202	201	191
13	Tamworth Regional	21,500	24,200	1,210	17,736	18,275	19,641	9,109	8,360	7,958	0.51	0.46	0.41	74	46	234	302	15,100	-4	-4	2.4	3.6	2.5	3.2	4.2	265	434	11,700	0.7	254	143	471	425	398	175	169	168
119	Queanbeyan-Palerang	14,500	12,300	621	9,385	11,077	10,635	7,243	7,601	7,797	0.77	0.69	0.73	82	85	147	288	14,800	-16	-16	2.2	1.1	2.4	1.6	0.5	112	78	7,400	0.5	39	19	386	392	394	162	201	197
122	Dubbo Regional	19,300	16,500	850	13,329	14,309	13,425	6,721	6,814	6,685	0.50	0.48	0.50	90	70	205	305	17,100	-3	-4	4.0	2.7	2.3	3.6	2.5	413	269	10,500	0.6	99	53	360	357	344	163	160	160
15	Eurobodalla	19,300	21,900	1,190	17,473	17,940	18,518	10,178	9,050	9,866	0.58	0.50	0.53	87	78	233	409	20,900	-1	-3	1.3	2.1	1.0	1.7	2.4	151	361	12,700	1.1	251	60	565	501	536	195	187	193
19	Orange	14,000	12,600	746	7,444	8,380	9,150	6,152	6,775	6,424	0.83	0.81	0.70	76	71	162	255	15,100	-12	-13	3.7	2.5	1.7	2.7	1.9	360	245	9,600	0.5	1	3	374	409	380	176	178	191
21	Bathurst Regional	12,300	11,400	709	8,630	9,132	9,763	6,424	6,911	7,119	0.74	0.76	0.73	64	51	91	201	13,500	-12	-12	3.0	1.8	1.8	2.7	1.5	181	109	5,700	0.5	0	0	416	435	443	192	185	188
16	Wingecarribee	16,800	21,200	1,304	12,718	13,580	14,433	8,290	6,907	6,874	0.65	0.51	0.48	82	70	198	267	15,600	-4	-8	2.4	4.6	1.1	3.0	4.9	311	563	12,200	2.0	236	66	531	439	423	220	189	205
14	Clarence Valley	18,000	19,800	1,342	14,722	16,353	18,127	7,250	6,803	7,051	0.49	0.42	0.39	82	88	298	340	21,700	11	12	0.9	1.2	2.3	2.5	2.8	219	321	20,200	2.3	473	347	495	462	478	171	145	161
24	Ballina	16,800	18,200	1,264	12,766	14,043	15,229	9,045	9,125	9,028	0.71	0.65	0.59	82	*90*	198	257	16,600	17	15	0.5	0.8	1.4	2.7	2.9	-798	101	13,800	1.6	509	323	649	647	627	278	258	229
22	Lismore	11,300	13,200	1,032	10,358	10,966	11,545	5,941	5,812	6,114	0.57	0.53	0.53	80	72	193	327	26,900	-2	-2	0.6	1.5	0.2	0.5	1.4	9	203	15,100	1.4	68	47	466	454	478	122	130	139
23	Bega Valley	16,600	17,800	1,454	14,923	15,651	16,201	8,937	9,017	10,402	0.60	0.58	0.64	82	65	180	303	24,300	-3	-3	0.3	-0.2	0.4	0.7	0.2	40	-28	14,700	1.5	207	111	734	740	850	328	285	299
20	Goulburn Mulwaree	11,000	11,400	1,049	9,653	10,105	10,485	3,890	3,544	3,776	0.40	0.35	0.36	70	53	90	161	15,200	-6	-8	6.2	6.0	5.6	6.2	6.1	535	491	8,300	0.8	153	75	368	330	347	108	104	107
27	Byron	16,300	19,200	1,758	13,378	13,931	14,258	6,842	7,245	7,228	0.51	0.52	0.51	75	68	146	206	18,100	14	11	1.6	3.6	3.9	4.0	6.0	176	438	13,300	2.1	489	347	652	680	662	176	149	158
25	Kempsey	9,300	10,000	1,095	7,929	8,604	9,314	5,291	5,507	5,250	0.67	0.64	0.56	76	70	159	220	25,000	8	7	-0.2	0.3	-0.4	0.4	0.9	-120	-47	17,400	2.9	207	118	543	563	575	181	184	206
26	Essential Energy	6,400	6,000	617	6,093	6,121	5,713	3,102	3,228	3,084	0.51	0.53	0.54	80	60											327	297		0.0		0	319	332	317	39	78	45
	Medians (% of LWUs basis) and totals for >10,000 Properties	522,200	540,500	*1,095*	419,692	446,163	456,629	254,925	254,964	238,691	*0.60*	*0.55*	*0.53*	*82*	*71*	6,661	10,128	*16,850*	*-2*	*-3*	*1.3*	*1.7*	*1.8*	*2.6*	*2.5*	*151*	*223*	*11,550*	*1.1*	*189*	*75*	*478*	*454*	*466*	*171*	*169*	*168*
LWUs with 4,001 - 10,000 Properties																																				
111	Armidale Regional	5,730	6,180	629	4,723	4,783	4,857	3,134	2,329	2,647	0.66	0.49	0.54	69	69	81	113	11,200	-7	-9	2.7	2.7	1.4	2.1	2.4	196	216	8,200	1.1	12	9	328	240	269	112	69	66
120	Snowy Monaro Regional	7,590	7,540	863	6,728	7,115	7,120	3,939	3,786	3,660	0.59	0.53	0.51	74	89	78	152	20,200	-10	-11	1.9	2.3	0.8	1.6	2.1	158	201	8,900	1.6	61	15	450	424	419	114	117	103
30A	Hawkesbury	5,770	6,830	892	5,225	5,570	6,384	4,198	4,310	5,293	0.80	0.77	0.83	67	72	83	168	21,500	1	-1	-0.3	-0.8	-0.4	-0.3	-0.8	-33	-89	10,800	2.1	52	0	549	563	691	254	270	274
31	Lithgow	6,710	7,590	1,011	6,817	6,587	7,001	3,759	4,240	3,746	0.55	0.64	0.54	90	*90*	63	109	14,200	10	9	0.6	2.5	1.7	1.8	3.3	39	170	8,400	1.9	174	67	503	566	499	109	150	45
32	Mid-Western Regional	6,050	6,060	815	4,893	5,339	5,740	2,957	2,712	3,508	0.60	0.51	0.61	84	77	71	108	14,500	-4	-5	1.5	0.4	1.8	2.1	1.0	98	22	9,600	2.3	137	83	414	369	472	160	162	201
30	Griffith	7,860	8,430	1,192	7,541	7,725	8,022	4,012	4,160	4,321	0.53	0.54	0.54	78	86	135	180	21,600	2	0	0.4	0.7	1.3	1.4	1.7	72	142	19,100	1.6	211	203	572	590	611	180	212	204
33	Richmond Valley	7,580	7,610	1,131	6,990	7,165	7,337	3,707	3,960	4,331	0.53	0.55	0.59	84	*90*	105	130	18,300	3	3	1.5	1.1	2.5	2.4	2.0	158	75	15,600	2.1	344	183	557	596	644	277	310	315
41	Muswellbrook	4,090	4,270	741	3,572	3,613	3,772	2,252	2,149	2,336	0.63	0.59	0.62	84	*90*	56	90	14,900	-21	-21	2.2	2.1	5.0	1.4	1.3	185	371	9,800	1.1	20	10	394	375	406	182	165	176
34	Nambucca	4,970	4,920	865	4,173	4,139	4,396	2,420	2,405	2,503	0.58	0.58	0.57	72	90	76	113	18,800	7	5	0.7	0.7	0.4	1.2	1.1	83	81	13,400	1.5	389	96	424	420	440	153	142	119
35	Singleton	3,470	3,900	683	3,252	3,321	3,636	1,722	1,693	1,871	0.53	0.51	0.51	73	*90*	32	73	12,200	-37	-37	4.8	5.4	2.9	2.2	3.3	211	264	5,500	1.4	0		306	297	328	100	123	129
114	Federation	4,460	3,870	705	3,895	4,151	3,632	2,116	2,361	2,281	0.54	0.57	0.63	87	84	42	58	10,000	-11	-11	2.8	1.9	2.8	2.9	1.9	144	129	7,700	1.1	369	32	383	428	415	149	102	108

Table 16: Sewerage - financial and efficiency

	WATER UTILITY	FINANCIAL (SEE ALSO COST RECOVERY TABLE 7)																										EFFICIENCY (SEE ALSO COST RECOVERY TABLE 7)					
		Total Revenue - Sewerage (excl. Capital Works Grants) ($'000) (42) F2		Revenue per property ($) (42a) F6	Revenue from Rates and Charges ($'000) (42b)			Operating Cost (OMA) ($'000) (42c)			Ratio of OMA to Rates and Charges Revenue (%) (42d)			Residential Revenue Vs Vol Collected		Current Replacement Cost of System Assets (CRC)			Net Debt to Equity WS & Sge (%) (48) F22		Return on Assets (%) (48a)		ERRR see also Table 7 Col (11) (48b) F18			Operating Result ($/property) (50)		WDV CRC per Property ($/property) (47a) F10/C8	Externalities (Annual Fees to EPA) ($/property) (51)	Loan Payment ($/property) (51a)		Operating Cost (OMA) ($/property) (52) F12			Management Cost ($/property) (54)		
														Res Revenue (% of rates and charges) (43)	Res Vol collectd (% total excl infiltration) (44)	Written Down CRC ($'M) (45) F10	CRC ($'M) (46)	CRC per Assessment ($/assmnt) (47)																					
		14/15	*15/16*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*15/16*	*15/16*	*15/16*	*15/16*	*15/16*	*14/15*	*15/16*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*14/15*	*15/16*	*15/16*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*	*13/14*	*14/15*	*15/16*
116	Hilltops	4,060	3,980	743	3,752	3,829	3,796	1,713	2,021	1,485	0.46	0.53	0.39	82	72	52	85	16,000	-4	-4	0.4	2.2	2.3	1.8	2.9	157	433	9,700	1.3	1436	85	317	374	277	105	130	119
121	Snowy Valleys	4,230	3,650	699	3,811	3,898	3,530	2,222	2,990	2,554	0.58	0.77	0.72	75	*90*	54	81	14,700	-1	1	0.3	0.0	1.4	0.1	0.0	240	312	10,300	2.4	46	32	426	572	489	134	211	235
36	Parkes	3,080	3,520	690	2,588	2,724	2,844	1,742	1,534	1,635	0.67	0.56	0.57	67	71	40	70	13,100	-29	-26	3.8	4.0	1.4	2.7	3.3	333	1312	7,900	1.6	29	23	346	303	321	114	112	153
37	Inverell	2,450	2,500	514	2,108	2,182	2,306	1,280	1,393	1,357	0.61	0.64	0.59	90	89	46	65	13,000	-6	-7	0.7	2.5	0.6	0.8	0.9	20	191	9,500	1.1	27	16	272	305	279	82	94	83
45	Upper Hunter	2,800	2,740	645	2,192	2,395	2,626	2,023	1,942	1,984	0.92	0.81	0.76	78	90	32	68	14,600	-12	-11	1.0	0.2	-1.9	0.2	-0.5	68	18	7,400	1.7	0	0	495	453	467	195	178	211
117	Murray River	2,540	2,380	565	2,163	2,300	2,099	1,443	1,398	1,289	0.67	0.61	0.61	72	76	29	52	11,800	-11	-13	1.4	1.5	1.0	1.1	1.1	107	94	7,000	0.7	1	0	349	337	306	114	118	104
Medians (% of LWUs basis) and totals for 4,000 to 10,000 Properties		77,670	79,140	*723*	69,198	71,266	72,714	40,441	41,073	41,508	0.59	0.57	0.58	*78*	*89*	994	1,546	*14,550*	*-7*	*-8*	*1.5*	*2*	*1.4*	*1.7*	*1.8*	*151*	*181*	*9,200*	*1.5*	*54*	*32*	*404*	*398*	*417*	*124*	*136*	*124*
LWUs with 1,501 - 4,000 Properties																																				
44	Gunnedah	3,420	3,330	812	2,239	2,358	2,427	923	1,129	943	0.41	0.48	0.39	75	77	33	56	14,200	-22	-24	5.8	5.6	2.7	4.9	4.8	473	464	8,100	0.8	0	0	233	284	230	106	134	98
46	Narrabri	3,160	3,170	803	2,374	2,960	2,886	1,607	1,709	1,793	0.68	0.58	0.62	88	69	38	94	23,300	-24	-24	0.5	0.5	1.0	0.0	0.0	41	49	9,700	0.8	8	6	408	432	454	35	155	180
38	Moree Plains	3,960	3,540	889	2,955	3,258	3,514	1,929	1,753	1,988	0.65	0.54	0.57	63	88	30	60	14,600	3	2	4.0	1.1	0.3	4.1	1.1	325	75	7,500	2.0	93	57	473	444	499	114	130	144
115	Cootamundra-Gundagai	2,170	2,000	541	2,022	2,088	1,921	1,075	1,068	989	0.53	0.51	0.51	70	80	30	55	14,000	-15	-14	2.8	1.7	1.7	1.8	1.6	149	136	8,100	1.7	7	0	295	293	267	80	96	86
53	Berrigan	1,770	1,900	522	1,651	1,725	1,847	1,088	1,118	1,042	0.66	0.65	0.56	90	88	16	39	10,400	-19	-22	1.3	3.0	0.8	0.4	1.8	9	77	4,300	0.0	0	0	309	312	286	100	98	97
39	Cowra	3,230	3,410	958	2,950	2,960	3,074	1,480	1,567	1,753	0.50	0.53	0.57	77	*90*	33	49	13,200	6	4	1.5	1.5	3.1	3.1	3.1	131	129	9,400	0.9	196	158	418	441	492	176	179	227
48	Leeton	2,140	2,690	805	2,009	2,075	2,610	1,507	1,552	1,634	0.75	0.75	0.63	58	80	26	57	16,000	-19	-21	0.2	2.3	-0.7	-0.6	1.1	-26	146	7,800	1.9	0	0	461	466	489	156	158	159
54	Edward River	2,660	2,470	760	2,691	2,607	2,368	1,332	1,393	1,192	0.49	0.53	0.50	77	*90*	37	52	15,200	-8	-11	2.0	2.1	5.0	2.1	1.9	210	229	11,500		20	15	419	429	367	207	209	195
51	Forbes	2,320	2,480	775	2,134	2,239	2,375	1,494	1,488	1,169	0.70	0.66	0.49	76	63	30	46	14,400	-16	-18	1.0	2.6	0.8	0.9	2.5	106	244	9,500	2.5	29	26	470	465	365	58	57	48
47	Bellingen	3,150	3,260	1,065	2,542	3,007	3,159	1,931	2,020	2,008	0.76	0.67	0.64	90	85	46	63	19,700	-18	-17	0.9	0.7	0.3	0.3	0.4	552	363	15,000	2.3	0	0	637	662	656	194	245	249
60	Glen Innes Severn	1,390	1,460	518	1,268	1,322	1,400	792	793	727	0.62	0.60	0.52	90	90	14	22	7,000	6	6	1.8	2.7	1.9	1.8	2.9	66	133	5,100	1.1	86	45	282	287	258	167	164	148
80	Greater Hume	1,560	1,660	634	1,332	1,504	1,585	831	917	854	0.62	0.61	0.54	73	86	31	48	17,400	-7	-7	0.5	1.0	0.1	0.3	0.7	62	118	11,900	2.3	0	0	318	350	326	125	146	143
55	Warrumbungle	1,210	1,410	560	1,195	1,144	1,369	1,053	1,098	1,289	0.88	0.96	0.94	70	70	21	37	14,400	-8	-8	-0.3	-0.4	-1.1	-1.0	-1.0	-28	-41	8,400	3.1	15	0	415	432	512	97	122	213
56	Yass Valley	2,180	4,400	1,753	1,561	1,624	1,781	1,040	1,070	1,093	0.67	0.66	0.61	90	72	26	47	17,500	18	26	3.2	10.5		2.9	10.4	-111	992	10,300	1.5	0	0	446	433	435	185	188	228
59	Lachlan	1,060	1,250	568	955	1,036	1,226	963	994	960	1.01	0.96	0.78	90	78	21	38	17,700	-14	-14	-1.7	0.2	-2.1	-2.6	-1.1	-163	5	9,700	1.4	0	0	444	452	436	90	99	121
69	Temora	750	830	384	637	675	721	493	387	473	0.77	0.57	0.66	78	83	11	20	9,100	-8	-5	1.7	1.6	0.0	1.5	1.3	85	82	5,200	1.5	0	0	229	179	219	15	24	20
61	Liverpool Plains	1,150	1,210	658	1,033	1,099	1,142	518	646	554	0.50	0.59	0.49	85	72	27	29	15,400	-8	-11	1.9	2.6	1.8	1.2	1.8	255	374	14,400	3.4	0	0	254	320	301	108	109	129
62	Narromine	1,230	1,300	644	1,179	1,202	1,270	976	929	774	0.83	0.77	0.61	76	*90*	18	30	13,900	-29	-26	0.4	1.6	0.7	-0.2	1.1	33	136	9,000	1.6	0	0	498	474	383	331	349	251
78	Blayney	1,200	1,340	687	1,192	1,136	1,293	712	704	954	0.60	0.62	0.74	80	*90*	20	30	15,700	-17	-18	0.4	-0.2	1.2	-0.2	-0.8	67	-19	10,300	1.6	145	29	367	363	489	127	167	208
91	Cabonne	1,650	1,790	734	1,375	1,447	1,547	1,071	1,399	1,438	0.78	0.97	0.93	81	67	38	49	18,400	-4	-3	-1.0	-0.7	-0.7	-1.2	-0.9	504	-51	15,500	2.6	93	0	500	725	589	190	321	207
72	Bland	1,280	1,340	728	1,164	1,256	1,320	653	660	769	0.56	0.53	0.58	90	85	10	23	11,800	-2	-3	3.4	3.0	2.6	3.3	2.9	207	179	5,600	1.7	0	0	357	359	418	54	52	54
67	Cobar	680	800	455	713	670	790	514	447	346	0.72	0.67	0.44	79	*90*	9	18	9,500	-15	-17	-1.1	1.4	-1.7	-1.5	1.0	-56	164	5,000	1.8	0	0	295	257	197	112	97	66
63	Narrandera	1,070	1,140	667	1,075	1,042	1,113	672	743	704	0.63	0.71	0.63	81	*90*	12	21	11,600	-27	-27	1.7	1.6	2.1	1.2	1.2	34	42	6,900	1.8	0	0	395	435	412	98	121	111
68	Tenterfield	1,740	1,820	973	1,649	1,704	1,760	872	943	943	0.53	0.55	0.54	79	*90*	23	34	17,400	1	0	0.6	-0.1	1.5	1.2	0.5	74	-14	12,300	2.2	133	91	507	551	504	216	255	228
70	Kyogle	1,210	1,460	798	1,123	1,170	1,214	873	956	933	0.78	0.82	0.77	80	53	23	30	15,600	0	-1	-0.1	1.0	0.4	0.2	1.3	-84	133	12,700	2.8	49	37	511	559	510	161	160	154
77	Junee	700	690	413	659	677	676	495	426	449	0.75	0.63	0.66	88	77	11	21	12,000	-16	-13	0.3	-0.1	-0.8	-0.2	-0.6	22	-6	6,400	1.9	0	0	304	260	269	67	57	49
74	Wentworth	1,400	1,440	873	1,345	1,373	1,409	481	524	504	0.36	0.38	0.36	87	15	17	38	22,000	-15	-17	2.7	1.8	2.1	2.4	1.4	253	147	10,400	3.5	83	0	303	321	305	65	64	63
79	Walgett	850	870	537	818	827	857	311	266	324	0.38	0.32	0.38	88	*90*	12	19	9,900	-17	-19	4.5	4.1	2.4	3.5	3.1	329	300	7,400	1.9	0	0	193	164	200	88	9	43
73	Upper Lachlan	1,330	1,380	902	1,199	1,267	1,316	600	729	728	0.50	0.58	0.55	81	*90*	14	24	15,500	-10	-11	1.5	1.8	1.9	1.0	1.3	102	157	8,900	2.7	37	16	392	476	476	124	150	169
Medians (% of LWUs basis) and totals for 1,500 to 4,000 Properties		51,620	55,840	*728*	45,039	47,452	49,970	28,286	29,428	29,327	0.65	0.61	0.57	80	85	678	1,147	*14,600*	*-14*	*-13*	*1.3*	*1.6*	*0.9*	*1.0*	*1.3*	*74*	*133*	*9,000*	*1.9*	*0*	*0*	*395*	*432*	*412*	*112*	*134*	*144*

Table 16: Sewerage - financial and efficiency

	WATER UTILITY	FINANCIAL (SEE ALSO COST RECOVERY TABLE 7)																										EFFICIENCY (SEE ALSO COST RECOVERY TABLE 7)					
		Total Revenue - Sewerage (excl. Capital Works Grants) ($'000)		Revenue per property ($)	Revenue from Rates and Charges ($'000)			Operating Cost (OMA) ($'000)			Ratio of OMA to Rates and Charges Revenue (%)			Residential Revenue Vs Vol Collected		Current Replacement Cost of System Assets (CRC)			Net Debt to Equity WS & Sge (%)		Return on Assets (%)		ERRR see also Table 7 Col (11)			Operating Result ($/property)		WDV CRC per Property ($/property)	Externalities (Annual Fees to EPA) ($/property)	Loan Payment ($/property)		Operating Cost (OMA) ($/property)			Management Cost ($/property)		
														Res Revenue (% of rates and charges)	Res Vol collectd (% total excl infiltration)	Written Down CRC ($'M)	CRC ($'M)	CRC per Assessment ($/assmnt)																		
		(42) F2		(42a) F6	(42b)			(42c)			(42d)			(43)	(44)	(45) F10	(46)	(47)	(48) F22		(48a)		(48b) F18			(50)		(47a) F10/C8	(51)	(51a)		(52) F12			(54)		
		14/15	15/16	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	14/15	15/16	14/15	15/16	13/14	14/15	15/16	14/15	15/16	15/16	15/16	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16
LWUs with 200 - 1,500 Properties																																					
86	Hay	920	910	689	841	890	888	589	617	858	0.70	0.69	0.97	84	*90*	11	22	16,600	-17	-17	1.5	-0.9	0.9	1.1	-1.2	122	-72	8,000	0.5	0	0	460	482	650	241	203	306
83	Oberon	860	1,050	833	671	840	1,024	687	499	532	1.02	0.59	0.52	57	*90*	12	19	15,400	-7	-10	2.0	3.4	-1.3	1.7	3.3	278	325	9,400	2.5	0	0	563	399	422	260	123	89
84	Gilgandra	790	840	677	686	760	814	452	450	487	0.66	0.59	0.60	79	70	14	23	17,900	-12	-9	-0.2	0.6	0.6	-0.5	0.5	-39	4	10,900	2.5	2	5	330	363	393	64	74	75
118	Murrumbidgee	470	450	369	447	448	429	367	365	326	0.82	0.81	0.76	84	*90*	11	18	15,000	-20	-19	0.0	0.1	-1.2	-1.1	-0.7	-21	-16	8,900		0	0	301	299	267	101	82	93
87	Bourke	760	810	669	737	759	805	481	551	447	0.65	0.73	0.56	89	*90*	9	17	14,200	-13	-14	1.1	2.2	1.1	0.3	2.0	69	155	7,800	2.5	7	7	394	455	369	173	203	76
75	Coonamble	750	760	639	670	707	739	314	289	303	0.47	0.41	0.41	81	88	12	28	24,100	-22	-24	1.0	0.6	-0.3	0.1	0.0	96	55	10,300	3.5	9	2	245	243	255	23		
81	Gwydir	710	*720*	626	694	691	695	287	372	420	0.41	0.54	0.60	73	83	10	13	10,700	-5	-6	3.4	3.0	5.7	2.9	2.3	214	190	8,500	3.6	5	0	250	323	365	21	53	50
85	Uralla	580	600	526	519	565	579	419	408	390	0.81	0.72	0.67	90	*90*	6	8	6,900	-11	-12	0.3	0.8	-1.4	-0.4	0.1	17	45	5,400	2.7	0	0	377	364	342	132	95	100
99	Coolamon	520	530	525	418	433	470	318	276	330	0.76	0.64	0.70	90	*90*	13	18	17,000	-11	-11	0.6	0.3	-0.7	0.2	-0.1	12	-30	12,700	0.6	0	0	318	271	327	52	35	36
89	Bogan	790	640	681	676	780	634	419	438	531	0.62	0.56	0.84	70	61	7	11	12,000	-15	-15	4.7	0.9	2.5	3.7	0.0	348	68	7,600	3.3	0	0	432	456	565	208	281	319
95	Weddin	470	540	535	352	426	516	241	314	334	0.68	0.74	0.65	90	90	7	13	11,900	-9	-11	2.0	2.4	1.8	1.9	2.3	107	136	6,500	3.1	0	0	259	334	331	28	116	102
102	Lockhart	410	430	494	377	386	412	260	187	283	0.69	0.48	0.69	90	*90*	7	13	13,800	-26	-27	1.5	0.3	-0.2	1.0	-0.1	82	-32	7,600	2.3	0	0	295	213	325	32	18	100
100	Balranald	260	260	302	272	256	257	228	230	229	0.84	0.90	0.89	90	*90*	7	14	14,900	-7	-8	-2.2	-4.4	-1.8	-2.3	-5.0	-178	-344	7,900	0.0	0	0	268	271	266	99	53	55
92	Carrathool	280	320	405	257	278	296	170	153	151	0.66	0.55	0.51	90	*90*	6	7	8,600	2	2	0.6	1.0	0.6	0.9	1.6	40	71	7,400	0.0	33	41	205	184	191	16	22	8
96	Warren	490	500	610	471	475	484	427	400	370	0.91	0.84	0.76	78	81	4	14	15,600	-19	-17	-1.8	-1.4	-3.6	-3.4	-2.9	-112	-87	5,100	3.8	0	0	541	488	451	235	189	187
98	Walcha	380	410	513	365	375	398	337	290	323	0.92	0.77	0.81	78	*90*	4	6	7,200	-7	-7	1.4	1.1	0.9	0.6	0.3	76	60	5,600	3.9	0	0	427	363	404	97	98	138
105	Brewarrina	440	460	958	405	425	445	288	280	255	0.71	0.66	0.57	88	*90*	5	12	20,900	-17	-17	0.2	1.1	6.0	0.1	1.0	477	60	11,200		6	0	576	583	531	162	183	198
103	Central Darling	110	*140*	368	105	107	142	95	74	177	0.90	0.69	1.25	90	*90*	3	5	12,600	-2	-4	4.0	-0.1	2.0	6.6	-0.2	297	-5	7,300		0	0	250	200	466	29		
	Medians (% of LWUs basis) and totals for 200 to 1,500 Properties	9,990	10,370	*572*	8,963	9,601	10,027	6,379	6,193	6,746	0.71	0.68	0.68	86	*90*	147	260	*14,550*	*-12*	*-12*	*1.1*	*0.7*	*0.6*	*0.5*	*0.1*	*79*	*50*	*7,850*	*2.5*	*0*	*0*	*324*	*349*	*367*	*98*	*97*	*97*
	Median All LWUs (% of LWUs basis)			*Revenue/prop*	*$720*													*CRC $/Assessment*		*$15000*		*-9*		*1.5*		*ERRR*		*1.3*				*$10*		*OMA $/prop*	*$410*		*Mgmt $/prop*	*$150*
	Median All LWUs (Statewide basis)			*$1095*																*$15400*		*-3*		*1.8*				*2.5*				*$83*			*$470*			*$164*
	Totals for all LWUs	*$690 M Total Sewerage Revenue*			*$590 M Total Rates and Charges Revenue*			*$320 M Total OMA Cost*										*Total Sge CRC $13,100M*																			
																		Total Sge WDC $8,500M																			

NOTE:
1. If the reported management cost is <$20/property or not reported, the previous year's management cost has been adopted and is shown in ***italics bold*** . In such cases, the OMA cost per property has not been increased to include this adopted management cost.
2. If the OMA cost is not reported, the previous year's value has been adopted and is shown in ***italics bold*** .
3. Where the residential volume is reported to be greater than 90%, a maximum value of 90% has been adopted. This is shown in ***italics bold*** .
4. The 2015-16 financial results for the amalgamated LWUs are for the period 1 July 2015 to 12 May 2016 (see Appendix L).

Table 17: Sewerage - environmental and levels of service

	WATER UTILITY	ENVIRONMENTAL																		LEVELS OF SERVICE									
		EPA DISCHARGE LICENCE COMPLIANCE																											
		BOD				SS				N	P	Oil & Grease	Faecal Coliform	Sewage Treated that was Compliant			STWs Compliant at all times	Fully Complied with Environmental Regulator		Odour Complaints			Service Complaints			Total Sewerage Complaints (Odour, service, Other, Billing)			Customer Inquiries	Average Sewerage Interruption	
		Compliance (%) (55)			90 %-ile Limit (mg/L) (56)	Compliance (%) (57)			90 %-ile Limit (mg/L) (58)	(%) (59a)	(%) (59b)	(%) (59c)	(%) (59d)	(%) (59e)			(59f)	(60)		(per 1000 properties) (61)			(per 1000 properties) (62) C11			(per 1000 properties) (62a) [C13]			(per 1000 properties) (63)	(minutes) (65) C16	
		13/14	14/15	15/16	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	13/14	14/15	15/16	15/16	15/16		13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	14/15	15/16
	Sydney Water																						0.5	0.6	0.5					281	265
	Hunter Water																						1	1	1					148	148
LWUs with > 10,000 Properties																															
112	Central Coast	100	100	100	30	100	100	100	50	100	100	100	100	100	100	100	8 of 8		Yes	1.7	1.7	1.9	7	7	-	7	7	-	-	306	209
3	Shoalhaven	100	100	100	40	95	94	100	40	100	100	100	83	95	94	100	13 of 12		No	0.2	0.1	0.2	1	0	1	1	1	0.7	-	60	47
5	MidCoast	99	100	100	30	99	100	99	30	100	100	100	100	96	98	98	11 of 12		No	1.1	1.3	1.4	2	3	2	2	3	2	10	-	-
6	Tweed	100	100	100	10	93	100	100	15	100	100	100	89	83	100	89	5 of 8		No	1.3	0.4	1.5	7	6	9	7	6	9	0	95	240
7	Port Macquarie-Hastings	100	100	100	10	100	100	100	15	100	100	100	100	82	100	100	4 of 5		Yes	2.5	2.4	2.3	10	6	9	10	6	9	3	60	60
9	Wagga Wagga	100	100	100	10	100	100	100	15	100	100	100	100	100	100	100	6 of 6		Yes	0.8	0.8	1.0	53	41	38	53	41	38	0	51	53
11	Albury City	80	100	100	15	100	100	70	20	100	74	93	63	73	63	33	2 of 4		No	0.3	0.8	1.0	1	2	1	1	2	1	35	94	95
10	Coffs Harbour	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	4 of 4		Yes	0.0	0.3	0.0	0	0	0	0	0	0	0	95	115
13	Tamworth Regional	100	100	100	20	100	100	100	20	100	100	100	100	100	100	84	3 of 4		No	0.1	0.0	0.0	21	16	16	21	16	16	-	-	-
119	Queanbeyan-Palerang	100	100	100	NL	98	100	99	NL	100	100	100	100	97	99	98	2 of 5		No	0.5	0.1	0.1	11	13	12	11	13	12	0	120	120
122	Dubbo Regional	100	100	100	30	100	100	100	30	78	100	100	100	87	100	78	3 of 4		No	0.6	0.1	0.4	11	12	12	11	12	13	1	88	102
15	Eurobodalla	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	5 of 5		Yes	1.2	0.1	1.1	2	0	1	2	0	1	34	221	108
19	Orange	100	100	100	30	100	100	100	30	100	83	100	67	100	100	67	1 of 2		No	1.0	0.7	0.5	30	41	42	30	41	42	-	52	79
21	Bathurst Regional	100	100	100	20	100	100	100	25	100	100	100	87	100	100	87	0 of 1		No	0.0	0.1	0.0	24	29	47	24	29	47	6	120	120
16	Wingecarribee	100	100	100	10	100	100	100	15	100	100	100	100	100	96	100	6 of 6		Yes	1.9	1.5	1.0	20	11	15	20	11	15	0	120	120
14	Clarence Valley	100	100	100	15	94	100	99	20	90	100	98	100	73	92	88	2 of 6		No	1.6	1.2	0.3	19	26	19	20	26	20	17	120	120
24	Ballina	80	100	100	10	81	94	100	15	100	100	100	100	75	79	100	4 of 4		Yes	1.9	2.3	0.8	4	3	1	4	3	1	15	120	120
22	Lismore	100	100	100	15	100	100	100	20	100	100	100	100	79	68	100	3 of 3		Yes	0.6	0.0	0.0	16	2	0	17	2	0	26	118	135
23	Bega Valley	100	100	94	10	98	98	100	20	100	100	100	95	92	92	89	8 of 10		No	1.3	1.1	0.8	2	1	2	2	1	2	20	90	90
20	Goulburn Mulwaree	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	2 of 2		Yes	1.9	0.7	0.5	30	29	29	30	29	29	0	90	90
27	Byron	100	100	100	10	100	100	98	15	100	99	100	98	97	97	94	1 of 4		No	3.7	1.3	1.0	4	1	1	5	2	1	4	60	60
25	Kempsey	100	100	100	15	80	77	100	20	87	100	100	87	79	74	87	7 of 8		No	1.6	1.1	1.3	2	1	2	2	1	2	189	99	79
26	Essential Energy	100	100	100	50	100	100	100	50	100	100	80	80	100	100	100	2 of 2		No	0.4	0.2	0.2	1	0	0	1	0	0	-	-	-
Medians (% of LWUs basis) for >10,000 Properties		*100*	*100*	*100*		*100*	*100*	*100*		*100*	*100*	*100*	*100*	*97*	*100*	*98*				*1.1*	*0.7*	*0.8*	*7*	*6*	*6*	*7*	*6*	*6*	*5*	*95*	*105*
LWUs with 4,001 - 10,000 Properties																															
111	Armidale Regional	100	100	100	20	100	100	100	30	100	100	100	100	98	100	99	2 of 3		No	1.0	1.4	1.2	1	2	1	1	2	1.3	0	95	95
120	Snowy Monaro Regional	98	98	97	10	95	95	93	15	100	100	100	98	84	85	63	4 of 8		No	0.6	0.4	0.6	32	20	19	32	20	19	0	120	120
30A	Hawkesbury	100	100	100	10	93	100	100	15	100	100	100	100	87	89	100	2 of 2		Yes	0.5	0.9	0.0	18	15	15	18	15	15	0	60	60
31	Lithgow	92	100	100	10	92	86	100	15	99	100	100	100	73	81	99	2 of 3		No	0.1	0.7	1.1	0	24	21	0	25	21	-	90	-
32	Mid-Western Regional	93	100	100	10	84	100	96	10	100	100	100	98	29	40	85	2 of 5		No	1.4	1.1	1.2	54	44	44	54	44	44	0	-	108
30	Griffith	100	100	100	10	99	98	99	15	100	100	100	98	99	98	98	2 of 3		No	1.4	0.7	0.0	20	28	37	20	28	38	1	60	60
33	Richmond Valley	100	100	100	20	100	98	98	30	100	100	100	100	100	98	98	3 of 4		No	0.0	0.0	0.0	0		0	0	0	0	29	-	-
41	Muswellbrook	98	85	54	20	63	65	39	30	100	100	98	100	63	47	39	0 of 2		No	1.4	0.3	4.2	3	4	7	3	4	7	35	105	96
34	Nambucca	100	96	95	10	92	87	84	15	100	95	100	95	46	67	79	1 of 4		No	1.9	1.6	1.8	9	4	3	9	4	3	26	60	120
35	Singleton	100	100	100	30	100	100	100	30	100	100	100	100	100	100	100	1 of 1		Yes	0.0	0.9	0.7	12	20	14	12	20	14	10	60	116
114	Federation	100	100	100	NL	100	100	100	NL	100	100	94	100	100	100	94	4 of 5		No	0.9	0.8	0.5	14	13	15	14	13	15	0	120	120

Table 17: Sewerage - environmental and levels of service

	WATER UTILITY	ENVIRONMENTAL																LEVELS OF SERVICE											
		EPA DISCHARGE LICENCE COMPLIANCE																											
		BOD				SS				N	P	Oil & Grease	Faecal Coliform	Sewage Treated that was Compliant (%)			STWs Compliant at all times	Fully Complied with Environmental Regulator	Odour Complaints (per 1000 properties)			Service Complaints (per 1000 properties)			Total Sewerage Complaints (Odour, service, Other, Billing) (per 1000 properties)			Customer Inquiries (per 1000 properties)	Average Sewerage Interruption (minutes)	
		Compliance (%) (55)			90 %-ile Limit (mg/L) (56)	Compliance (%) (57)			90 %-ile Limit (mg/L) (58)	(%) (59a)	(%) (59b)	(%) (59c)	(%) (59d)	(59e)			(59f)	(60)	(61)			(62) C11			(62a) [C13]			(63)	(65) C16	
		13/14	14/15	15/16	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	13/14	14/15	15/16	15/16	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	14/15	15/16
116	Hilltops	99	100	100	10	91	95	100	15	100	100	100	100	87	83	100	3 of 3	Yes	1.3	2.2	1.5	10	9	10	11	10	10	6	100	120
121	Snowy Valleys	100	97	97	10	100	100	97	15	100	100	100	98	100	95	94	4 of 7	No	0.6	0.0	0.0	20	18	16	20	18	18	2	90	90
36	Parkes	100	100	100	30	74	100	70	50	100	100	100	100	74	63	70	3 of 4	No	0.0	0.0	0.0	34	34	26	34	34	27	0	60	60
37	Inverell	100	100	100	20	99	99	99	30	100	100	100	100	99	99	99	2 of 4	No	0.0	0.0	0.0	11	10	9	11	10	9	1	40	40
45	Upper Hunter	100	100	100	20	100	100	94	30	100	100	100	100	100	100	94	3 of 4	No	0.2	0.7	0.5	14	12	15	14	12	15	1	120	120
117	Murray River	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	7 of 7	Yes	0.0	0.0	0.0	15	15	19	15	15	19	-	50	50
Medians (% of LWUs basis) for 4,000 to 10,000 Properties		100	*100*	*100*		*99*	*100*	*98*		100	100	100	100	*99*	*97*	*96*			*0.6*	*0.7*	*0.6*	*13*	*15*	*15*	*13*	*14*	*15*	1	*90*	*102*
LWUs with 1,501 - 4,000 Properties																													
44	Gunnedah	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	2 of 2	Yes	0.5	1.0	0.5	13	11	9	13	11	9	3	80	80
46	Narrabri	100	71	100	20	100	100	100	NL	100	100	100	100	100	71	100	3 of 3	Yes	2.0	0.8	0.8	46	17	33	46	17	33	6	45	90
38	Moree Plains	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	4 of 4	Yes	0.0	0.0	0.0	23	23	23	24	23	23	-	180	180
115	Cootamundra-Gundagai	100	100	100	30	100	100	100	40	100	100	100	100	100	100	100	2 of 2	Yes	0.0	0.3	0.3	56	73	51	57	75	52	4	90	90
53	Berrigan	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	4 of 4	Yes	3.4	5.0	3.3	47	51	45	48	54	49	3	90	100
39	Cowra	100	100	100	10	100	100	100	15	100	100	100	100	67	50	100	1 of 1	Yes	0.0	0.0	0.0	41	44	51	42	44	51	0	240	240
48	Leeton	100	100	100	70	100	100	100	70	100	100	100	100	100	100	100	3 of 3	Yes	0.0	0.0	0.0	0	2	1	0	2	2	0	120	120
54	Edward River	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	1 of 1	Yes	0.0	0.0	0.0	13	12	13	13	12	13	11	120	120
51	Forbes	100	100	100	10	100	100	100	15	100	100	100	100	75	100	100	1 of 1	Yes	0.6	1.3	1.6	7	29	29	8	29	29	3	90	60
47	Bellingen	100	100	100	10	100	100	100	15	100	100	100	100	100	100	94	2 of 3	No	0.7	0.7	0.0	7	11	2	8	11	2	19	60	60
60	Glen Innes Severn	100	100	100	10	100	100	100	15	4	100	100	100	100	100	100	2 of 2	No	0.0	0.0	0.0	37	18	18	37	18	18	0	40	40
80	Greater Hume	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	6 of 6	Yes	0.0	0.0	0.0	4	5	5	4	5	5	11	90	90
55	Warrumbungle	100	100	90	NL	85	95	93	NL	100	97	93	100	78	83	80	3 of 4	No	2.4	2.4	0.8	2	44	15	4	61	17	15	118	117
56	Yass Valley	100	100	100	10	100	100	100	15	100	100	100	100	67	100	100	1 of 1	Yes	0.0	0.0	0.0	20	23	28	20	23	28	4	180	180
59	Lachlan	100		100	20	80		63	30	100	100	100	100	80	0	63	2 of 3	No	0.9	0.0	0.9	8		6	8		6	10	-	75
69	Temora	100	100	100	30	100	100	100	40	100	100	100	83	58	58	83	0 of 1	No	0.0	0.0	0.0	49	12	19	49	12	19	0	90	90
61	Liverpool Plains	100	100	89	20	87	65	18	30	100	100	100	100	87	56	18	0 of 2	No	0.0	0.0	1.6	26	25	16	29	27	17	1	40	40
62	Narromine	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	2 of 2	Yes	0.0	0.0	0.0	9	6	3	9	6	3	1	60	60
78	Blayney	100	100	100	30	100	100	100	30	100	100	100	100	100	100	100	1 of 1	Yes	0.5	0.5	0.5	11	12	14	11	12	14	1	60	90
91	Cabonne	100		91	30	91		92	50	73	100	100	92	82	0	61	5 of 7	No	0.0	0.0	0.0	13	14	3	13	14	3	0	240	120
72	Bland	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	3 of 3	Yes	0.0	0.0	0.0	28	13	13	28	13	13	3	55	50
67	Cobar	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	1 of 1	Yes	0.0	0.0	1.1	27	18	3	27	18	6	-	120	-
63	Narrandera	100		100	20	100		100	30	100	29	100	29	11		29	0 of 1	No	0.0	0.0	0.0	71	73	-	71	73	-	-	120	-
68	Tenterfield	99	100	100	40	99	97	97	45	100	100	100	100	83	73	57	0 of 2	No	0.0	0.0	3.2	53	40	62	53	40	62	0	120	120
70	Kyogle	100	100	100	NL	96	100	100	NL	100	100	100	100	96	100	100	3 of 3	Yes	1.8	1.2	0.0	11	14	4	11	14	4	0	90	90
77	Junee	100	100	100	30	100	100	100	30	100	100	100	67	100	50	67	0 of 1	No	0.0	0.0	0.0	0	0	1	0	0	1	1	30	30
74	Wentworth	100	100	100	50	100	100	100	50	100	100	100	100	100	100	100	5 of 5	Yes	4.4	3.7	2.4	17	26	16	17	26	16	16	60	60
79	Walgett	33	67	75	20	100	67	100	50	100	100	100	100	33	67	75	2 of 3	No	0.0	0.0	0.0	4	3	2	4	3	2	-	180	180
73	Upper Lachlan	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	3 of 3	Yes	0.0	0.0	0.0	5	5	5	5	5	5	0	40	40
Medians (% of LWUs basis) for 1,500 to 4,000 Properties		*100*	*100*	*91*		*100*	*100*	*93*		*100*	*100*	*100*	*100*	*100*	*100*	*100*			*0.0*	*0.0*	*0.0*	*14*	*14*	*13*	*14*	*14*	*5*	*1*	*90*	*90*

Table 17: Sewerage - environmental and levels of service

	WATER UTILITY	ENVIRONMENTAL																	LEVELS OF SERVICE											
		EPA DISCHARGE LICENCE COMPLIANCE																												
		BOD				SS				N	P	Oil & Grease	Faecal Coliform	Sewage Treated that was Compliant			STWs Compliant at all times	Fully Complied with Environmental Regulator	Odour Complaints			Service Complaints			Total Sewerage Complaints (Odour, service, Other, Billing)			Customer Inquiries	Average Sewerage Interruption	
		Compliance (%) (55)			90 %-ile Limit (mg/L) (56)	Compliance (%) (57)			90 %-ile Limit (mg/L) (58)	(%) (59a)	(%) (59b)	(%) (59c)	(%) (59d)	(%) (59e)			(59f)	(60)	(per 1000 properties) (61)			(per 1000 properties) (62) C11			(per 1000 properties) (62a) [C13]			(per 1000 properties \ (63)	(minutes) (65) C16	
		13/14	14/15	15/16	15/16	13/14	14/15	15/16	15/16	15/16	15/16	15/16	15/16	13/14	14/15	15/16	15/16	15/16	13/14	14/15	15/16	13/14	14/15	15/16	13/14	14/15	15/16	15/16	14/15	15/16
LWUs with 200 - 1,500 Properties																														
86	Hay	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	1 of 1	Yes	0.0	0.0	0.0	39	39	43	39	39	43	0	300	150
83	Oberon	100	100	100	20	100	100	100	25	100	100	100	100	100	100	100	1 of 1	Yes	0.0	0.0	0.0	5	4	3	7	6	5	4	120	120
84	Gilgandra	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	1 of 1	Yes	0.0	0.0	0.0	29	23	34	31	27	36	1	90	90
118	Murrumbidgee	56	50	75	20	47	0		30	100	100	100	100	16	0	0	1 of 3	No	0.0	0.0	0.0	35	0	1	35		1	0	-	-
87	Bourke	70	100	100	15	60	100	100	20	100	100	100	100	60	100	100	1 of 1	Yes	0.0	0.0	0.0	84	59	103	84	59	103	0	60	60
75	Coonamble	100	100	100	20	57	53	50	50	100	100	100	100	25	46	50	0 of 2	No	0.0	0.0	0.0	16	8	18	16	8	18	0	60	60
81	Gwydir	100	100	85	20	100	100	81	30	100	100	100	100	100	100	81	1 of 2	No	0.0	0.0	0.0	0	0	0	0	0	0	-	-	-
85	Uralla	100	100	100	15	100	100	100	20	100	100	100	100	54	42	75	0 of 1	No	0.0	0.0	2.6	3	4	3	3	4	3	5	75	60
99	Coolamon	100	100	100	30	100	100	100	20	100	100	100	100	100	100	100	2 of 2	Yes	0.0	0.0	0.0	5	3	6	5	3	6	0	180	180
89	Bogan	100	100	75	30	100	0	50	30	100	100	100	50	100	0	25	0 of 1	No	0.0	0.0	0.0	20	15	18	20	15	18	-	120	145
95	Weddin	100	100	100	20	100	100	100	30	100	100	100	100	100	100	100	1 of 1	Yes	0.0	0.0	0.0	71	69	71	71	70	72	10	120	120
102	Lockhart	100	100	89	20	75	69	58	30	100	100	100	100	75	69	58	2 of 3	No	0.0	0.0	0.0	50	19	21	50	19	21	-	90	90
100	Balranald	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	2 of 2	Yes	0.0	0.0	0.0	0	9	9	0	9	9	0	60	60
92	Carrathool	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	3 of 3	Yes	8.4	0.0	8.9	54	30	49	54	30	49	10	120	120
96	Warren	76	77	100	45	52	30	77	65	100	100	100	100	52	30	77	1 of 2	No	0.0	0.0	0.0	53	43	68	53	43	68	0	120	120
98	Walcha	100	100	75	20	67	33	25	30	100	100	100	100	67	33	25	0 of 1	No	0.0	0.0	0.0	15	15	11	15	15	11	0	90	90
105	Brewarrina	100	100	84	20	100	100	84	30	84	84	84	100	100	100	84	2 of 3	No	0.0	0.0	0.0	28	35	40	28	35	40	0	60	60
103	Central Darling	100	100	100	NL	100	100	100	NL	100	100	100	100	100	100	100	1 of 1	Yes	0.0	8.1	0.0	232	73	205	284	73	258	3	120	120
Medians (% of LWUs basis) for 200 to 1,500 Properties		*100*	*100*	*100*		*100*	*100*	*100*		*100*	*100*	*100*	*100*	*100*	*100*	*92*			*0.0*	*0.0*	*0.0*	*28*	*17*	*19*	*29*	*19*	*20*	*0*	*105*	*105*
Median All LWUs (% of LWUs basis)		*BOD*	*100*	*%*		*SS*	*100*	*%*											*Odour*	*0.0*		*Service*	*14.6*						*Duration*	*90*
Median All LWUs (Statewide basis)			*100*	*%*			*100*	*%*												*0.9*			*5*							*108*

Totals for all LWUs

90% LWUs complied with BOD licence (77 of 86 LWUs complied)
99% of sampling days complied (4245 of 4290 sample days)

84% LWUs complied with SS licence (72 of 86 LWUs complied)
96% of sampling days complied with SS licence (4097 of 4290 sample days)

14 LWUs had no discharge licence.

40 LWUs fully complied with regulator
300 STWs were reported to be in use by LWUs
229 of these STWs were compliant at all times

Notes:

1. Where there is no limit (NL) for BOD or SS licences, compliance is deemed to be 100%.
2. Where a LWU has 100 percentile licence limits rather than 90 percentile licence limits, the 100 percentile limits are shown.
3. A LWU is deemed to comply with its BOD or SS licence if it achieves >=90% compliance with the 90 percentile limit.

Table 18: Sewerage - benchmarking cost data (operation, maintenance and management)

WATER UTILITY		OPERATION & MAINTENANCE (O&M) COST*										MANAGEMENT (A) COST*				OMA*	O&M COST COMPONENTS for TYPES of ASSET															
		Process Components (1)					Type of Asset Components (2)				Total O&M Cost (1) or (2)			Total Management (A) Cost (74)+(75)		Total OMA Cost (66a)+(76a)	Components		Pumping					Sewer Main				Treatment				
		Maintenance	Operation	Energy	Chemicals	Effluent & Biosolids	Mains	Pumping Stations	Sewage Treatment	Other		Admin	Engineering & Supervision				Treatment	Reticulation	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost	Energy Cost	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost	O&M Cost	Operation Cost	Maintenance Cost	Chemical
		($/property)					($/property)				($/prop)	($/property)		($/prop)	(c/kL)	($/prop)	($/property)		(c/kL)	($'000/pumping station)				(c/kL)	($'000/100km)			(c/kL)	($/property)		
		(66)	(67)	(68)	(69)	(69a)	(70)	(71)	(72)	(73)	(66a)	(74)	(75)	(76a)	(76)	(76b)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(85)	(86)	(87)	(88)	(89)	(90)	(91)	(92)
		2015/16										2015/16					2015/16														
LWUs with > 10,000 Properties																																
112	Central Coast	67	72	26	3	0	27	64	76	1	168	51	19	71	28	238	1	103	26	26	5	15	6	11	144	64	80	30	46	16	3
3	Shoalhaven	50	192	32	6	17	51	86	126	35	298	120	49	168	74	466	35	177	38	17	9	4	3	23	177	155	22	55	66	21	6
5	Mid-Coast	84	170	50	7	41	36	60	156	100	352	93	64	157	81	509	100	192	31	10	2	5	4	18	112	15	97	80	54	26	7
6	Tweed	140	101	46	24	26	56	95	174	13	338	124	53	176	73	514	13	230	39	16	4	9	3	23	244	39	205	72	60	34	24
7	Port Macquarie-Hastings	134	136	51	11	24	30	73	162	91	356	71	58	128	41	484	91	192	23	13	2	8	3	9	120	46	74	51	24	70	11
9	Wagga Wagga (NO WS)	30	296	8	0	8	66	28	226	21	342	63	0	63	30	405	21	292	13	20	10	5	5	31	278	183	94	107	217		
11	Albury City	68	79	34	2	49	21	39	129	46	234	154	10	164	87	398	46	149	20	16	0	10	6	11	89		89	68	35	22	2
10	Coffs Harbour	145	124	55	15	53	77	108	192	14	392	136	55	191	80	583	14	269	45	22	10	8	4	32	289	62	228	80	46	41	15
13	Tamworth Regional	93	82	33	8	14	68	22	139	0	230	46	122	168	61	398	0	207	8	19	8	8	3	25	242	86	156	51	49	39	8
119	Queanbeyan-Palerang	39	110	26	21	1	36	23	127	11	197	156	41	197	92	394	11	163	11	14	6	5	3	17	161	105	56	59	66	18	21
122	Dubbo Regional	34	116	31	3	0	38	30	107	10	185	137	23	160	80	344	10	145	15	22	6	11	5	19	146	126	20	54	67	13	3
15	Eurobodalla	80	208	37	18	0	60	112	165	6	343	193	0	193	96	536	6	225	56	16	7	6	3	30	205	160	45	83	108	22	18
19	Orange	3	142	29	15	0	19	13	116	40	189	138	53	191	65	380	40	136	5	8	4	1	3	7	72	71	2	40	77	1	15
21	Bathurst Regional	88	135	30	0	0	41	39	174	0	255	177	11	188	78	443	0	215	16	19	14	3	2	17	163	16	147	72	102	45	0
16	Wingecarribee	73	72	50	14	9	46	43	130	0	218	107	98	205	74	423	0	175	15	9	4	2	3	16	132		132	47	55	17	14
14	Clarence Valley	113	98	42	39	25	30	61	204	21	317	102	59	161	89	478	21	234	34	10	2	5	3	17	109	8	100	113	64	53	39
24	Ballina	191	128	72	0	7	45	109	219	25	398	202	27	229	73	627	25	264	35	13	2	8	3	14	199		199	69	95	72	
22	Lismore	165	70	30	43	32	78	42	207	12	339	100	39	139	62	478	12	285	19	16	1	11	4	35	277	4	273	92	66	47	43
23	Bega Valley	155	382	15	0	0	140	110	301	0	551	99	200	299	153	850	0	441	56	23	9	11	3	72	423	291	132	154	243	58	
20	Goulburn Mulwaree	89	82	30	3	35	71	22	140	7	240	78	29	107	57	347	7	211	11	10	5	3	3	38	272		272	74	66	12	3
27	Byron	130	259	64	39	12	103	117	268	16	503	140	18	158	53	662	16	371	39	16	5	7	4	34	395	297	98	90	130	52	39
25	Kempsey	132	140	44	16	37	61	85	217	6	369	93	113	206	101	575	6	278	42	9	3	4	2	30	204	4	201	107	109	32	16
26	Essential Energy	181	80	8	3	0	91	29	152	0	272	23	22	45	34	317	0	243	22	26		19	7	69	359	3	355	115	79	69	3
Medians (% of LWUs basis) for >10,000 Properties		*89*	*124*	*33*	*8*	*12*	*51*	*60*	*162*	*12*	*317*	*107*	*41*	*168*	*74*	*466*	*12*	*215*	*23*	*16*	*5*	*7*	*3*	*23*	*199*	*64*	*100*	*72*	*66*	*33*	*12*
LWUs with 4,001 - 10,000 Properties																																
111	Armidale Regional	52	50	11	6	84	61	6	158	-22	204	43	23	66	26	269	-22	219	3	16		15	1	24	198	198		62	12	46	6
120	Snowy Monaro Regional	80	161	37	12	25	47	60	177	31	316	71	33	103	63	419	31	224	37	18	7	7	4	29	174	125	49	109	73	44	12
30A	Hawkesbury (NO WS)	81	212	43	13	68	131	88	191	6	417	73	201	274	98	691	6	323	32	28		25	3	47	546	540	7	69	77	2	13
31	Lithgow	140	169	82	0	63	53	49	351	1	454	12	33	45	19	499	1	404	21	10	1	7	2	23	245	34	211	150	153	62	
32	Mid-Western Regional	140	81	31	19	0	69	42	159	0	270	65	136	201	110	472	0	228	23	22	10	6	7	38	223		223	87	63	60	19
30	Griffith	47	268	51	38	3	84	124	179	21	407	145	58	204	60	611	21	263	36	29	23	4	3	24	251	214	37	52	81	17	38
33	Richmond Valley	124	152	28	7	19	69	82	152	26	329	213	102	315	128	644	26	221	33	18	5	10	2	28	236	170	66	62	78	32	7
41	Muswellbrook	167	41	18	4	0	51	69	91	18	229	89	87	176	106	406	18	142	42	27	4	16	7	31	167		167	55	20	67	4
34	Nambucca (Groundwater)	225	41	43	0	12	27	76	177	41	321	112	6	119	58	440	41	204	37	8		6	2	13	88		88	87		144	
35	Singleton	103	69	26	1	0	86	21	92	0	199	58	71	129	69	328	0	178	11	8	0	7	0	46	324	106	218	49	40	25	1
114	Federation	105	128	39	18	16	48	81	154	24	307	100	8	108	56	415	24	202	42	6	2	3	1	25	156	36	120	80	67	30	18

Table 18: Sewerage - benchmarking cost data (operation, maintenance and management)

	WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST*										MANAGEMENT (A) COST*				OMA*	O&M COST COMPONENTS for TYPES of ASSET																
		Process Components (1)					Type of Asset Components (2)				Total O&M Cost (1) or (2)			Total Management (A) Cost (74)+(75)		Total OMA Cost (66a)+(76a)	Components		Pumping					Sewer Main				Treatment					
		Maintenance	Operation	Energy	Chemicals	Effluent & Biosolids	Mains	Pumping Stations	Sewage Treatment	Other		Admin	Engineering & Supervision				Treatment	Reticulation	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost	Energy Cost	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost	O&M Cost	Operation Cost	Maintenance Cost	Chemical			
		($/property)					($/property)				($/prop)	($/property)		($/prop)	(c/kL)	($/prop)	($/property)		(c/kL)	($'000/pumping station)				(c/kL)	($'000/100km)			(c/kL)	($/property)				
		(66)	(67)	(68)	(69)	(69a)	(70)	(71)	(72)	(73)	(66a)	(74)	(75)	(76a)	(76)	(76b)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(85)	(86)	(87)	(88)	(89)	(90)	(91)	(92)			
		2015/16										2015/16					2015/16																
116	Hilltops	65	52	20	10	11	34	12	110	3	158	51	68	119	68	277	3	143	7	7	0	6	1	19	110		110	63	49	21	10			
121	Snowy Valleys	185	9	24	34	3	31	17	199	8	254	215	20	235	108	489	8	230	8	4		3	0	14	82	23	59	91		140	34			
36	Parkes	95	66	4	0	2	71	0	96	0	167	130	23	153	89	321	0	167	0	0				41	246		246	56	66	24				
37	Inverell	59	109	28	0	0	59	45	92	0	196	13	70	83	40	279	0	152	21	10	7		3	28	229		229	44	78					
45	Upper Hunter	67	139	29	4	16	68	33	154	1	256	71	141	211	96	467	1	222	15	11	4	4	2	31	221	108	113	70	91	20	4			
117	Murray River	92	77	32	0	0	32	109	35	26	202	52	52	104	42	306	26	67	44	8	3	4	2	13	91	37	54	14	21	7	0			
Medians (% of LWUs basis) for 4,000 to 10,000 Properties		*99*	*79*	*29*	*5*	*7*	*56*	*47*	*154*	*6*	*255*	*71*	*55*	*124*	*66*	*417*	*6*	*212*	*22*	*10*	*4*	*6*	*2*	*26*	*209*	*107*	*113*	*62*	*67*	*32*	*8*			
LWUs with 1,501 - 4,000 Properties																																		
44	Gunnedah	110	4	17	1	0	44	24	48	16	132	62	35	98	47	230	16	92	12	25		8	17	21	158		158	23		47	1			
46	Narrabri	91	151	25	7	0	47	73	47	108	274	96	85	180	92	454	108	93	37	13	6	5	2	24	152	5	147	24	9	17	7			
38	Moree Plains	245	55	51	0	5	94	128	120	13	356	126	18	144	32	499	13	214	28	18	4	12	2	21	422		422	26	14	65				
115	Cootamundra-Gundagai	120	9	27	10	15	43	24	114	0	181	46	40	86	39	267	0	157	11	10	1	7	2	19	117		117	52	8	59	10			
53	Berrigan	0	184	5	0	0	17	70	94	8	190	39	58	97	48	286	8	112	35	5	5		0	9	57	57		46	94					
39	Cowra	99	85	34	31	16	57	32	131	45	265	107	121	227	138	492	45	188	20	16	6	7	3	35	202		202	80	29	26	31			
48	Leeton	154	104	44	28	0	57	87	177	10	330	84	75	159	54	489	10	234	30	7		5	1	19	188		188	61	96	29	28			
54	Edward River	141	0	27	0	4	42	17	107	5	171	188	7	195	112	367	5	149	10	2		1	2	24	127		127	61		88				
51	Forbes	56	194	44	23	0	49	27	241	0	317	28	20	48	22	365	0	290	12	5		1	4	22	178		178	108	194		23			
47	Bellingen	151	143	47	28	38	52	88	254	13	407	219	30	249	136	656	13	307	48	10	4	4	2	29	162	68	94	139	78	85	28			
60	Glen Innes Severn	86	2	22	0	0	21	2	80	7	110		148	148	79	258	7	101	1	1		1		11	54		54	43		58				
80	Greater Hume	34	126	21	2	0	17	40	111	15	183	30	113	143	85	326	15	128	24	5	3	1	1	10	57	22	35	66	87	12	2			
55	Warrumbungle	129	142	22	5	1	66	59	154	20	299	206	6	213	160	512	20	220	44	16	7	5	4	49	208	4	204	116	111	30	5			
56	Yass Valley	0	158	41	8	0	30	42	128	7	207	100	129	228	119	435	7	159	22	9	7		2	16	83	83		67	89		8			
59	Lachlan	33	251	31	0	0	33	77	200	5	315	76	45	121	50	436	5	233	32	8	5		3	14	95		95	83	200					
69	Temora (NO WS)	55	72	14	0	59	72	10	118	0	199	20	0	20	13	219	0	189	6	5		5	0	47	282	282		77		45				
61	Liverpool Plains	149	4	19	0	0	15	70	85	1	172	129	0	129	78	301	1	101	42	14		11	4	9	48	2	47	52	2	82				
62	Narromine	26	91	16	0	0	17	36	78	1	132	165	86	251	100	383	1	95	14	6	5	1		7	65		65	31	59	3				
78	Blayney (NO WS)	0	256	26	0	0	83	35	164	0	282	208	0	208	109	489	0	247	18	10	7		2	44	213	213		86	146					
91	Cabonne	108	243	25	2	5	93	96	170	24	383	177	30	207	152	589	24	263	71	21	15	5	1	68	307	158	149	125	105	40	2			
72	Bland (NO WS)	146	196	22	0	0	132	55	177	0	364	54	0	54	24	418	0	309	25	10	8		3	58	494	494		79	23	146				
67	Cobar	43	61	2	5	19	21	24	85	0	130	27	40	66	27	197	0	106	10	8		8	1	9	71		71	34	61		5			
63	Narrandera	101	161	39	0	0	71	30	199	0	301	102	9	111	63	412	0	270	17	13		13	0	40	295		295	114	161					
68	Tenterfield	0	199	34	32	12	51	39	186	0	276	185	43	228	129	504	0	237	22	15	13		2	29	141	141		106	113		32			
70	Kyogle	57	266	22	11	0	57	77	221	0	356	121	33	154	68	510	0	279	34	16	12		3	25	169		169	97	204		11			
77	Junee (NO WS)	189	0	16	0	15	49	0	171	0	220	49	0	49	20	269	0	220	0	0				20	191		191	68		140				
74	Wentworth	113	86	44	0	0	36	106	93	7	242	45	18	63	5	305	7	129	8	6	1	3	2	3	92	3	89	7	64	25				
79	Walgett	34	123	0	0	0	22	57	73	6	157	43	0	43	30	200	6	95	40	9	7	2		16	75	75		51	56	17				
73	Upper Lachlan	63	169	48	14	12	16	80	208	3	307	85	84	169	48	476	3	224	23	15	6	2	8	4	43	30	13	59	126	50	14			
Medians (% of LWUs basis) for 1,500 to 4,000 Properties		*91*	*126*	*25*	*1*	*0*	*47*	*42*	*128*	*5*	*265*	*90*	*33*	*144*	*63*	*412*	*5*	*189*	*22*	*10*	*6*	*5*	*2*	*21*	*152*	*68*	*137*	*66*	*88*	*46*	*10*			

Table 18: Sewerage - benchmarking cost data (operation, maintenance and management)

	WATER UTILITY	OPERATION & MAINTENANCE (O&M) COST*										MANAGEMENT (A) COST*				OMA*	O&M COST COMPONENTS for TYPES of ASSET															
		Process Components (1)					Type of Asset Components (2)				Total O&M Cost (1) or (2)			Total Management (A) Cost (74)+(75)		Total OMA Cost (66a)+(76a)	Components		Pumping					Sewer Main				Treatment				
		Maintenance	Operation	Energy	Chemicals	Effluent & Biosolids	Mains	Pumping Stations	Sewage Treatment	Other		Admin	Engineering & Supervision				Treatment	Reticulation	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost	Energy Cost	O&M Cost	O&M Cost	Operation Cost	Maintenance Cost	O&M Cost	Operation Cost	Maintenance Cost	Chemical
		($/property)					($/property)				($/prop)	($/property)		($/prop)	(c/kL)	($/prop)	($/property)		(c/kL)	($'000/pumping station)				(c/kL)	($'000/100km)			(c/kL)	($/property)		
		(66)	(67)	(68)	(69)	(69a)	(70)	(71)	(72)	(73)	(66a)	(74)	(75)	(76a)	(76)	(76b)	(77)	(78)	(79)	(80)	(81)	(82)	(83)	(85)	(86)	(87)	(88)	(89)	(90)	(91)	(92)
		2015/16										2015/16					2015/16														
LWUs with 200 - 1,500 Properties																																
86	Hay	174	139	31	0	0	156	70	118	0	344	195	111	306	170	650	0	274	39	10	6	2	2	87	606		606	66	97	5	
83	Oberon	37	242	36	19	0	29	41	260	2	333	84	5	89	29	422	2	290	13	13	11	2	1	10	97		97	84	207		19
84	Gilgandra	244	67	6	0	0	79	96	106	36	318	75	0	75	36	393	36	185	46	7		7		38	265		265	51	48	52	
118	Murrumbidgee	143	7	25	0	0	16	66	63	28	174	16	78	93	168	267	28	80	119	5		4	1	29	57		57	113		50	
87	Bourke	183	96	14	0	0	83	157	53	0	293	34	42	76	46	369	0	136	95	24	5	17	2	51	297	35	262	32	53		
75	Coonamble	89	120	45	0	0	39	83	132	0	255		0	0	0	255	0	171	36	8	3	2	4	17	102		102	56	92	29	
81	Gwydir	86	187	35	6	2	34	61	197	23	316	50	0	50	21	365	23	231	26	9	5	2	2	14	95	2	93	83	127	38	6
85	Uralla	168	0	0	9	66	31	8	149	54	242	86	14	100	82	342	54	180	6	2		2		25	100		100	122		75	9
99	Coolamon (NO WS)	103	150	28	0	10	70	47	174	0	291	36	0	36	34	327	0	245	45	6		4	2	68	161		161	168	150		
89	Bogan	117	102	11	16	0	197	31	16	2	246	47	272	319	186	565	2	213	18	7	5		3	115	925	380	545	9			16
95	Weddin (NO WS)	83	137	9	0	0	79	0	150	0	229	56	46	102	59	331	0	229	0	0				46	258	84	174	86	111	30	
102	Lockhart (NO WS)	168	10	29	0	18	16	22	187	0	225	60	40	100	62	325	0	203	14	3		3		10	33		33	116	10	130	
100	Balranald	47	136	27	2	0	51	73	2	85	212	55	0	55	22	266	85	53	29	6		4	2	20	116	116		1			2
92	Carrathool	159	0	24	0	0	33	86	61	4	184	8	0	8	5	191	4	94	57	6		4	2	22	113		113	40		61	
96	Warren	160	70	35	0	0	70	111	84	0	265	118	68	187	86	451	0	154	51	11	0	8	3	32	335	18	318	39	63	17	
98	Walcha	74	179	11	3	0	29	68	170	0	266	78	60	138	71	404	0	199	35	54	19	26	9	15	77	73	3	87	128	40	3
105	Brewarrina	46	256	31	0	0	46	129	158	0	333	138	60	198	49	531	0	204	32	8	4	2	2	11	138	138		39	148	8	
103	Central Darling	450	0	16	0	0	132	332	3	0	466		0	0	0	466	0	134	238	25		24	1	94	217		217	2		3	
Medians (% of LWUs basis) for 200 to 1,500 Properties		*130*	*111*	*26*	*0*	*0*	*48*	*69*	*125*	*0*	*265*	*58*	*27*	*91*	*47*	*367*	*0*	*192*	*35*	*8*	*5*	*4*	*2*	*27*	*127*	*79*	*137*	*61*	*104*	*38*	*7*

* Operating cost is the OMA cost (operation, maintenance & administration (Col 76b)) which comprises the O & M Cost (operation & maintenance cost (Cols 66 to 69 or Cols 70 to 73)) PLUS Management Costs (Col 76a) which is made up of the Administration cost (Col 74) plus Engineering and Supervision cost (Col 75).

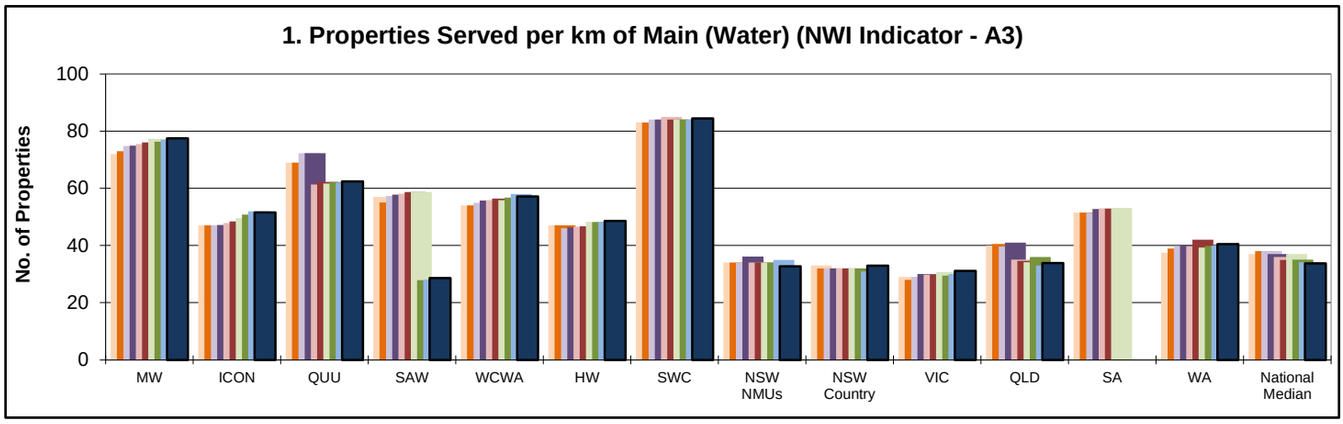
\# The 2015-16 financial results for the amalgamated LWUs are for the period 1 July 2015 to 12 May 2016 (see Appendix L).

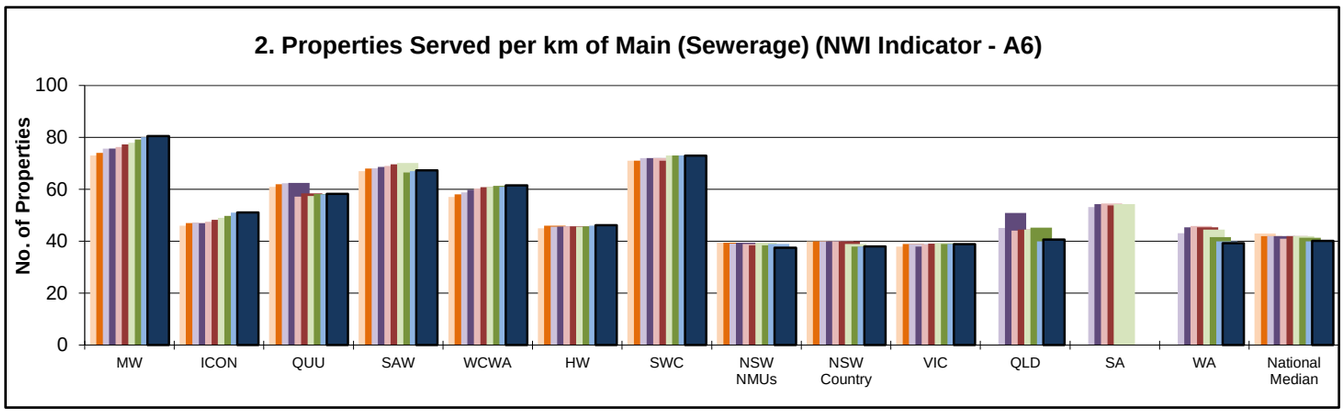
APPENDIX A
NATIONAL PERFORMANCE COMPARISONS 2006-07 TO 2015-16

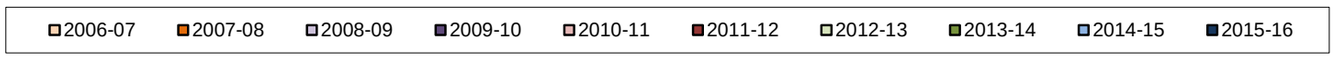
CONTENTS

Refer also to Appendix K.

PERFORMANCE COMPARISONS - Utility Characteristics





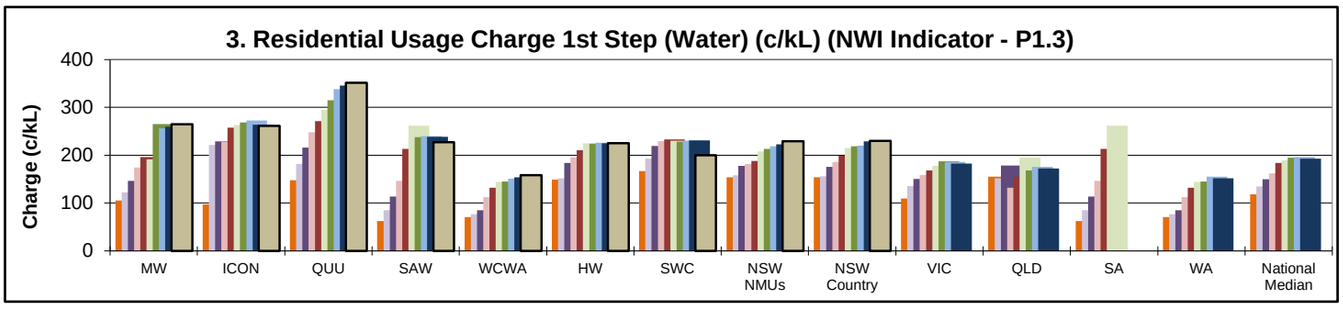


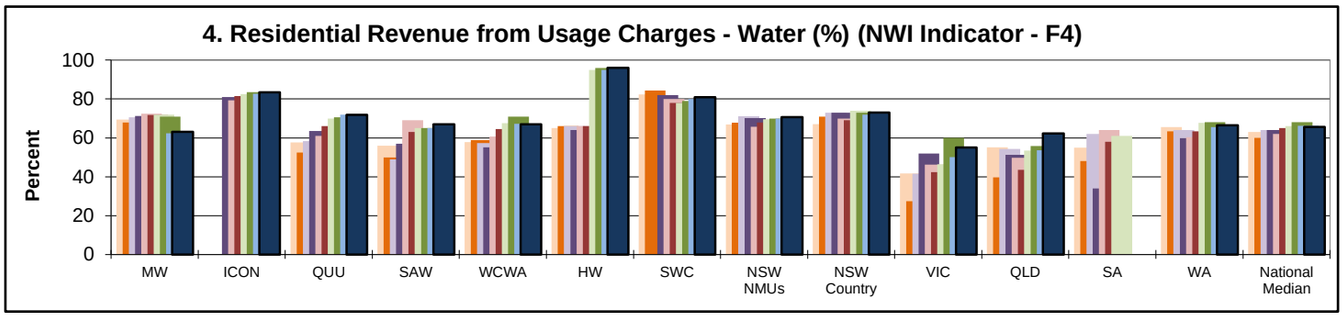
Metropolitan Water Utilities		Country Water Utilities	
MW	Melbourne Water Consolidated (see note 1)	NSW NMUs	Median of NSW regional LWUs with > 10,000 connected properties
ICON	Icon Water (Canberra)		
QUU	Queensland Urban Utilities (Brisbane) (see note 3)	NSW Country	Statewide median for all NSW regional 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)

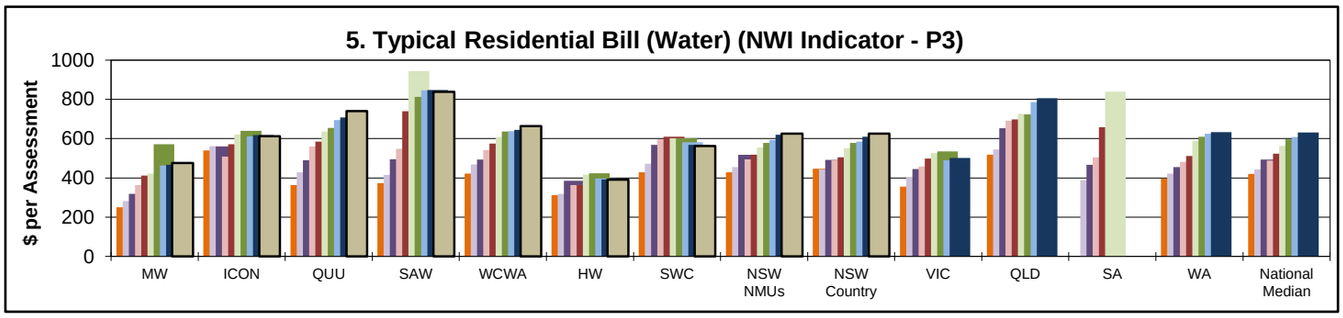
NOTES:

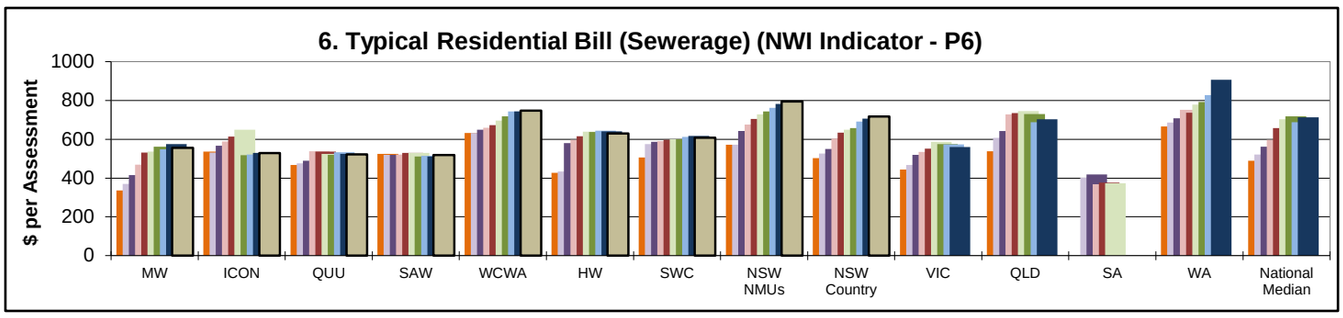
1. Melbourne Water Consolidated results are either aggregated results of the constituent utilities or consolidated results reported in the *2015-16 National Performance Report (NPR)* .
2. Metropolitan Utilities - *NPR* used to obtain results (www.bom.gov.au).
3. Queensland Urban Utilities (QUU) was formed 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* for Brisbane Water.
4. VIC Country results obtained from the median of Victorian utilities (excluding Melbourne Water and its constituents) in the *2015-16 NPR.*
5. SA Country - Results from 2006-07 to 2012-13 obtained from median of SA NMUs (Whyalla and Mt Gambier) published in the *2012-13 NPR* . The results shown from 2006-07 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 to 2015-16 and the 2013-14 to 2015-16 results for SAW (Adelaide) include SA Country.
6. QLD Country - Results from 2006-07 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 *2013-14 NPR.* There is a total of approximately 70 Queensland country utilities. The 2014-15 and 2015-16 results are the median for the 19 QLD country utilities reporting in the *2015-16 NPR* .
7. WA Country - Results obtained from median of WA NMUs (Albany, Australind/Eaton, Bunbury, Busselton, Geraldton, Kalgoorlie-Boulder, Mandurah) published in the *2015-16 NPR.*
8. Except for Graphs 3 and 5 to 7, which are in 2016-17 dollars, financial data is presented in 2015-16 dollars.
9. The National Median is the median value of the 2015-16 results published in the *2015-16 NPR* .
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, 2015-16 results for NWI indicators W12, P8, A8, C9 and H3 are 405, 1882, 17, 3 and 100% respectively. For the Tasmanian Water and Sewerage Corporation, which includes Hobart, results are available for only 3 of these indicators - W12 (176), F13 (939) and H3 (99%).

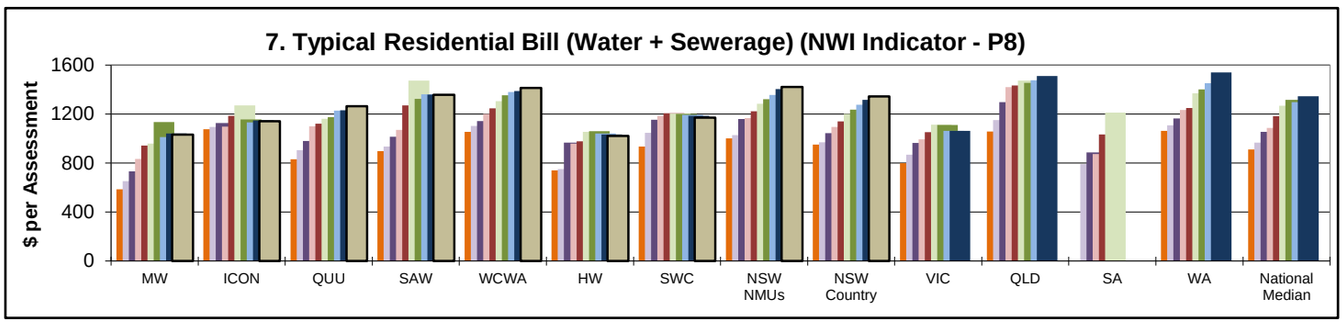
PERFORMANCE COMPARISONS - Social







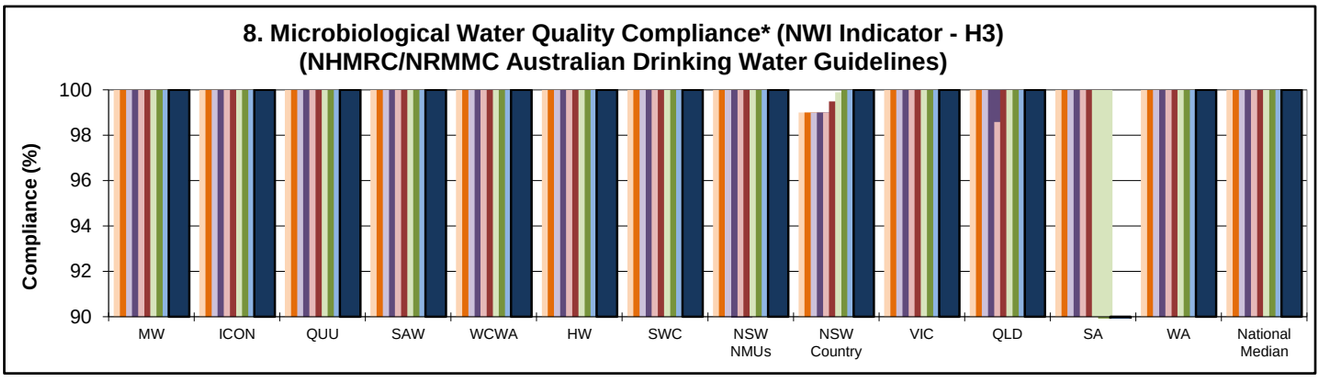


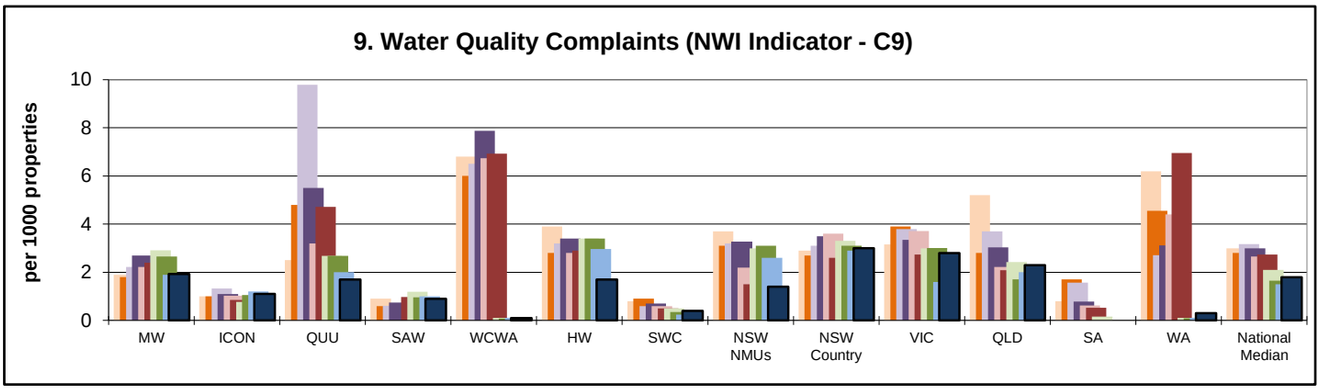


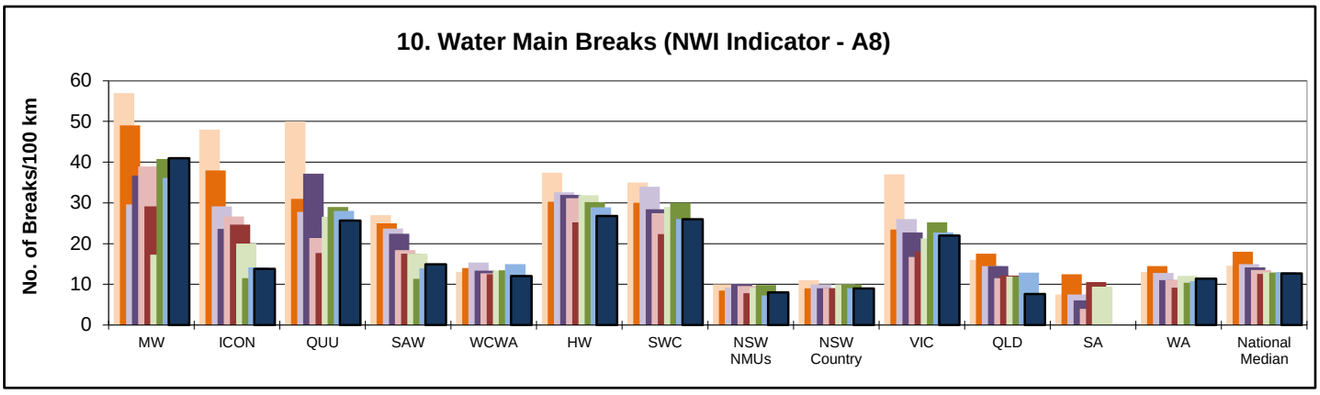
NOTES

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 service.
3. The 2016-17 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 2015-16 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.

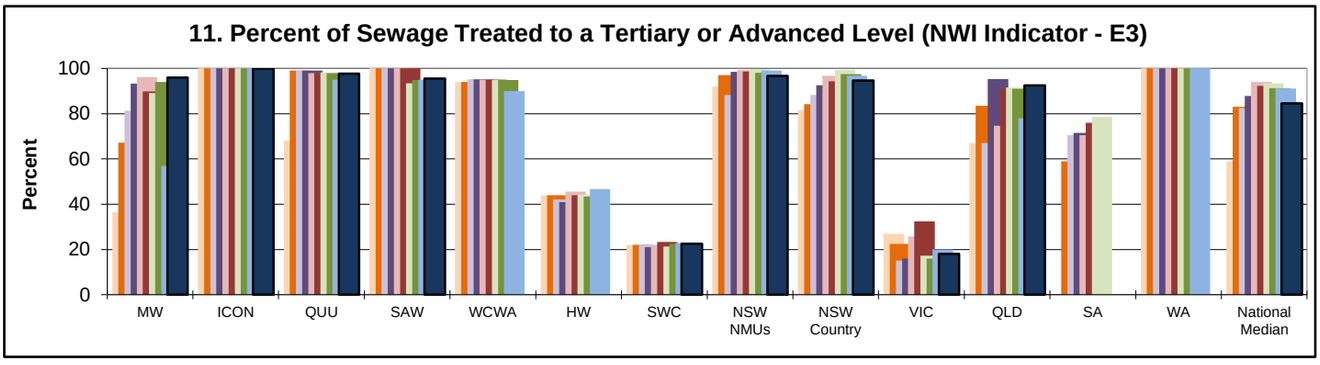
PERFORMANCE COMPARISONS - Social (Water)







PERFORMANCE COMPARISONS - Social (Sewerage)



2006-07 2007-08 2008-09 2009-10 2010-11 2011-12 2012-13 2013-14 2014-15 2015-16

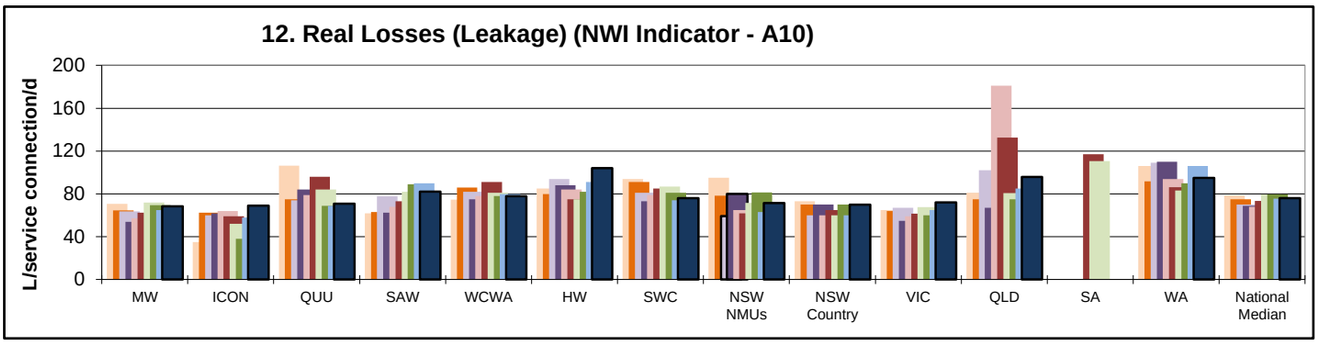
*** Microbiological Water Quality Compliance**

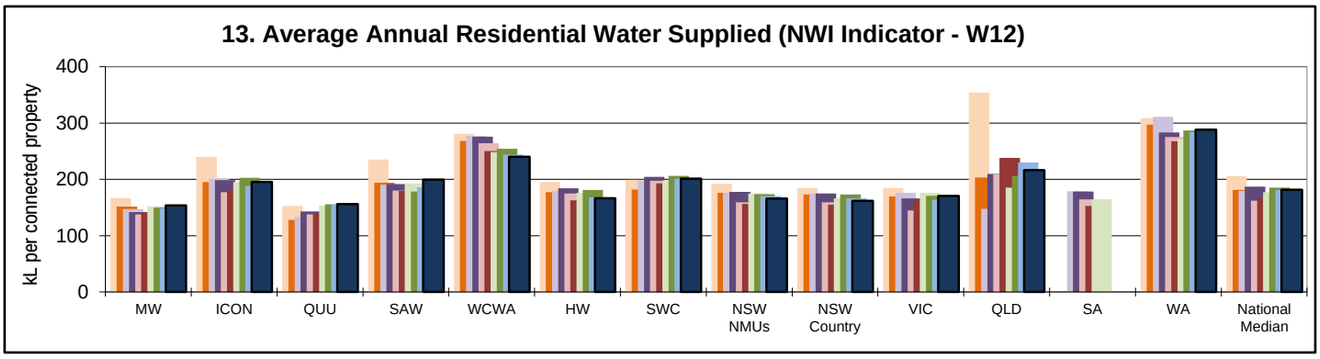
Microbiological water quality compliance up to 2010-11 was generally on the basis of the *2004 NHMRC/NRMMC Australian Drinking Water Guidelines (ADWG),* with subsequent result to 2015-16 on the basis of the 2011 ADWG.

Results shown are for "% of population where microbiological compliance was achieved", in accordance with NWI Indicator H3.

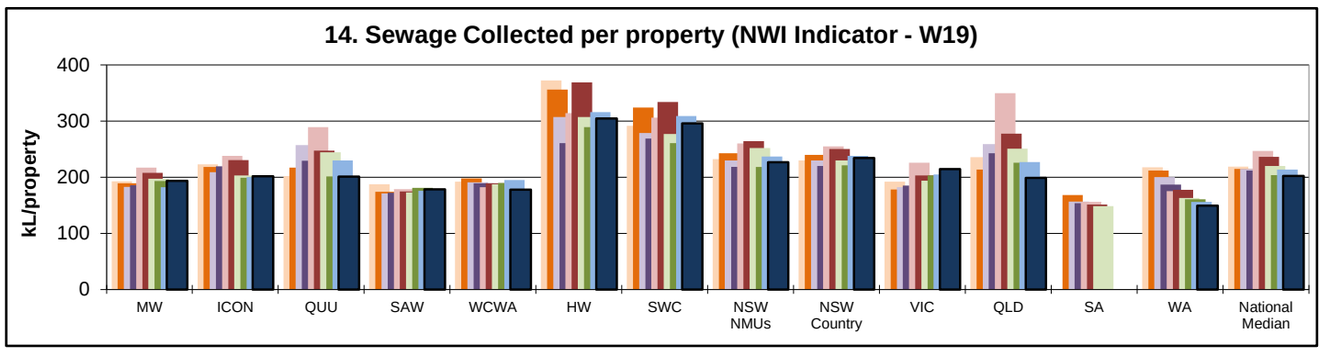
99.8% of the urban population in regional NSW complied with 2011 ADWG for microbiological water quality. In 2015-16 99.9% of the 21,600 samples tested complied for microbiological water quality (health related) and 99.8% of the 3,100 samples tested complied for chemical water quality (health related). Refer also to Table 12 and Appendix D1.

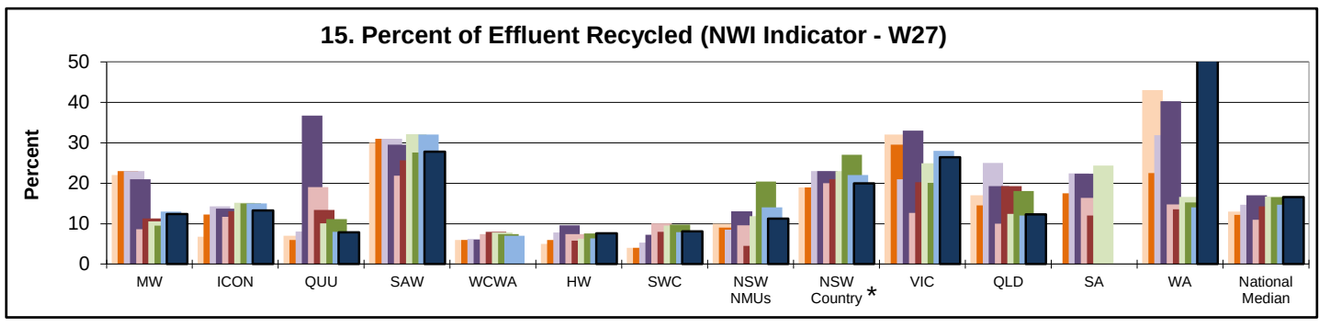
PERFORMANCE COMPARISONS - Environmental (Water)

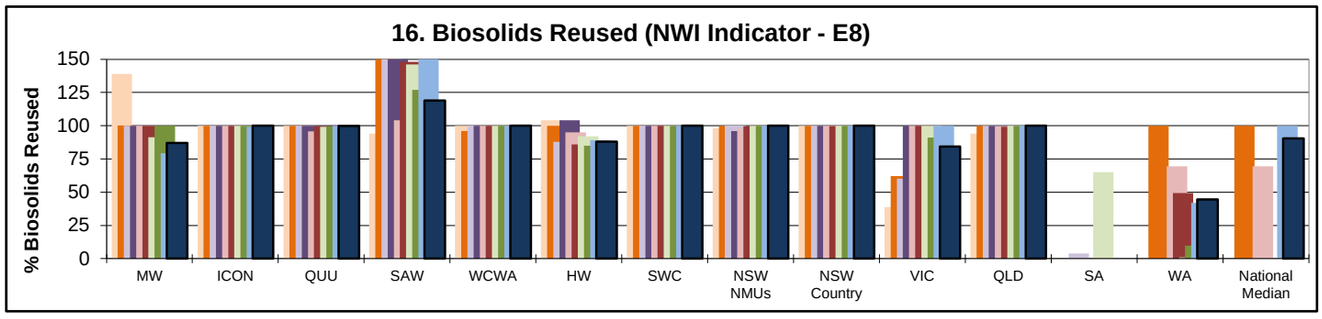




PERFORMANCE COMPARISONS - Environmental (Sewerage)







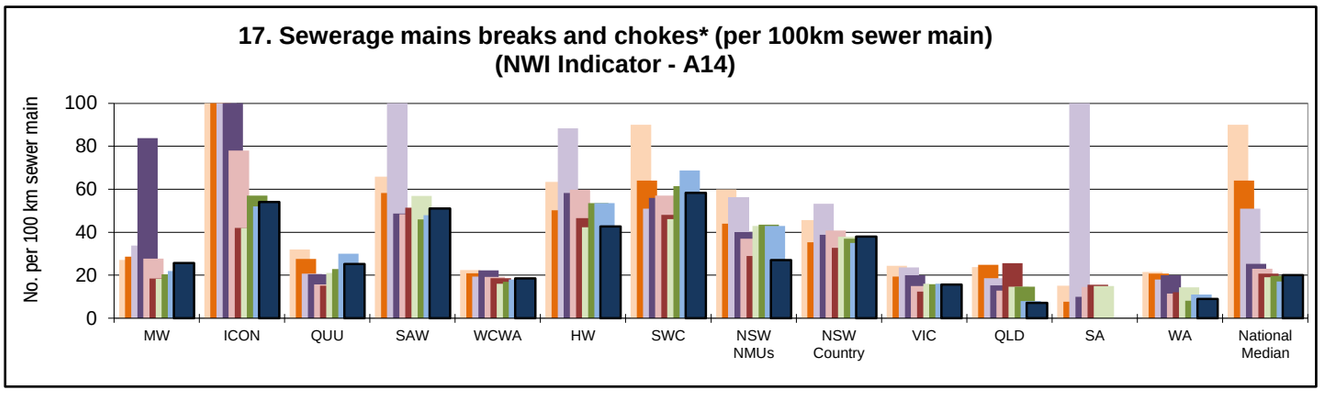
2006-07 2007-08 2008-09 2009-10 2010-11 2011-12 2012-13 2013-14 2014-15 2015-16

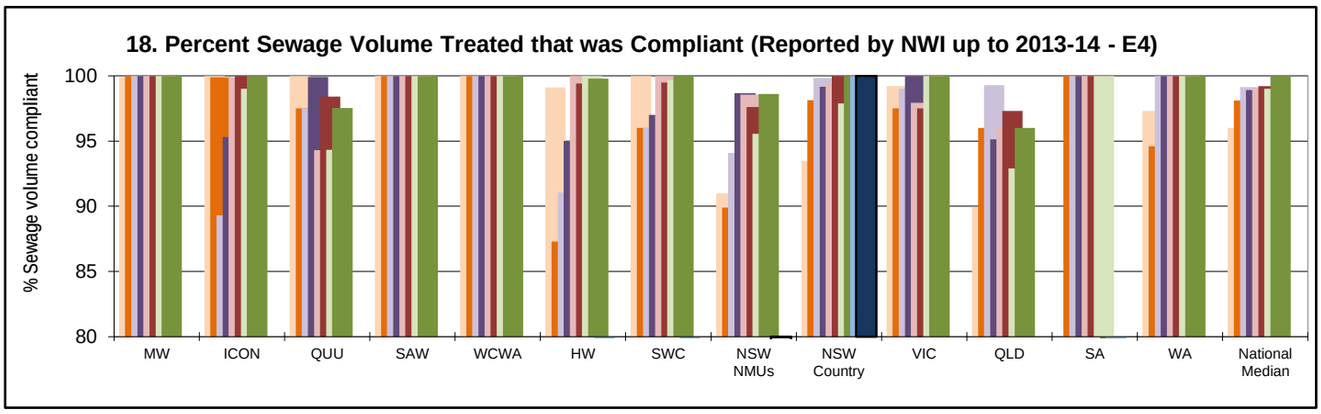
*** NSW Effluent Result**

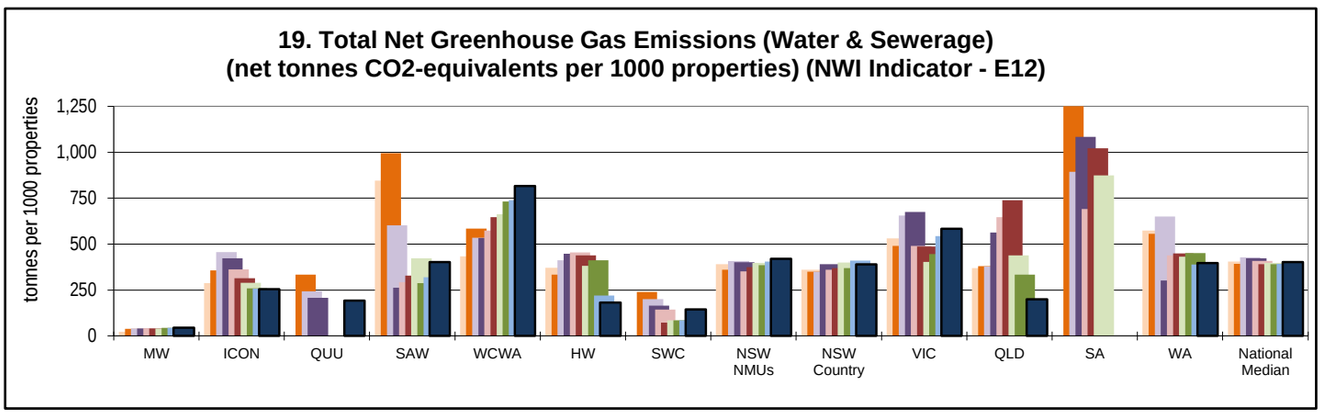
The values shown for country NSW are the percentages of total volume of sewage collected in regional NSW that was recycled.

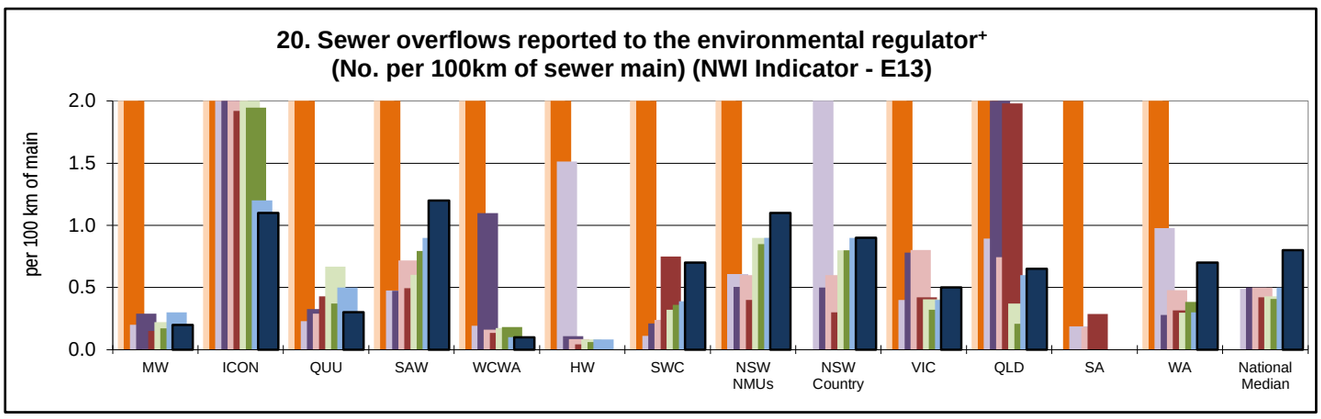
For country NSW, 35,500 ML of wastewater was recycled in 2015-16, which is 20 per cent of the total volume of sewage collected and was carried out by 70 per cent of the utilities, mostly for agricultural purposes.

PERFORMANCE COMPARISONS - Environmental (Sewerage)





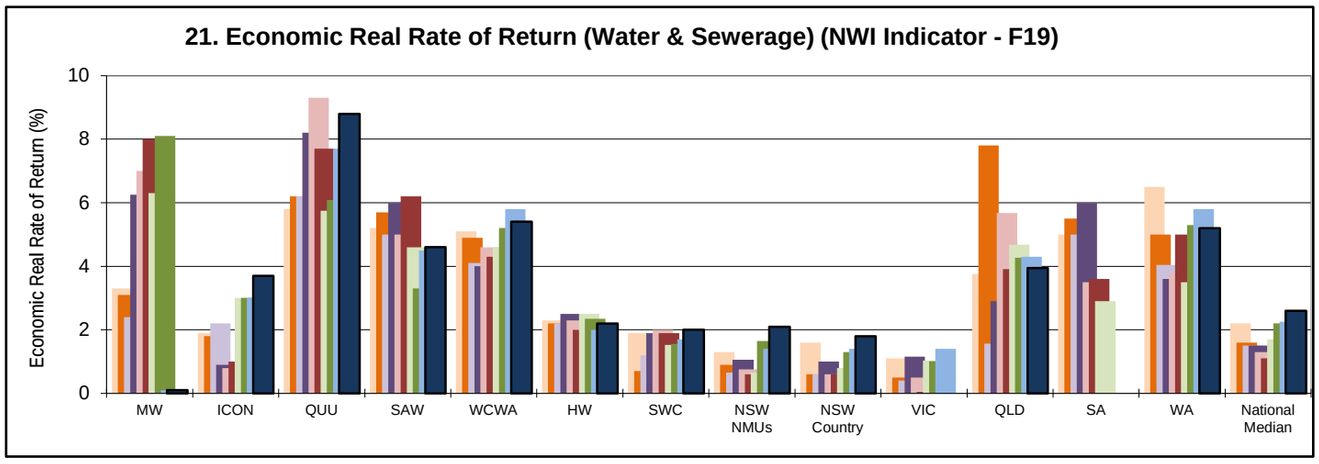


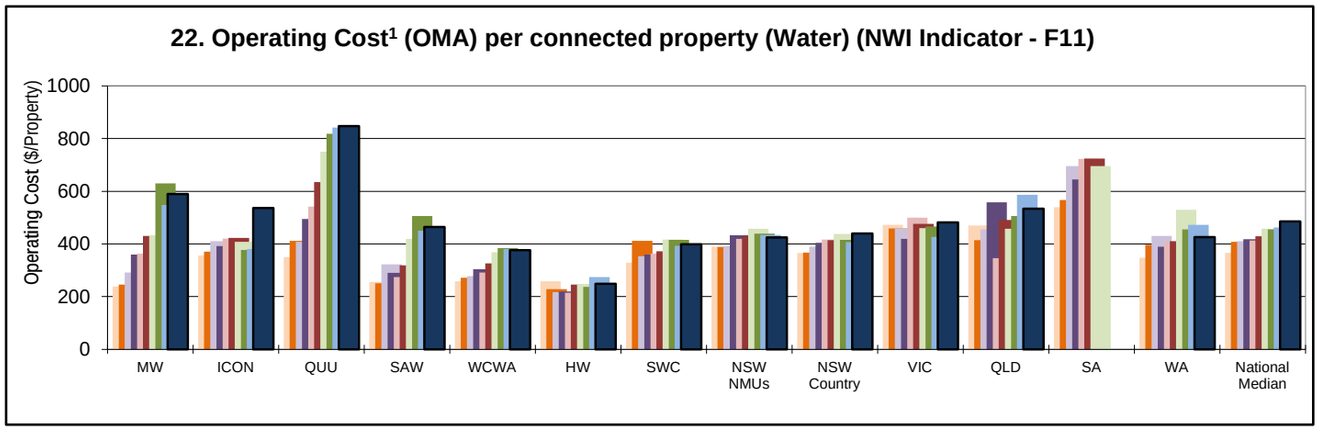


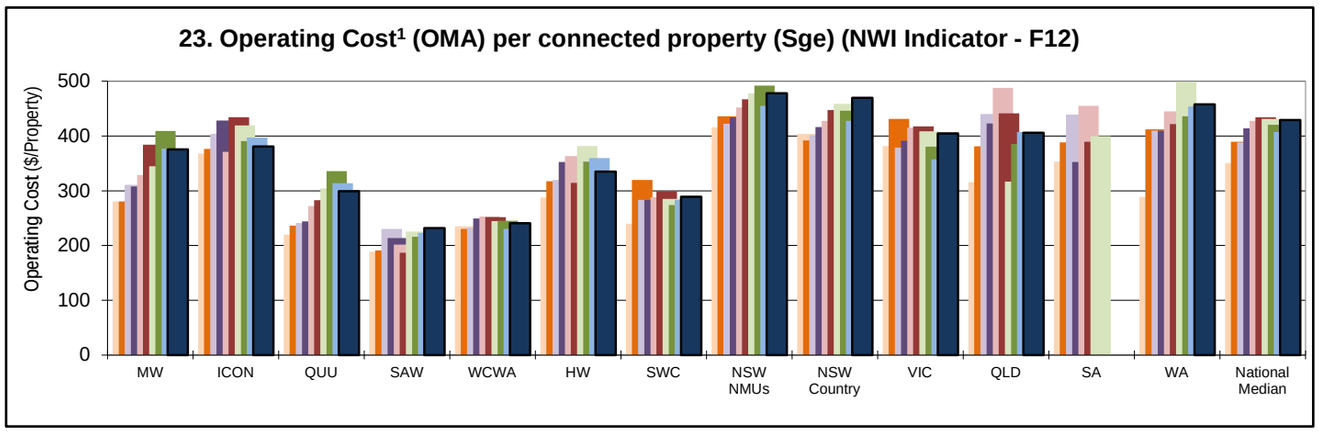
* The values shown prior to 2010-11 are the reported values for sewerage breaks and chokes for indicator A12 in the National Performance Framework 2008-09 Urban Water Performance Indicators and Definitions Handbook.

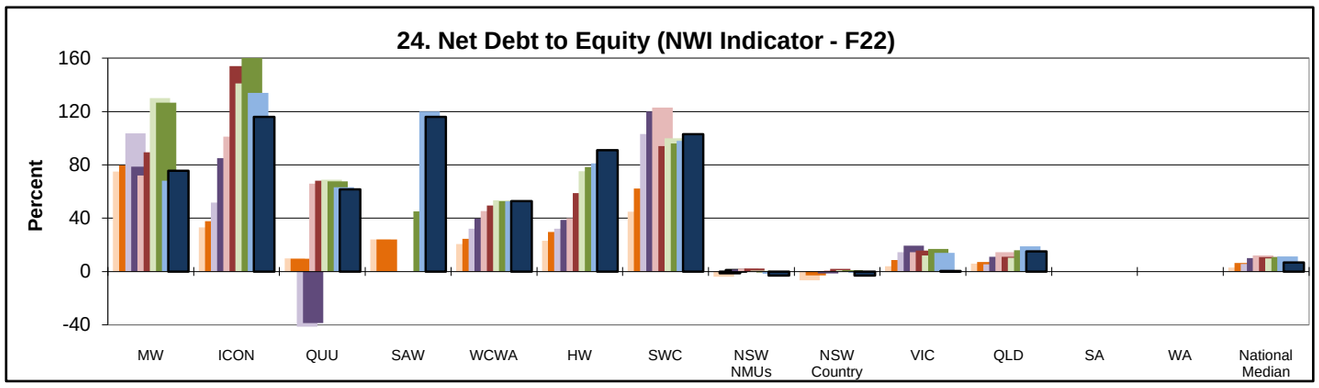
\+ The values shown prior to 2008-09 are all reported sewer overflows in accordance with definition for indicator E13 in the National Performance Framework 2007-08 Urban Water Performance Indicators and Definitions Handbook.

PERFORMANCE COMPARISONS - Economic



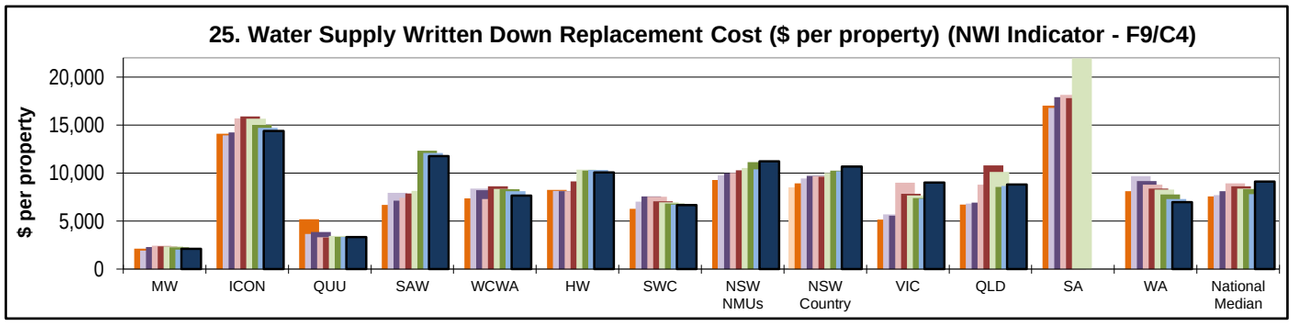


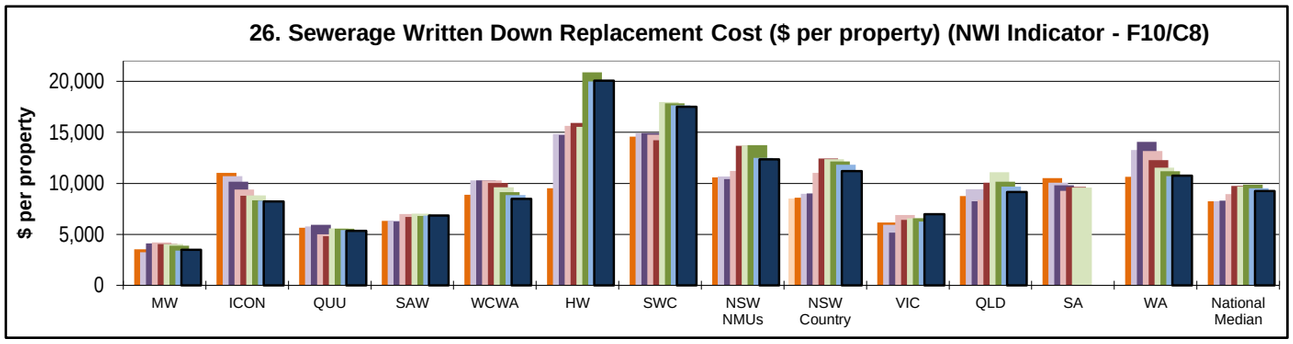


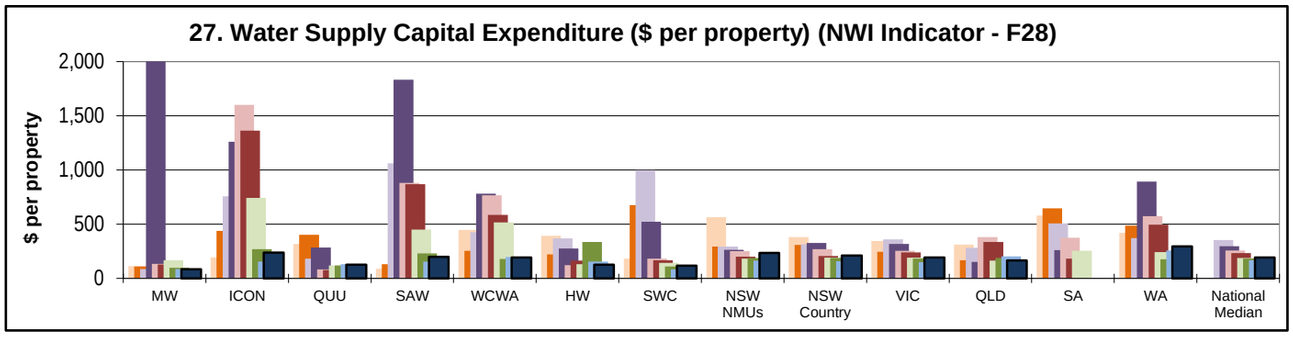


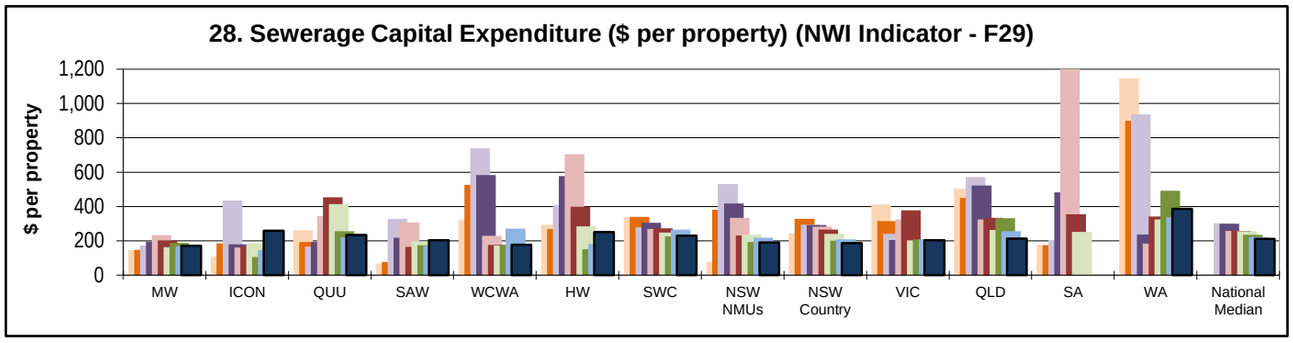
NOTES: 1. Operating Cost (OMA) is the Operation, Maintenance and Administration Cost in 2015-16$.

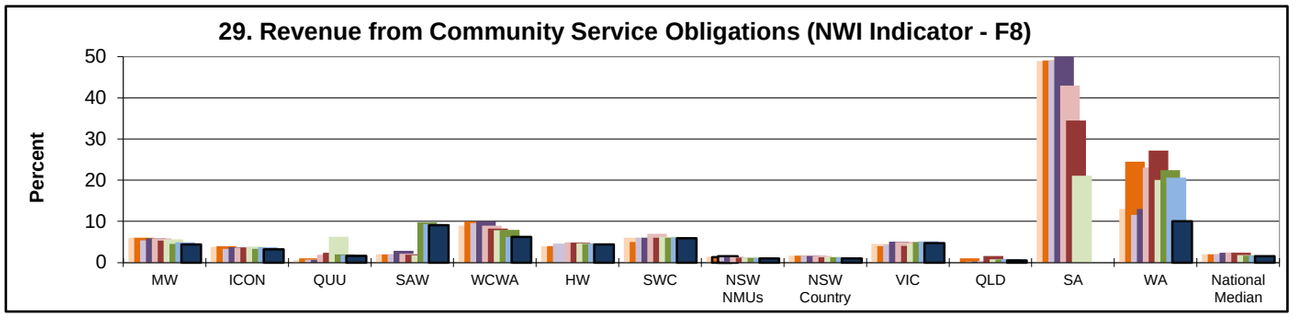
PERFORMANCE COMPARISONS - Economic











2006-07 2007-08 2008-09 2009-10 2010-11 2011-12 2012-13 2013-14 2014-15 2015-16

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 B1: NSW PERFORMANCE MONITORING DATABASE

B1.1 Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
Population							
WB1	C1	Population served	Permanent		n	Population supplied with water in June this reporting year.	Exclude population in non-serviced areas.
WB2		Population served	Peak		n	Maximum population supplied anytime this reporting year.	Permanent population plus temporary influx (tourists, seasonal workers). Exclude population in non-serviced areas.
Infrastructure							
WB7		Dams	Number		n	Dams owned by the utility for seasonal water storage as distinct from daily balancing storages for distribution systems.	Include on-stream and off-stream storages.
WB8		Dams	Capacity		ML		
WB9		Service reservoirs	Number		n	Distribution storage facilities used in the delivery of potable water to customers such as steel or concrete tanks used as daily balancing storages.	Include clear water tanks at water treatment works.
WB10		Service reservoirs	Capacity		ML		
WB11		Weirs	Number		n	Low barriers, generally within the stream banks, to divert flow to an offtake.	
WB12		Weirs	Capacity		ML		
WB13		Bores	Number		n	Bore holes connecting to an aquifer from which water is drawn.	
WB14		Bores	Capacity		ML/d		
WB15		Pumping stations - potable and nonpotable	Number		n	Pumping stations for headworks and distribution systems.	Include potable and non-potable pumping stations. Include pumping stations at treatment works that are used to deliver treated water into the distribution system. A pump station may include multiple pumps.
WB16		Pumping stations - potable and nonpotable	Capacity		ML/d		
WB17	A1	Treatment works	Number		n	Treatment works providing comprehensive water treatment to achieve high quality water.	Include facilities that remove colour and/or turbidity as well as filtration, disinfection and pH adjustment. Exclude facilities that do not provide filtration and disinfection. Exclude secondary or booster disinfection plants. Exclude fluoridation plants.
WB18		Treatment works	Capacity		ML/d		
WB20a		Water mains - potable and nonpotable	Headworks transfer length		km	Trunk mains which are part of the headworks system (eg. dam, river) for delivery of raw water either from scheme to scheme or to treatment works. Bulk suppliers should include trunk mains delivering raw water to other urban centres or schemes. Exclude disused pipe even if maintained for future use.	Include potable and non-potable mains.
WB20	[A2]	Water mains - potable and nonpotable	Transfer main length		km	A transfer main delivering treated water from a treatment works or service reservoir to a distribution area or other urban centre.	Include potable and non-potable gravity and rising (pressure) mains. Exclude disused pipe even if maintained for future use.
WB21	[A2]	Water mains - potable and nonpotable	Reticulation length		km	A reticulation main is relatively small pipework distributing supply to a network of customers.	Include potable and non-potable reticulation. Exclude non-potable reticulation to non-urban areas (eg. for agriculture). Exclude disused pipe even if maintained for future use. Exclude pipework associated with property water services (mains to property meter or service connections). Exclude private mains.
WB22	A2	Water mains - potable and nonpotable	Total length		km	Sum of (WB20) and (WB21). Excludes (WB20a).	
WB23		Renewals - potable and nonpotable	Mains renewed		km	Existing water mains renewed or replaced in the reporting period.	Exclude maintenance work (refer to Section 5 of NSW Local Government Asset Accounting Manual, 1999). Refer also to page 66 of the NSW Water and Sewerage Strategic Business Planning Guidelines, 2011 (http://www.water.nsw.gov.au/ArticleDocuments/36/utilities_nsw_water_sewerage_strategic_planning_guidelines.pdf.aspx).
WB24		Renewals - potable and nonpotable	Property service connections		n	Existing service connections renewed or replaced in the reporting period.	
WB25		Renewals - potable and nonpotable	Customer water meters		n	Existing customer water meters renewed or replaced in the reporting period.	
Connections							
WB30		Service connections	Service connections		n	A service connection is not the same as a connected property. The number of service connections is the number of metered accounts minus the total of any submeters (after master meters eg. to shops or flats) plus the estimated service connections (eg fire connections). The number of service connections includes residential and non-residential and is only used to calculate the Infrastructure Leakage Index and real losses (L / connection / d). For utilities with a dual supply, only the potable service connections should be reported.	The number of metered units and their configuration are not material for determining the number of service connections. Examples: a block of 30 units with a single shared connection is one service connection; a block of 30 units with sub-meters and separate bills for each unit but with a single shared connection to the water main is also one service connection; retirement villages, where there is a single shared connection to the water main that services the whole of the retirement village are also counted as one service connection.
WB30a		Service connections	Connections to recycled non-potable supplies		n	The number of accounts for metered and unmetered recycled non-potable supplies. Exclude accounts for non-potable raw water supplies.	Include connections to wastewater and stormwater recycling systems such as those associated with Water Sensitive Urban Design developments. Exclude connections to non-potable raw water sources (dual supplies). Exclude greywater connections.

B1.1 Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
WB31		New connections	New residences connected		n	Number of new residences connected to water supply this reporting year. Excludes vacant subdivided lots. INCLUDES connections resulting from backlog schemes (indicator WB31a).	Include each individual house, flat, villa, unit, townhouse etc whether separately metered or not.
WB31a		New connections	New residences connected - backlog scheme		n	New residences connected to water supply as a result of connection of a backlog scheme, not residential growth.	This is a component of indicator WB31.
WB32	[C2]	Assessments	Residential assessments		n	Residential assessments for water supply services.	Include vacant lots.
WB33	[C3]	Assessments	Non-residential assessments		n	Non-residential assessments for water supply services.	Include vacant lots.
WB36	[C4]	Assessments	Total assessments		n	Sum of (WB32) and (WB33).	
WB32a	[C2]	Assessments	Residential assessments - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Residential assessments ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.
WB33a	[C3]	Assessments	Non-residential assessments - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Non-residential assessments ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.
WB36a	[C4]	Assessments	Total assessments - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Total assessments ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.
WB37		Connected Property-Assessment ratios	Connected properties / total assessments		n	See notes for (WB38).	
WB37a		Connected Property-Assessment ratios	Residential assessments / total assessments		n	See notes for (WB38).	
WB38		Connected Property-Assessment ratios	Connected residential properties / residential assessments		n	These ratios do not vary significantly from year to year for water supply systems. NOW has worked with LWUs to establish these ratios and will continue to use the existing ratio shown. If you consider that another ratio is more appropriate, you will need to provide detailed evidence to NOW to support such a change. Evidence that would be required includes the number of residential (single and multi) and non-residential assessments and connected properties from your financial, water and sewerage reports over the last 3 years together with details of vacant lots and new properties connected. Note that ratios are stored as floating decimals but are displayed on this page to two decimal places only.	Connected properties are not the same as assessments. Connected properties rather than assessments are used for consistency with the National Performance Framework. A connected property is one which is connected to the water supply system but which may or may not have a separate assessment.
WB32b	C2	Connected Properties	Residential connected properties - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Residential connected properties calculated by multiplying ADOPTED residential assessments (WB32a) with the connected residential property - residential assessment ratio (WB38).	Refer to Appendix H of Benchmarking Report.
WB33b	C3	Connected Properties	Non-residential connected properties - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Non-residential connected properties calculated by subtracting ADOPTED residential connected properties (WB32b) from ADOPTED connected properties (WB36b).	Refer to Appendix H of Benchmarking Report.
WB36b	C4	Connected Properties	Total connected properties - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Total connected properties calculated by multiplying ADOPTED assessments (WB36a) with the connected property - assessment ratio (WB37).	Refer to Appendix H of Benchmarking Report.
WB39		Unserved properties and population	Unserved urban properties		n	Number of properties in urban zoned land in towns and villages in your utility's area of operations not served by a reticulated public water supply scheme.	Only applies to properties in urban zoned land. Information on the unserved urban properties and population of each village is available in your LWU's water supply strategic business plan. Exclude vacant lots and rural properties. Exclude premises in land zoned rural residential.
WB40		Unserved properties and population	Unserved urban population		n	Estimated permanent population occupying unserved urban properties.	
WB40a		Unserved properties and population	Unserved urban population - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Unserved urban population ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.

B1.1 Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
Water Data (Losses)							
WB65		Water Losses (Potable)	Apparent loss - Unauthorised supply		ML	Include theft and illegal use (illegal connections, illegal use of unmetered fire connections).	Exclude firefighting and mains flushing - this is included in unbilled authorised potable supply (indicator WB61). The National Performance Framework default value for unauthorised consumption is 0.1% of total water supplied.
WB66		Water Losses (Potable)	Apparent loss - Meter inaccuracies		ML	Under-registration of customer meters and errors in system meters.	Your utility should have in place a meter testing program and appropriate statistical analysis to determine metering error. Retail meter error defaults are: 2.0% of BACMR (billed authorised consumption, metered residential) or 2.0% of indicator (WB54a) less estimated non-metered supply (Note: an additional sum of 0.5% of BACMR may be added to the residential meter error to account for meter non-registration); 2% of BACMN (billed authorised consumption, metered non-residential) or 2% of indicators (WB62) - (WB54a) less non-metered water supplied.
WB67		Water Losses (Potable)	Total apparent losses		ML	Apparent losses are the sum of unauthorised potable supply plus meter inaccuracies.	
WB68	[A10]	Water Losses (Potable)	Real loss - Leakage - Reported by LWU		ML	Leakage from mains, reservoirs and connections including property service connections to customer meters.	If leakage is less than 6% of total water supplied, your data should be carefully re-examined as leakage studies have found 6% to be a minimum for leakage for other than bulk water suppliers. Losses of less than 6% should be supported by evidence (eg. waste metering, reservoir drop test or night flow analysis).
WB68a	[A10]	Water Losses (Potable)	Real loss - Leakage - ADOPTED BY DPI WATER AFTER DATA VALIDATION		ML	Leakage ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.
WB69		Water Losses (Potable)	Total potable losses - reported		ML	Sum of Real losses reported by LWU (WB68) plus Apparent losses (WB67).	Water losses are only identified for POTABLE water distribution systems.
WB69a		Water Losses (Potable)	Total potable losses - ADOPTED BY DPI WATER AFTER DATA VALIDATION		ML	Sum of Real losses ADOPTED BY DPI WATER after data validation (WB68a) plus Apparent losses (WB67).	Refer to Appendix H of Benchmarking Report.
WB61	[W10.1]	Non-revenue water	Unbilled water		ML	As entered on the potable supply screen.	
WB70	[W10.1]	Non-revenue water	Total Potable Losses plus Unbilled Water - reported by LWU		ML	Sum of Potable Losses (WB69) and Unbilled Water (WB61).	Refer to Appendix H of Benchmarking Report.
WB71	[W10.1]	Non-revenue water	Total Potable Losses plus Unbilled Water - ADOPTED BY DPI WATER AFTER DATA VALIDATION		ML	Sum of Potable Loss adopted by DPI Water after data validation (WB69a) plus Unbilled Water (WB61).	Refer to Appendix H of Benchmarking Report.
WB77		Leakage factors	Average system pressure		m	Estimated average operating pressure in the distribution system.	Pressures should be averaged over 24 hours. For multiple zones report a weighted average using average pressures and the number of connections in each zone.
WB78		Leakage factors	Average length of private pipeline		m	Estimated average length of property service from the reticulation main to the customer meter.	Assumed to be zero if the customer meter is normally located at or close to the property boundary. If the customer meter is normally located some distance from the boundary, estimate the average length by randomly sampling an appropriate number of property service connections.
WB74		Leakage testing	Leakage test method			Select the test used or leave as 'unknown' if no test was carried out.	
WB75		Leakage testing	Year of test		year	Year that latest leakage measurement was carried out or leave as 'unknown' if no test was carried out.	Enter the final year if testing was undertaken over several years (eg. if 2008 to 2010, enter 2010).
WB76		Leakage testing	Result of leakage test		%	If leakage is less than 6% of total water consumption, this data should be carefully examined as leakage studies have found 6% to be a minimum for leakage for other than bulk water suppliers. Losses of less than 6% should be supported by evidence (eg. waste metering, reservoir drop test, or night flow analysis).	
Water Data (Sourced)							
WB41	[W1]	Water sourced	Off-stream dams		ML	Volume of water abstracted from off-stream dams.	Measured at the point of abstraction. Include volumes pumped from open channels supplied by these dams.
WB42	[W1]	Water sourced	On-stream dams		ML	Volume of water abstracted from on-stream dams.	Measured at the point of abstraction. Include volumes pumped from open channels fed by these dams. Exclude volumes fed to off-stream dams for storage.
WB43	[W1]	Water sourced	Run-of-river pumping excluding volumes pumped to dams		ML	Volume of water abstracted from run-of-river pumping.	Measured at the point of abstraction. Exclude volumes pumped to an off-stream dam or desalination plant.
WB44	[W1]	Water sourced	River release from Water NSW dams		ML	Volume of water drawn as a release from a Water NSW dam.	
WB44a	W1	Water sourced	Total surface water		ML	Sum of (WB41) + (WB42) + (WB43) + (WB44) + (WB46c).	Includes surface water desalination.
WB45	[W2]	Water sourced	Groundwater extraction		ML	Volume abstracted from groundwater.	Measured at the point of abstraction, not delivery. Exclude desalinated groundwater. Exclude volumes from artificial recharge by sources counted elsewhere eg. rivers, desalination plants and sewage treatment works (recycling).
WB45a	W2	Water sourced	Total groundwater		ML	Sum of (WB45) + (WB46b).	Includes groundwater desalination.
WB46a	W3.1	Water sourced	Marine desalination		ML	Volume of seawater sourced for desalination. Exclude desalinated surface and groundwater.	

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NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
WB47	W4	Water sourced	Recycling		ML	Volume of water sourced from recycling. Include residential, industrial, commercial, municipal irrigation and on-site substitution where it replaces potable water. Water for agribusinesses should be included where potable (or untreated water in storage) would normally be used.	Includes water discharged to a waterway for environmental purposes as prescribed by the environmental regulator (WB153). Excludes managed aquifer recharge, both where potable (or untreated water in storage) would normally be used (WB156). Excludes urban stormwater use. This differs from (WB158) where any agricultural or on-site uses are counted.
WB174	W28.4	Water sourced	Urban stormwater used		ML	Includes potable and non-potable urban stormwater used by the utiltiy for urban water supply. Excludes stormwater supplied for managed aquifer recharge.	This is a component of (WB53) (Total sourced water - W7) and Total urban water supplied - W11.
WB48		Water sourced	Total water from utility's sources		ML	Sum of (WB41) + (WB42) + (WB43) + (WB44) + (WB45) + (WB46a) + (WB47) + (WB174) or NWI Indicators W1+W2+W3.1+W4+W28.4	
WB49	W5.1	Water sourced	Bulk purchase - potable		ML	Volume of potable water received from a bulk supplier outside your utility's geographic area of responsibility (excludes recycled sewage and urban stormwater).	
WB50	W5.2	Water sourced	Bulk purchase - non-potable		ML	Volume of non-potable water purchased from a bulk supplier outside your utility's geographic area of responsibility (excludes recycled sewage and urban stormwater).	
WB52a	W6	Water sourced	Bulk purchase - recycled		ML	Volume of recycled water (potable and non-potable) received from another utility outside your utility's geographic area of responsibility. This is a component of (WB52b).	
WB52b	W5	Water sourced	Total bulk water purchased		ML	Sum of (WB49) + (WB50) + (WB52a) + (WB172) or NWI Indicator W5 = W5.1+W5.2+W6+W28.2	Total volume of water (potable or non-potable) received from another utility outside your utility's geographic area of responsibility. Includes water from recycled sewage and urban stormwater received. The volume of water will include water that is subsequently exported to another utility.
WB53	W7	Water sourced	Total water sourced		ML	Sum of (WB48) + (WB52b) or NWI Indicator W7 = W1+W2+W3.1+W4+W5+W28.4	
WB51		Water sourced	Potable bulk supplier-supply scheme			Select the name of bulk supplier or bulk supply scheme, or leave as 'unknown' if no purchase was made.	If a bulk supplier or scheme is not included in the pick list, please notify the Manager, Performance Monitoring, DPI Water for rectification (9842 8505).
WB52		Water sourced	Purchase price potable bulk water		c/kL		
Water Data (Supplied Non Potable)							
WB63	W8.2	Authorised non-potable supply	Residential		ML	Non-potable water reticulated to residential customers.	Include metered and estimated unmetered supply. Exclude recycled water and urban stormwater. See potable water supplied indicator (WB54a) for definition of Residential.
WB63a	[W9.2]	Authorised non-potable supply	Commercial		ML	Total metered and estimated non-metered non-potable water supplied to commercial customers. Excludes recycled water and urban stormwater use.	Include offices, shops, clubs, hotels, motels, mobile home villages, caravan parks (including long stay/holiday parks) etc.
WB63b	[W9.2]	Authorised non-potable supply	Industrial - mining		ML	Total metered and estimated non-metered non-potable water supplied to mining industry customers. Excludes recycled water and urban stormwater use.	For industrial customers within urban zoned land or industrial customers that are supplied with non-potable water outside of urban zoned land. See potable water supplied indicator (WB56a) for definition of Mining.
WB63c	[W9.2]	Authorised non-potable supply	Industrial - manufacturing		ML	Total metered and estimated non-metered non-potable water supplied to manufacturing customers. Excludes recycled water and urban stormwater use.	For industrial customers within urban zoned land or industrial customers that are supplied with non-potable water outside of urban zoned land. See potable water supplied indicator (WB56b) for definition of Manufacturing.
WB63d	[W9.2]	Authorised non-potable supply	Industrial - electricity generation		ML	Total metered and estimated non-metered non-potable water supplied to electricity generating customers. Excludes recycled water and urban stormwater use.	For industrial customers within urban zoned land or industrial customers that are supplied with non-potable water outside of urban zoned land. See potable water supplied indicator (WB56c) for definition of Industrial - Electricity Generation.
WB63e	[W9.2]	Authorised non-potable supply	Industrial - other		ML	Total metered and estimated non-metered non-potable water supplied to other industrial customers. Excludes recycled water and urban stormwater use.	For industrial customers within urban zoned land or industrial customers that are supplied with non-potable water outside of urban zoned land. See potable water supplied indicator (WB56d) for definition of Industrial - Other.
WB63f	[W9.2]	Authorised non-potable supply	Rural		ML	Total metered and estimated non-metered non-potable water supplied to farms and hobby farms outside urban zoned land. Exclude recycled and urban stormwater use.	See potable water supplied indicator (WB57) for definition of Rural.
WB63g	[W9.2]	Authorised non-potable supply	Municipal - (excluding public parks)		ML	Total metered and estimated non-metered non-potable water supplied to municipal customers. Exclude recycled and urban stormwater use.	See potable water supplied indicator (WB58) for definition of Municipal.
WB63h	[W9.2]	Authorised non-potable supply	Municipal - public parks		ML	Total metered and estimated non-metered potable water supplied for watering public parks and gardens. Exclude recycled and urban stormwater use.	See potable water supplied indicator (WB60) for definition of Municipal - Public Parks.
WB63i	W9.2	Authorised non-potable supply	Total non-residential		ML	Sum of (WB63a) + (WB63b) + (WB63c) + (WB63d) + (WB63e) + (WB63f) + (WB63g) + (WB63h).	
WB63j	W14.2	Authorised non-potable supply	Bulk water exports		ML	Total volume of water (non-potable) supplied to other utilities or entities outside your utility's geographic area of responsibility. Exclude recycled water and urban stormwater use.	
WB63k	W10.2	Authorised non-potable supply	Unbilled		ML	Metered and estimated unmetered non-potable authorised supply for which a bill is not issued to the consumer. Exclude recycled and urban stormwater use.	See potable water supplied indicator (WB61) for definition of Unbilled.
WB63l	W10.3	Authorised non-potable supply	Managed aquifer recharge		ML	Non-potable water supplied to managed aquifer recharge. Excludes recycled water and urban stormwater use.	
WB63m	W10.4	Authorised non-potable supply	Agricultural irrigation		ML	Non-potable water supplied to agricultural irrigation. Excludes recycled water and urban stormwater use.	

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NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
WB64	W11.2	Authorised non-potable supply	Total authorised non-potable supply		ML	Sum of (WB63) + (WB63a) + (WB63b) + (WB63c) + (WB63d) + (WB63e) + (WB63f) + (WB63g) + (WB63h) + (WB63k) or NWI Indicator W11.2 = W8.2+W9.2+W10.2	Include metered and estimated unmetered supply. Exclude recycled water (WB158) and urban stormwater use (WB174).
Water Data (Supplied Potable)							
WB82		Peak water supplied	Peak day		ML	The maximum 24 hour potable water supplied in the reporting year.	
WB83		Peak water supplied	Peak week		ML	The maximum 7 day potable water supplied in the reporting year.	
WB54a	W8.1	Authorised potable supply	Residential		ML	Total metered and estimated non-metered potable water supplied to residential properties. Excludes recycled water and urban stormwater.	Include retirement villages. Exclude caravan parks (long term stay/holiday parks) and mobile home villages.
WB54b	W8.1	Authorised potable supply	Residential - ADOPTED BY DPI WATER AFTER DATA VALIDATION		ML	Total metered and estimated non-metered potable water supplied to residential properties ADOPTED BY DPI WATER after data evaluation. Excludes recycled water and urban stormwater.	Refer to Appendix H of Benchmarking Report.
WB55	[W9.1]	Authorised potable supply	Commercial		ML	Total metered and estimated non-metered potable water supplied to commercial customers. Excludes recycled water and urban stormwater use.	Include offices, shops, clubs, hotels, motels, mobile home villages, caravan parks (including long stay/holiday parks) etc.
WB55a	[W9.1]	Authorised potable supply	Commercial - ADOPTED BY DPI WATER AFTER DATA VALIDATION		ML	Total metered and estimated non-metered potable water supplied to commercial customers ADOPTED BY DPI WATER after data evaluation. Excludes recycled water and urban stormwater use.	Refer to Appendix H of Benchmarking Report.
WB56a	[W9.1]	Authorised potable supply	Industrial - mining		ML	Total metered and estimated non-metered potable water supplied to mining industry customers. Excludes recycled water and urban stormwater use.	For industrial customers within urban zoned land or industrial customers that are supplied with potable water outside of urban zoned land. Mining includes customers that mainly extract naturally occurring mineral solids (eg.coal and ores); liquid minerals (eg.crude petroleum); and gases, such as natural gas. The term mining is used in the broad sense to include: underground or open cut mining; dredging; quarrying; well operations or evaporation pans; recovery from ore dumps or tailings as well as beneficiation activities (i.e. preparing, including crushing, screening, washing and flotation) and other preparation work customarily performed at the mine site, or as a part of mining activity. Mining is distinguished by two basic activities: mine operation and mining support activities. Mine operation includes units operating mines, quarries, or oil and gas wells on their own account, or for others on a contract or fee basis, as well as mining sites under development. Mining support activities include units that perform mining services on a contract or fee basis, and exploration (except geophysical surveying). Mining excludes refining or smelting of minerals or ores (other than preliminary smelting of gold), or in the manufacture of such products of mineral origin as coke or cement. These are classified to Manufacturing.
WB56b	[W9.1]	Authorised potable supply	Industrial - manufacturing		ML	Total metered and estimated non-metered potable water supplied to manufacturing customers. Excludes recycled water and urban stormwater use.	For industrial customers within urban zoned land or industrial customers that are supplied with potable water outside of urban zoned land. Manufacturing includes customers mainly engaged in the physical or chemical transformation of materials, substances or components into new products (except agriculture and construction). Manufacturing units are often described as plants, factories or mills and characteristically use power-driven machines and other materials-handling equipment. Assembly of the component parts of manufactured products, either self-produced or purchased from other units, is considered manufacturing. For example, assembly of self-manufactured prefabricated components at a construction site is considered manufacturing, as the assembly is incidental to the manufacturing activity.
WB56c	[W9.1]	Authorised potable supply	Industrial - electricity generation		ML	Total metered and estimated non-metered potable water supplied to electricity generating customers. Excludes recycled water and urban stormwater use.	For industrial customers within urban zoned land or industrial customers that are supplied with potable water outside of urban zoned land.
WB56d	[W9.1]	Authorised potable supply	Industrial - other		ML	Total metered and estimated non-metered potable water supplied to other industrial customers (excludes mining, manufacturing and electricity generation). Excludes recycled water and urban stormwater use.	For industrial consumers within urban zoned land or industrial consumers that are supplied with potable water outside of urban zoned land.
WB57	[W9.1]	Authorised potable supply	Rural		ML	Total metered and estimated non-metered potable water supplied to farms and hobby farms outside urban zoned land.	Include potable water supplied for stock and domestic uses outside of urban zoned land including market gardens, agricultural irrigation. Include metered and estimated unmetered water supplied. Exclude non-potable water supplied.
WB58	[W9.1]	Authorised potable supply	Municipal - excluding public parks		ML	Total metered and estimated non-metered potable water supplied to municipal customers. Exclude recycled and urban stormwater use.	Include hospitals, schools, nursing homes, colleges, universities, public pools, gaols etc. Include metered and estimated unmetered water supplied. Exclude public parks.
WB60	[W9.1]	Authorised potable supply	Municipal - public parks		ML	Total metered and estimated non-metered potable water supplied for watering public parks and gardens.	Include potable supply for watering of public parks, gardens and ovals etc. Include metered and estimated unmetered water supplied.

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NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
WB60a	W9.1	Authorised potable supply	Total non-residential		ML	Sum of (WB55) + (WB56a) + (WB56b) + (WB56c) + (WB56d) + (WB57) + (WB58) + (WB60).	
WB59	W14.1	Authorised potable supply	Bulk water exports		ML	Total volume of water (potable) supplied to other utilities or entities outside your utility's geographic area of responsibility. Exclude recycled water and urban stormwater use.	
WB61	[W10.1]	Authorised potable supply	Unbilled water		ML	Volume of unbilled water is the potable water supplied, excluding residential, commercial, municipal and industrial water. Metered and estimated unmetered potable authorised supply for which a bill is not issued to the consumer.	Include firefighting and mains flushing as this is authorised supply and is not a water loss. The National Performance Framework default value for unmetered, unbilled authorised supply is 0.5% of total water supplied. Examples: firefighting (customer fire connections and street hydrants); mains flushing etc.
WB62	W11.1	Authorised potable supply	Total authorised potable supply - Reported		ML	Sum of (WB54a) + (WB55) + (WB56a) + (WB56b) + (WB56c) + (WB56d) + (WB57) + (WB58) + (WB60) + (WB61) or NWI Indicator W11.1 = W8.1+W9.1+ [W10.1]	Excludes losses, recycled water (WB158), urban stormwater used (WB174) and bulk water exports (WB59).
WB62a	W11.1	Authorised potable supply	Total authorised potable supply - ADOPTED BY DPI WATER AFTER DATA VALIDATION		ML	Total authorised potable supply ADOPTED BY DPI WATER after data validation. Sum of (WB54b) + (WB55a) + (WB56a) + (WB56b) + (WB56c) + (WB56d) + (WB57) + (WB58) + (WB60) + (WB61).	Refer to Appendix H of Benchmarking Report.
Water Data (Supplied Recycled)							
WB150	W20	Authorised recycled supply	Residential		ML	Recycled water for potable and non-potable town water supply reticulated to residential customers. Excludes urban stormwater use.	Include metered and estimated unmetered recycled water supplied. Note that recycled water components should now be reported at the sewage treatment works level. These are then aggregated across each of the treatment works and imported into the existing water business indicators for recycled water supplied.
WB151	W21	Authorised recycled supply	Commercial, Industrial, Municipal		ML	Recycled water supplied to commercial, industrial, municipal properties. Includes golf courses. Excludes urban stormwater use.	
WB152	W22	Authorised recycled supply	Agricultural		ML	Recycled water supplied for agricultural purposes. Includes irrigation, forestry and livestock. Excludes urban stormwater use.	
WB153	W23	Authorised recycled supply	Environmental		ML	Recycled water supplied for environmental purposes as prescribed by the environmental regulator. Includes discharge to rivers, sea or natural wetlands, provided there is a beneficial use rather than disposal.	
WB154	W24	Authorised recycled supply	On-site		ML	Recycled water used on-site external to the treatment process.	
WB155	W25	Authorised recycled supply	Other		ML	Recycled water supplied to other users including managed aquifer recharge, firefighting, mains flushing, losses and leakage.	
WB156	W25.1	Authorised recycled supply	Managed aquifer recharge		ML	Recycled water supplied for managed aquifer recharge, excluding environmental water and urban stormwater use.	
WB157	W15	Authorised recycled supply	Bulk recycled water exports		ML	Recycled water supplied to other utilities or entities outside your utility's geographic area of responsibility. Excludes urban stormwater.	
WB158	W26	Authorised recycled supply	Total recycled supplied		ML	Total treated effluent excluding evaporation and urban stormwater use. Sum of (WB150) + (WB151) + (WB152) + (WB153) + (WB154) + (WB155). or NWI Indicator W26 = W20+W21+W22+W23+W24+W25	
WB158a	W26	Authorised recycled supply	Total recycled supplied - ADOPTED BY DPI WATER AFTER DATA VALIDATION		ML	Total recycled supplied ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.
Demand Management							
WB84		Demand management initiatives	Customer education program		Y/N		
WB85		Demand management initiatives	Permanent water saving measures		Y/N	Permanent water saving measures in place to conserve water.	Example: no hosing of concrete or hard surfaces at any time.
WB86		Demand management initiatives	Effluent or stormwater use		Y/N		
WB87		Demand management initiatives	Leakage reduction program		Y/N		
WB88		Demand management initiatives	Retrofit program		Y/N		
WB89		Demand management initiatives	Rebates for water efficient appliances		Y/N		

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NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
WB90		Demand management initiatives	Customer billing interval		mths	Interval between customer bills this reporting year.	
WB91		Demand management initiatives	Other initiative			Other demand management initiatives the utility has in place, such as 'Water saving tips on Council's website' or 'Member of the Savewater! Alliance'.	Exclude initiatives that are already mentioned in indicators (WB84) to (WB89) - customer education program, permanent water saving measures, effluent or stormwater use, leakage reduction program, retrofit program, rebates for water efficient appliances.
WB93		Rainwater tanks	Rebate for tanks		Y/N		
WB94		Rainwater tanks	Maximum rebate available		$		
WB95		Drought restrictions	Days water restrictions due to drought		days	Include all days of drought water restriction regardless of the level of restriction.	
Service Levels							
WB96	[C10]	Complaints	Service complaints		n	Complaints relating to service quality and reliability, including leaks. Exclude water quality complaints and billing complaints. Exclude queries about service quality and reliability and requests for information on efficient water use and 'water saving'.	Include bursts, leaks, service interruptions, adequacy of service, water pressure, affordability, behaviour of staff or agents. Exclude complaints about tariff structure. A complaint is a written or verbal expression of dissatisfaction about an action, proposed action or failure to act by the water utility, its employees or contractors. Complaints from separate customers arising from the same cause count as separate complaints. Include complaints received by the water utility in person, by mail, by fax, phone, email or text message. Exclude complaints about planned service interruptions unless the customer expresses dissatisfaction about the interruption. Australian Standard AS ISO 10002-2006 refers. Examples: Include complaints about pressure when found to be caused by a leaking mains or when a customer expresses dissatisfaction with the normal pressure. If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.
WB97		Complaints	Frequent service complaint 1			A complaint is a written or verbal expression of dissatisfaction about an action, proposed action or failure to act by the utility, its employees or contractors.	Include complaints in person, by mail, email, fax, phone, or text messaging.
WB98a		Complaints	Customer contacts/inquiries		n	A request by a customer for information about a product or service provided by the water utility (eg. 'tips on water saving') that does not indicate customer dissatisfaction. The customer may also call to advise the utility of asset condition (eg. a 'weep' at their water meter).	
WB99	[C12]	Complaints	Billing complaints		n	Complaints concerning account payment, financial loss or overcharging and billing errors. Exclude queries (WB98a).	Do not include complaints on government pricing policy or complaints about the tariff or queries about how the tariff is calculated. A complaint is a written or verbal expression of dissatisfaction about an action, proposed action or failure to act by the water utility, its employees or contractors. Complaints from separate customers arising from the same cause count as separate complaints. Includes complaints received by the water utility in person, by mail, by fax, phone, email or text message. When a customer queries an account, this is not counted as a complaint unless the customer identifies that they have rung to make a complaint. If the customer rings to make an inquiry but remains dissatisfied or the inquiry identifies an error in the bill, this should be recorded as a complaint. If a customer makes repeated contact on the same billing issue this should be recorded as a complaint. If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.
WB100	[C10]	Complaints	Other complaints		n	Complaints other than water quality, service or billing. Exclude queries (WB98a).	A complaint is a written or verbal expression of dissatisfaction about an action, proposed action or failure to act by the water utility, its employees or contractors. Complaints from separate customers arising from the same cause count as separate complaints. Include complaints received by the water utility in person, by mail, by fax, phone, email or text message. Exclude complaints on government pricing policy or tariff structures. If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.
WB101a	C9	Complaints	Water quality complaints (bulk supplies)		n	Customer complaints concerning the quality of reticulated bulk potable supplies. Exclude queries (WB98a).	Water quality complaints for areas where your utility did not carry out water treatment (ie. where the supply is obtained from a bulk supplier). If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.
WB101b	[C9]	Complaints	Water quality complaints (treated supplies)		n	Complaints relating to water treated by your utility's treatment plants. Exclude queries (WB98a).	Sum of water quality complaints for your treatment works (entered under Water Treatment/Service Levels NSW indicator number (WT37)).

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NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
WB102	[C13]	Complaints	Total complaints		n	Sum of (WB96) + (WB99) + (WB100) + (WB101a) + (WB101b).	
WB103	C14	Telephone connect time	Percent of calls answered by an operator within 30 seconds		%	Percentage of calls answered by an operator within 30 seconds. If a percentage is provided for Sewerage indicator (WB41), do not provide a percentage here.	If your utility does not record the 'time to connect to telephone' leave this indicator blank. Exclude calls resolved by automated systems, hang-ups or where the customer has selected an incorrect dialing option. Examples: if a customer elects to speak with an operator via automatic dialling, the connect time is from the time when the customer was connected by the system until it is answered by an operator. The connect time starts when the call gets connected by person, (in which case the connect time would be zero), by an auto attendant (IVR) or by a message informing the caller they have been put in a queue. The connect time finishes when the caller is answered by a person. If the caller hangs up before they speak to a person, the call is not counted. Similarly, if the caller's question is answered by an IVR, meaning they dont need to speak to an operator, the call is not counted.
WB104	[A8]	Unplanned supply interruptions	Water main breaks		n	Total number of water main breaks, bursts and leaks in all diameter water distribution and reticulation mains. Includes potable and non-potable water mains.	Exclude: Breaks in the property service connection; weeps and seepages in above-ground mains that can be fixed without shutting down the main.
WB105		Unplanned supply interruptions	Property service connection failures		n	Unplanned incidents where water is lost due to to failure of a property service connection.	Exclude a burst or leak which causes no discernible impact on customers, property or the environment.
WB106	[C17]	Unplanned supply interruptions	Incidence of unplanned interruptions		n	Incidence of unplanned interruptions is the number of connected properties affected by a total loss of the potable water supply service due to failure of the water asset. An unplanned interruption is a total loss of water supply due to failure of the water asset.	An unplanned interruption is when the customer has not received at least 24 hours notification of the interruption. Interruptions include both potable and recycled interruptions. Include each occurrence of interruption. Exclude interruptions caused by burst or leaks in the property service connection and interruptions where there is some reduction to service but where normal activities (eg. shower, washing machine, toilet flushing etc) are still possible.
WB107	[C15]	Unplanned supply interruptions	Average duration		min	The average duration for which a customer is without potable water supply for the reporting period due to an unplanned interruption. A water supply interruption is any event causing a total loss of water supply due to any cause. Interruptions do not include those caused by bursts or leaks in the property service (mains to meter connection) unless the burst or leak requires the mains to be shut down for repair. An unplanned water supply interruption is when the customer has NOT received at least 24 hours notification (or as otherwise prescribed by regulatory requirements) of the interruption. It also includes situations where the duration of a planned interruption exceeds that which was originally notified. In this circumstance the length of the entire interruption is counted. All un-notified interruptions caused by third parties should be included. An interruption commences when the water utility is aware that ‘water is no longer available at the customer’s first cold water tap and ceases ‘when “normal” service is restored’. Where the utility is aware of a water supply interruption through its internal systems alarms, the duration commences when the alarm is raised. If a customer notifies the water utility they are without water, the duration commences at the time of notification. If the water utility is responding to a notification of a broken main, unless this notification also indicates a loss of supply, the duration commences once the break is isolated (if repairs are not being done under pressure).	If the utility responds to notification of a broken main, unless the notification also indicates a loss of supply, duration commences once the break is isolated. Examples - A utility advises customers an interruption will occur and will last 3 hours. The actual duration is 5 hours. The unplanned interruption duration is 5 hours. - A customer calls advising they are without water. The interruption commences at the time of notification. - A customer calls advising of a broken main. Unless the notification also indicates a loss of supply, the interruption commences when staff arrive at the main and isolate the break. - Mains are shut down due to fire fighting requirements. This interruption is included and commences at the time the mains are shut down. Include un-notified interruptions caused by third parties.
Health							
WB113	H6	Water quality management	Risk-based drinking water quality plan?		Y/N	Minimum requirement for answering 'yes' is a documented water quality management system in accordance with page 2-1 of the Australian Drinking Water Quality Guidelines 2011. Any other more rigorous plans are also satisfactory. Note: Commencing in the 2014-15 financial year, the minimum requirement will be a Drinking Water Quality System in accordance with the 'NSW Guidelines for drinking water systems, NSW Health and NSW Office of Water', 2013 (www.health.nsw.gov.au/publichealth/environment). The Drinking Water Quality System will need to be independently audited in order to comply with the Public Health Act 2010 and to report 'Yes' for 'Externally Assessed - NWI Indicator H5'	
WB113a		Water quality management	Specify planning framework			State the basis for your Drinking Water Management System.	Examples: NSW Guidelines for Drinking Water Management Systems, 2013; Framework for Management of Drinking Water Quality, HACCP, ISO 9001, WSAA (National Water Quality Framework Continuous Improvement Tool).
WB114	H5	Water quality management	External assessment of plan			State the basis for the external accreditation.	For each external assessment, external third party accredited assessments must have taken place within the last 12 months. The scope of these quality systems must cover the entire water business water quality management system. If the quality system covers a more limited area, the indicated quality system must be footnoted with a description of the area covered. Commencing in the 2014-15 financial year, assessments must be independently audited in accordance with NSW Guidelines for Drinking Water Management Systems, 2013.

B1.1 Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
WB114a		Water quality management	Water Supply distribution system integrity examination?		Y/N	Did your LWU carry out a detailed examination of the integrity of your water supply distribution systems in accordance with Circular LWU 18 of 4 June 2014 in this financial year? Note that a detailed examination is required at least every 4 years (or more frequently if warranted by your LWU's risk assessment or if the free chlorine residual at the extremities of a distribution system is below 0.2mg/L).	Refer also to Appendix E of the NSW Benchmarking Report (www.water.nsw.gov.au). LWU Circulars can be accessed in the Trade Waste section of the NSW Performance Monitoring Database.
WB114b		Water quality management	Summary of Distribution System Deficiencies identified			Examples of deficiencies are shown in the Instructions. Indicate the name of the distribution system in each case.	Examples: (1) Mesh openings are too large or the reservoir roof design is deficient, allowing entry of small birds, vermin, rain water and windblown material to contaminate the stored water. The roof design and/or the mesh must be modified to rectify. - refer to page 10 of the NSW Benchmarking Report (www.water.nsw.gov.au). (2) Rain can enter the reservoir from the roof drainage system or a leaking reservoir roof, holes in the reservoir wall or gaps around the openings on the roof – rectify. (3) Inspection hatches not closed and locked at all times or the reservoir site and roof are not secured from unauthorised access – rectify. Refer also to Appendix E of the NSW Benchmarking Report (www.water.nsw.gov.au).
WB114c		Water quality management	Distribution System Deficiencies Rectified?		Y/N	Indicate the name of the distribution system in each case in Indicator (WB114b).	Any deficiencies in distribution system integrity identified in Indicator 114b should be rectified as a matter of priority in accordance with Circular LWU 18 of 4 June 2014.
WB114d		Water quality management	Provided summary report to DPI Water?		Y/N	Summary Report provided to DPI Water following investigation of the integrity of each water supply distribution system?	
WB115		Public health incidents	Category 1 incidents		n	Incidents with nil or inconsequential public health effects.	Example: a minor failure of a water treatment process or asset that results in a limited boil water alert. Examples of Category 1, 2 or 3 Public Health and/or Environmental Incidents are shown in Appendix B of the NSW Water Supply and Sewerage Benchmarking Report (www.water.nsw.gov.au).
WB116		Public health incidents	Category 2 incidents		n	Incidents with a limited public health impact.	Examples: non-compliance with health parameters (E. coli) of ADWG, 2011 for more than 7 days; system-wide boil water notice; failure of a disinfection system of more than 3 days; failure of a major treatment process or asset at a treatment works of more than 4 days; chlorine or ammonia gas leak (chlorination/chloramination); non-pathogenic/toxic contamination of the potable water supply due to a cross connection; an incident resulting in unplanned interruptions to supply of more than 2 days (if more than 7 days report as Category 3).
WB117		Public health incidents	Category 3 incidents		n	Incidents with a major impact on public health.	Examples: outbreak of water borne disease and/or hospitalisation from water supplied by your utility's water supply system; an incident resulting in unplanned interruptions to supply of more than 7 days; pathogenic contamination of the potable water supply due to a cross connection; toxic contamination of water supply.
WB118		Public health incidents	Category 3 incidents - detail				
WB119		Public health investment	Capital investment to improve health performance		$k	Capital expenditure with the principal outcome of improved health performance.	This indicator highlights public health improvement and innovation. Include expenditure undertaken for compliance purposes having IMPROVED performance as an outcome. Include new treatment works. Exclude renewals. (Enter $111,500 as 111.5, $3,999,000 as 3999 etc).
Workforce							
WB120		Workforce and training	Total workforce in water business		FTE	A full-time employee has an FTE of 1. Part-time and casual employees will have an FTE of less than one based on hours employed.	Include water supply business workforce engaged in operation, maintenance and management including billing as well as contracted staff. Exclude staff engaged on design and construction.
WB121		Workforce and training	Female workforce		FTE		
WB122		Workforce and training	Workforce receiving 2 or more training days		FTE	The training days FTE of water supply business employees that have undertaken at least 2 days of training in the reporting year. This number will be less than or equal to the workforce FTE.	The training days FTE of a casual or part-time employee is the FTE of that employee multiplied by the number of days that employee trained in the reporting year.
WB122a		Workforce and training	No. WTW Operators		n	Total number of operators across all of your utility's water treatment works qualified to operate a water treatment works or a chlorinator/aerator.	Exclude operators qualified to operate a chlorinator/aerator ONLY - these are to be reported at indicator WB122b.
WB122b		Workforce and training	No. WTW Operators - Chemical Dosing [ONLY]		n	Number of operators across all of your utility's water treatment works qualified to operate a chlorinator/aerator ONLY.	Exclude operators in training (to be reported at indicator WB122c).
WB122c		Workforce and training	No. WTW Operators in Training		n	Number of operators across all of your utility's water treatment works currently undertaking training in water treatment operation.	Exclude any fully trained operators reported at indicators WB122a and WB122b.
WB123		Days lost	Total days lost		FTE	Total FTE days lost for water supply business.	Include days lost due to workplace injury, sick leave and industrial action. Exclude recreation leave, long-service leave, public holidays, rostered days off or flexi-leave, maternity leave, jury duty, leave for Army Reserve training, etc. Exclude days lost for staff engaged in design or
WB124		Days lost	Confirmed injuries		n	Include water supply business injuries that resulted in a fatality, permanent disability or time lost from work of one day or more. Include injuries for equivalent contractor employees. Exclude injuries for employees engaged in design or construction.	
WB125		Days lost	Days lost due to injury		FTE	Total FTE days lost due to injury.	Include days lost for injuries for equivalent contractor employees. Exclude days lost for injuries for employees engaged in design or construction.
WB130		Workforce outsourced	Maintenance costs outsourced		%		Outsourcing is subcontracting part of the operation and/or management of a utility's business to a third party, where the subcontractor undertakes work that would normally be done by the utility's workforce. Include legal work, electrical maintenance, operation of a treatment works etc.

B1.1 Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
Expenses, Charges And Bills							
WB131		Community	Reduction in fees and charges to community organisations		$k	The value of reductions in fees or charges permitted by legislation which are provided by your water supply business to the community. Exclude pensioner rebates.	Utiilities may elect to provide reduced fees and charges for certain non-profit and community organisations and charities (including non-rateable properties) as permitted by legislation. This indicator reports the total amount of reductions provided to such community organisations in comparison with the standard fees and charges for non-residential customers.
WB131a		Community	Progress towards implementing the National Guidelines for Residential Customers' Water Accounts		%	Estimate your utility's percent progress towards implementing the National Guidelines for Residential Customers' Water Accounts, 2006 (available at www.environment.gov.au).	
WB132a	C18	Community	Restrictions for non-payment of water bill		n	Restrictions and disconnections applied for non-payment of water bills in the reporting period.	Include: all cases where restriction devices are fitted to reduce water flows to a customer (residential and non-residential). Multiple restrictions for one customer are to be counted as separate restrictions. Exclude: customers who choose to disconnect from the water supply; disconnections carried out due to unsafe infrastructure connected to the water utility's system; instances where your utility elects not to restrict supply due to non-payment.
WB132b	C19	Community	Legal action for non-payment of water bill		n	Legal actions for non-payment of water bills in the reporting period.	Legal action commences from issue of summons. Include action taken against both residential and non-residential customers. Multiple actions against one customer are to be counted as separate actions. Exclude cases where your utility threatens to take legal action but does not
WB133		Operation and Maintenance expenses	Headworks		%	Financial data is provided by your utility in Special Schedule No.3 to the Annual Financial Statements, specifically 'Operation and Maintenance Expenses'. Divide this total into 'headworks' and 'distribution and reticulation'.	Headworks and reticulation OMA are percentages estimated from your operations over the last year. Special Schedule 3 can be used to estimate this by assigning part or all of each OMA expense to either headworks or reticulation.
WB134		Operation and Maintenance expenses	Distribution and reticulation		%		See (WB133).
WB135		Developer charges	Typical developer charge for this reporting year		$	This is the typical developer charge determined by your utility to recover part of the cost of water supply infrastructure for new development.	
WB136		Developer charges	Typical developer charge for next reporting year		$		
Environment							
WB137		Environmental incidents	Category 1 incidents		n	Incidents with little or no impact on the environment.	Examples: a reportable incident but not a breach of environmental regulations; an incident resulting in under 4 days of odour or noise complaints; a minor spillage of non-toxic chemicals or sludge to waterway or land.
WB138		Environmental incidents	Category 2 incidents		n	Incidents with limited and non-permanent impact on the environment.	Examples: a minor breach of environmental regulations eg. non maintenance of the required environmental flows, an incident resulting in over 4 days of odour or noise complaints, a major soil erosion incident requiring remediation, a significant chemical or sludge spill to waterway or land.
WB139		Environmental incidents	Category 3 incidents		n	Incidents with major and irreversible impact on the environment.	Examples: a major breach of environmental regulations, a dam failure, a severe algal outbreak in storages/waterways, a major toxic chemical or sludge spill into waterways, widespread destruction of native forests/ecosystems.
WB140		Environmental incidents	Category 3 incidents detail				
WB141		Environmental management	Environmental management plan?		Y/N		
WB142		Environmental management	Plan developed in consultation with other bodies including Catchment Management		Y/N		
WB143		Environmental management	Environmental consultative process in place		Y/N		
WB144		Environmental management	Capital investment to improve environmental performance		$k	Capital expenditure with the principal outcome of improved environmental performance.	This indicator highlights environmental improvement and innovation. Include expenditure undertaken for compliance purposes having IMPROVED performance as an outcome. Include new treatment works. Exclude renewals. (Enter $111,500 as 111.5, $3,999,000 as 3999 etc).
WB144a	W13	Environmental flows supplied	Environmental flows		ML	Wholesale flow allocations to the environment, generally upstream of the master meter, as specified in the environmental flow management regime as required by the environmental regulator. Exclude unplanned releases unless these can be incorporated into the environmental flow regime.	
WB145		Energy	Non-renewable energy		MWh	Energy derived from non-renewable sources used by your water supply business.	
WB146		Energy	Renewable energy		MWh	Energy derived from accredited renewable sources used by your water supply business.	
WB147		Energy	Total energy		MWh	Sum of (WB145) + (WB146).	

B1.1 Water business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
WB148a	E9	Greenhouse gas emissions - water	Operating emissions		t CO2 eq	Greenhouse gas emissions for all operations relating to water supply.	The Greenhouse Gas calculator provided to you by DPI Water will simplify this task (copy available in Appendix G of the NSW Water Supply and Sewerage Benchmarking Report).
WB148b	E11	Greenhouse gas emissions - water	Net administrative emissions		t CO2 eq	Net greenhouse gas emissions for other water supply activities (transport, office buildings and sequestration).	See (WB148a).
Integrated Water Cycle Management							
WB94a		Rainwater tanks	Number of residential rainwater tanks		No.	Total number of residential rainwater tanks in your area used as a supplementary water supply for serving urban areas (towns and villages) serviced by your water utility.	Excludes commercial, industrial and municipal premises. Excludes reticulated urban stormwater use and greywater collection tanks. Excludes rainwater tanks used for stormwater attenuation.
WB94b		Rainwater tanks	Typical rainwater tank volume		kL	Typical volume of residential rainwater tanks in your area (WB94a).	
WB95a		Water Sensitive Urban Design	WSUD implementation – new lots – residential		No.	Total number of lots in new residential subdivisions where Water Sensitive Urban Design (WSUD) has been implemented by your Council.	Includes WSUD implementation of stormwater filtration devices (bio-retention gardens, sediment basins, rain gardens, sand filters, swales, wetlands, infiltration trenches, porous paving), urban stormwater harvesting and use, ponds, stormwater outlet protection, buffer strips, dispersal trenches, urban creek design with habitat value, planting of natural vegetation, impervious area minimisation, and rainwater tanks for public parks and gardens.
WB95g		Water Sensitive Urban Design	Stormwater channels managed under WSUD principles		km	Total length of urban creeks and trunk stormwater drainage channels within the stormwater catchment that are managed under 'liveable towns and cities' or Water Sensitive Urban Design (WSUD) principles. See (WB95a) for information on WSUD implementation.	Includes urban creeks and trunk stormwater drainage channels within the stormwater catchment upstream of the stormwater discharge point. The stormwater discharge point includes discharge points into watercourses and marine water bodies and points where stormwater is exported to another stormwater drainage system operator.
WB95h		Water Sensitive Urban Design	Development Control Plan for WSUD?		Y/N	Does your Council have a Regional Development Control Plan which requires 'liveable towns and cities' development or Water Sensitive Urban Design (WSUD) for new developments?	See (WB95a) for information on WSUD implementation.

B1.2 Water treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
Works Parameters							
WT1		Works parameters	Year commissioned - augmented		year	Year of commissioning or latest major augmentation.	
WT2		Works parameters	Design capacity		ML/d		
WT3		Works parameters	Type of works			For multiple processes, hold the 'Control' key and select the processes used.	
WT5		Works parameters	Percentage of population served		%	Estimated percent of your utility's permanent population supplied by this treatment works.	
WT7q		Works parameters	Total No. WTW Operators			Include all operators at this water treatment works qualified to operate a water treatment works or a chlorinator/aerator and any operators currently undertaking training in water treatment operation.	
WT6		Volume treated	Volume treated		ML	Volume treated by this treatment works this reporting year.	
Sampling Results							
WT26		E.coli	Number of system samples		n	Include samples taken at this treatment works for system performance monitoring. Exclude samples for operational monitoring.	System performance monitoring is a wide ranging assessment of the quality of the water supplied to customers. Operational monitoring is used as a trigger for immediate corrective action to improve water quality and to check equipment is working properly. Sampling location and frequency should be scheduled sampling on the basis of Appendix B2 of the NSW Water Supply and Sewerage Benchmarking Report and ADWG 2011. The number of samples reported should be those taken for system performance monitoring from representative locations in the water supply system and not those taken for operational monitoring. In the reporting up to and including 2011-12, the reporting of additional samples to those reported in the NSW Health Drinking Water Quality Program has been accepted for those LWUs that have confirmed that they have undertaken additional sampling to that required by the Drinking Water Program. Commencing in the 2012-13 financial year, the reported results are restricted to those tested by NSW Health or by a NATA accredited laboratory. [Refer also to the final sentence of Note 4 of Appendix D1 of the NSW Water Supply and Sewerage Benchmarking Report (www.water.nsw.gov.au)].
WT26a		E.coli	Number of system samples - DOH results		n	*Results from the NSW Health Drinking Water Database for this treatment works.	
WT27	H2	E.coli	Percent complying		%	Number of samples taken for system compliance monitoring divided by the total number of such samples. Water quality compliance data for each treatment works will be used to determine NWI indicators H2, H3 and H4.	It is neither physically nor economically feasible to test on an ongoing basis for all substances in a water supply system. Each water supply system will have its own key characteristics. It is therefore common for water utilities to monitor regularly for contaminants such as disinfection by-products whereas a wide range of other non-key characteristics will only be monitored irregularly.
WT27a	H2	E.coli	Percent complying - DOH results		%	*Results from the NSW Health Drinking Water Database for this treatment works.	
WT16		Physical	Number of system performance samples		n	Include samples taken at this treatment works for system performance monitoring. Exclude samples for operational monitoring.	See (WT26).
WT16a		Physical	Number of system samples - DOH results		n	*Results from the NSW Health Drinking Water Database for this treatment works.	
WT17		Physical	Percent complying		%	Number of samples taken for system compliance monitoring divided by the total number of such samples.	See (WT27).
WT17a		Physical	Percent complying - DOH results		%	*Results from the NSW Health Drinking Water Database for this treatment works.	
WT18		Chemical	Number of system samples		n	Include samples taken at this treatment works for system performance monitoring. Exclude samples for operational monitoring.	See (WT26).
WT18a		Chemical	Number of system samples - DOH results		n	*Results from the NSW Health Drinking Water Database for this treatment works.	
WT19	[H4]	Chemical	Percent complying		%	Number of samples taken for system compliance monitoring divided by the total number of such samples. Water quality compliance data for each treatment works will be used to determine NWI indicators H2, H3 and H4.	See (WT27).
WT19a	[H4]	Chemical	Percent complying - DOH results		%	*Results from the NSW Health Drinking Water Database for this treatment works.	

B1.2 Water treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
WT22		pH	Number of system samples		n	Include samples taken at this treatment works for system performance monitoring. Exclude samples for operational monitoring.	System performance monitoring is a wide ranging assessment of the quality of the water supplied to customers. Operational monitoring is used as a trigger for immediate corrective action to improve water quality and to check equipment is working properly. Sampling location and frequency should be scheduled sampling on the basis of Appendix B2 of the NSW Water Supply and Sewerage Benchmarking Report and ADWG 2011. The number of samples reported should be those taken for system performance monitoring from representative locations in the water supply system and not those taken for operational monitoring. THE RESULTS OF THE SAMPLES TESTED BY YOUR UTILITY SHOULD CONTINUE TO BE INCLUDED.
WT23		pH	Percent complying		%	Number of samples taken for system compliance monitoring divided by the total number of such samples.	See (WT22).
WT8		Colour	Raw water maximum		HU	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT9		Colour	Raw water average		HU	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT10		Colour	Treated water maximum		HU	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT11		Colour	Treated water average		HU	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT24		Colour	Number of system performance samples		n	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT25		Colour	Percent complying		%	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT12		Turbidity	Raw water maximum		NTU	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT13		Turbidity	Raw water average		NTU	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT14		Turbidity	Treated water maximum		NTU	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT15		Turbidity	Treated water average		NTU	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT20		Turbidity	Number of system performance samples		n	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
WT21		Turbidity	Percent complying		%	For this treatment works only.	The results of the samples tested by your utility should continue to be included.
Service Levels							
WT35		Malfunctions	Number of days chlorination system failed		days	For this treatment works only.	
WT36		Malfunctions	Number of days of major treatment process failure		days	For this treatment works only.	
WT37	[C9]	Water quality complaints	Number of complaints		n	Include only water quality complaints from customers supplied by this treatment works. Exclude complaints about adequacy and interruptions to supply, water pressure etc.	Include complaints about discolouration, taste, odour, stained washing, illness or cloudy water. Example: complaints about milky water caused by mains flushing.
WT38		Water quality complaints	Frequent complaint 1			Most frequent water quality complaint from customers supplied by this treatment works only.	

B1.3 Sewerage business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
Population							
SB1	C5	Population served	Permanent		n	Population served with sewerage service in June this reporting year.	Exclude population in non-serviced areas.
SB2		Population served	Peak		n	Maximum population served anytime this reporting year.	Permanent population plus temporary influx (tourists, seasonal workers). Exclude population in non-serviced areas.
Infrastructure							
SB3	A4	Treatment works	Number		n	Include all primary, secondary and tertiary treatment works.	
SB4		Treatment works	Capacity		EP		
SB5		Pumping stations	Number		n		
SB6		Pumping stations	Capacity		ML/d		
SB7	[A5]	Sewage mains	Gravity (reticulation) length		km	Length of mains, including trunk and reticulation mains, aqueducts etc. of all diameters.	Exclude pressure (rising) mains. Exclude property or house connections and conduits carrying treated effluent.
SB8	[A5]	Sewage mains	Pressure (rising) length		km	Length of pressure (rising) mains.	
SB9	A5	Sewage mains	Total length		km	Sum of (SB7) + (SB8).	
SB10		Renewals	Mains renewed or replaced in reporting year		km		Include existing mains renewed or replaced in the reporting year. Exclude maintenance work (Sect 5 of NSW Local Government Asset Accounting Manual, 1999). Refer also to page 66 of the NSW Water and Sewerage Strategic Business Planning Guidelines, 2011 (http://www.water.nsw.gov.au/ArticleDocuments/36/utilities_nsw_water_sewerage_strategic_planning_guidelines.pdf.aspx).
SB11		Renewals	Property connections renewed or replaced in reporting year		n	A house or property connection is a short sewer owned and operated by your utility which connects the main sewer and the customer sanitary drain.	
Connections							
SB12		New connections	New residences connected		n	Number of new residences connected to sewerage this reporting year. INCLUDES connections resulting from backlog schemes (indicator SB12a).	Include each individual flat, villa, unit, townhouse etc. whether separately metered or not.
SB12a		New connections	New residences connected - backlog scheme		n	New residences connected to sewerage as a result of connection of a backlog scheme, not residential growth.	This is a component of indicator (SB12).
SB13	[C6]	Assessments	Residential		n	Residential assessments for sewerage services. Include vacant lots.	
SB14	[C7]	Assessments	Non-residential		n	Non-residential assessments for sewerage services. Include vacant lots.	
SB17	[C8]	Assessments	Total assessments		n	Sum of (SB13) + (SB14).	
SB13a	[C6]	Assessments	Residential assessments - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Residential assessments ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.
SB14a	[C7]	Assessments	Non-residential assessments - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Non-residential assessments ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.
SB17a	[C8]	Assessments	Total assessments - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Total assessments ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.
SB18	[C8]	Connected Property-Assessment ratios	Connected properties / total assessments		n	See notes for (SB19).	
SB18a	[C6]	Connected Property-Assessment ratios	Residential assessments / total assessments		n	See notes for (SB19).	
SB19	[C6]	Connected Property-Assessment ratios	Connected residential properties / residential assessments		n	These ratios do not vary significantly from year to year for sewerage systems. NOW has worked with LWUs to establish these ratios and will continue to use the existing ratio shown. If you consider that another ratio is more appropriate, you will need to provide detailed evidence to NOW to support such a change. Evidence that would be required includes the number of residential (single and multi) and non-residential assessments and connected properties from your financial, water and sewerage reports over the last 3 years together with details of vacant lots and new properties connected. Note that ratios are stored as floating decimals but are displayed on this page to two decimal places only.	Connected properties are not the same as assessments. Connected properties rather than assessments are used for consistency with the National Performance Framework. A connected property is one which is connected to the sewerage system but which may or may not have a separate assessment.

B1.3 Sewerage business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
SB13b	C6	Connected Properties	Residential connected properties - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Residential connected properties calculated by multiplying ADOPTED residential assessments (SB13a) with the connected residential properties - residential assessment ratio (SB19).	Refer to Appendix H of Benchmarking Report.
SB14b	C7	Connected Properties	Non-residential connected properties - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Non-residential connected properties calculated by subtracting ADOPTED residential connected properties (SB13b) from ADOPTED total connected properties (SB17b).	Refer to Appendix H of Benchmarking Report.
SB17b	C8	Connected Properties	Total connected properties - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Total connected properties calculated by multiplying ADOPTED total assessments (SB17a) with the connected property - total assessment ratio (SB18).	Refer to Appendix H of Benchmarking Report.
SB20		Unserved in reporting year	Unserved urban properties		n	Number of properties in urban zoned land in towns and villages in your utility's area of operations that are not served by a reticulated public sewerage service.	Exclude premises in land zoned rural residential. Information on the unserved urban properties and population of each village is available in your LWU's sewerage strategic business plan.
SB21		Unserved in reporting year	Unserved urban population		n	Estimated permanent population in unserved urban properties.	
SB21a		Unserved in reporting year	Unserved urban population - ADOPTED BY DPI WATER AFTER DATA VALIDATION		n	Unserved urban population ADOPTED BY DPI WATER after data validation.	Refer to Appendix H of Benchmarking Report.
Service Levels							
SB34	[C11]	Complaints	Sewage chokes		n	Complaints relating to sewage chokes. Exclude odour, billing and sewerage service complaints. Exclude queries.	Exclude complaints relating to property connections. If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.
SB38	[C11]	Complaints	Service		n	Complaints other than chokes, odour or billing. Exclude queries.	Include complaints concerning sewerage system reliability, trade waste services, behaviour of staff and all other sewerage issues. Exclude complaints about chokes, odour or billing. Australian Standard AS ISO 10002-2006 refers. If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.
SB35		Complaints	Frequent service complaint 1			Most frequent service complaints should be entered in these two fields.	
SB36a		Complaints	Customer contacts/inquiries		n	A request by a customer for information about a product or service provided by the sewerage utility (eg. 'an inquiry on their dual flush toilet') that does not indicate customer dissatisfaction. The customer may also call to advise the utility of asset condition (eg. report that a 'red light' is on at sewage pump station No. 200).	
SB37	[C12]	Complaints	Billing		n	Complaints concerning account payment, financial loss or overcharging and billing errors. Exclude queries.	Exclude complaints about government pricing policy, the tariff structure or queries about how the tariff is calculated. If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.
SB39	[C11]	Complaints	Odour		n	Sum of odour complaints for treatment works, pumping stations and pipe network in your sewerage business.	See Sewage Treatment/Service Levels NSW Indicators (ST68) and (ST69). If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.
SB40	[C13]	Complaints	All complaints		n	Sum of complaints: (SB34) + (SB37) + (SB38) + (SB39).	A complaint is a written or verbal expression of dissatisfaction about an action, proposed action or failure to act by the water utility, its employees or contractors. Complaints from separate customers arising from the same cause count as separate complaints. Includes complaints received by the utility in person, by mail, by fax, phone, email or text message. If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.

B1.3 Sewerage business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
SB41	C14	Telephone connect time	Percent of calls answered by an operator within 30 seconds		%	Percentage of calls answered by an operator within 30 seconds. If a percentage is provided for Water indicator (WB103), do not provide a percentage here.	If your utility does not record the 'time to connect to telephone' leave this indicator blank. Exclude calls resolved by automated systems, hang-ups or where the customer has selected an incorrect dialing option. Examples: if a customer elects to speak with an operator via automatic dialing, the connect time is from the time when the customer was connected by the system until it is answered by an operator. The connect time starts when the call gets connected by person, (in which case the connect time would be zero), by an auto attendant (IVR) or by a message informing the caller they have been put in a queue. The connect time finishes when the caller is answered by a person. If the caller hangs up before they speak to a person, the call is not counted. Similarly, if the caller's question is answered by an IVR, meaning they don't need to speak to an operator, the call is not counted.
SB43	[C16]	Unplanned interruptions	Average break or choke repair time		min	Measured from time when utility is aware that sewerage services are no longer available. This is an average based on the total minutes of all interruptions divided by the total number of	Exclude planned interruptions, repair times relating to breaks, chokes and leaks in the property connection and time for site restoration. Include un-notified interruptions caused by third parties.
Health							
SB44		Public health incidents	Category 1 incidents		n	Incidents with no or inconsequential public health effects.	Example: minor failure of sewage treatment processes.
SB45		Public health incidents	Category 2 incidents		n	Incidents with a limited public health impact.	Examples: an algal outbreak in receiving waters attributable to sewerage system; issue of public no-contact notice with receiving waters; sewer overflow affecting public access to land or water; sewage contamination of fishing or recreational water areas; a failure of effluent disinfection system; a failure of major treatment processes at a treatment works of more than 4 days; an incident resulting in unplanned interruptions to service of more than 3 days (if more than 20 days, report as Category 3); a chlorine leak.
SB46		Public health incidents	Category 3 incidents		n	Incidents with a major impact on public health.	Examples: an outbreak of water borne disease due to sewerage system; hospitalisations from water borne disease due to sewerage system; contamination of an oyster farming area; sewer overflow into a water supply catchment; an incident resulting in unplanned interruptions to service of more than 20 days.
SB47		Public health incidents	Category 3 incidents detail				
SB48		Public health investment	Capital investment to improve health performance		$k	Capital expenditure with the principal outcome of improved health performance.	This indicator highlights public health improvement and innovation. Include expenditure undertaken for compliance purposes having IMPROVED performance as an outcome. Include new treatment works. Exclude renewals. (Enter $111,500 as 111.5, $3,999,000 as 3999 etc).
Workforce							
SB49		Resources and training	Total workforce in sewerage business		FTE	A full-time employee has an FTE of 1. Part-time and casual employees will have an FTE of less than one based on hours employed.	Include sewerage business employees engaged in operation, maintenance and management including billing. Include equivalent contractor employees. Exclude employees engaged on design and construction.
SB50		Resources and training	Female workforce		FTE		
SB51		Resources and training	Workforce receiving 2 or more training days		FTE	The training days FTE of sewerage business employees that have undertaken at least 2 days of training in the reporting year. This number will be less than or equal to the workforce FTE.	The training days FTE of a casual or part-time employee is the FTE of that employee multiplied by the number of days that employee trained in the reporting year.
SB51a		Resources and training	No. STW Operators		n	Total number of sewage treatment operators across all of your utility's sewage treatment works.	Exclude any operators in training (to be reported at indicator SB51b).
SB51b		Resources and training	No. STW Operators in Training		n	Total number of sewage treatment works operators across all of your utility's sewage treatment works in training.	Exclude any fully qualified operators reported at indicator SB51a.
SB52		Days lost	Total days lost		FTE	Total FTE days lost for sewerage business.	Include days lost due to workplace injury, sick leave and industrial action. Exclude recreation leave, long-service leave, public holidays, rostered days off or flexi-leave, maternity leave, jury duty, leave for Army Reserve training, etc. Exclude days lost for staff engaged in design or construction.
SB53		Days lost	Confirmed injuries		n	Include sewerage business injuries that resulted in a fatality, permanent disability or time lost from work of one day or more. Include injuries for equivalent contractor employees. Exclude injuries for employees engaged in design or construction.	
SB54		Days lost	Days lost due to injury		FTE	Total FTE days lost due to injury.	Include days lost for injuries for equivalent contractor employees. Exclude days lost for injuries for employees engaged in design or construction.
SB59		Workforce outsourced	Maintenance costs outsourced		%		Outsourcing is subcontracting part of the operation and/or management of a utility's business to a third party, where the subcontractor undertakes work that would normally be done by the utility's workforce. Include legal work, electrical maintenance, operation of a treatment works etc.

B1.3 Sewerage business data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
Charges and Bills							
SB61		Developer charges	Typical developer charge for this reporting year		$	The typical developer charge per equivalent tenement determined to recover part of the cost of sewerage infrastructure for new developments.	
SB62		Developer charges	Typical developer charge for next reporting year		$		
Environment							
SB63a		Overflows	Overflows		n	Include all overflows/surcharges in utility sewers, access chambers and pumping stations in any weather.	Include contained and uncontained spills. Count each access chamber, pumping station etc. overflow as one overflow. Exclude spills or overflow caused by a blockage in the property connection sewer or customers house drains. Exclude overflows contained within emergency storages where there is no pollution of the environment.
SB63b	[E13]	Overflows	Reported overflows		n	Overflows/surcharges required to be reported to the environmental regulator.	Exclude overflows/surcharges not required to be reported to the environmental regulator.
SB64	[A14]	Breaks and chokes	Gravity (reticulation) main chokes and breaks		n	Confirmed partial or total blockages, or failures in a reticulation (gravity) sewer resulting in an interruption to the sewerage service.	Exclude breaks and chokes in rising mains, property connections or chokes within customers house drains. Exclude pipelines carrying treated effluent.
SB65	[A14]	Breaks and chokes	Rising (pressure) main chokes and breaks		n	Confirmed chokes, breaks and leaks in sewer rising (pressure) mains resulting in a significant interruption to the sewerage service.	
SB67	[A15]	Breaks and chokes	Chokes or breaks in property connections		n	Chokes, breaks or leaks in property connections resulting in an interruption to the sewerage service.	Exclude blockages in customer's house drains (internal drains).
SB69		Environmental incidents	Category 1 incidents		n	Incidents with little or no impact on the environment.	Examples: a reportable incident but not a breach of environmental regulations; an incident resulting in under 4 days of odour or noise complaints; a minor spillage of non-toxic chemicals or sludge to waterway or land.
SB70		Environmental incidents	Category 2 incidents		n	Incidents with limited and non-permanent impact on the environment.	Examples: a minor breach of environmental regulations eg. non maintenance of the required environmental flows; an incident resulting in over 4 days of odour or noise complaints; a major soil erosion incident requiring remediation; a significant chemical or sludge spill to waterway or land.
SB71		Environmental incidents	Category 3 incidents		n	Incidents with major and irreversible impact on the environment.	Examples: a dry weather sewer overflow; a major breach of environmental regulations; a major wet weather sewer overflow or an overflow for more than 3 hours; a failure of STW resulting in discharge of large volumes of untreated sewage to the environment; a major toxic chemical or sludge spill into waterways; widespread destruction of native forests/ecosystems; embankment failure of a sludge lagoon.
SB72		Environmental incidents	Category 3 incidents detail				
SB73		Environmental management	Environmental management plan?		Y/N		
SB74		Environmental management	Plan developed in consultation with other bodies including Catchment Management Board		Y/N		
SB75		Environmental management	Environmental consultative process in place		Y/N		
SB76		Environmental management	Capital investment to improve environmental performance		$k	Capital expenditure with the principal outcome of improved environmental performance.	This indicator highlights environmental improvement and innovation. Include expenditure undertaken for compliance purposes having IMPROVED performance as an outcome. Include new treatment works. Exclude renewals. (Enter $111,500 as 111.5, $3,999,000 as 3999 etc).
SB77		Energy	Non-renewable energy		MWh		
SB78		Energy	Renewable energy		MWh	Energy derived from accredited renewable sources used by the sewerage business.	
SB79		Energy	Total energy		MWh	Sum of (SB77) + (SB78).	
SB80a	E10	Greenhouse gas emissions - sewerage service	Operating emissions		t CO2 eq	Greenhouse gas emissions for all operations relating to sewerage service.	The Greenhouse Gas calculator provided to you by DPI Water will simplify this task (copy available in Appendix G of the NSW Water Supply and Sewerage Benchmarking Report).
SB80b	E11	Greenhouse gas emissions - sewerage service	Net administrative emissions		t CO2 eq	Net greenhouse gas emissions for other sewerage service activities (transport, office buildings and sequestration). If your utility cannot split this value between sewerage and water, leave this field blank and place the consolidated value under water business at NSW Indicator (WB148b).	See (SB80a).

B1.4 Sewerage treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
Works Parameters							
ST1		Works parameters	Year built - augmented		year	Year of commissioning or latest major augmentation.	
ST10		Works parameters	Design capacity		EP		
ST2		Works parameters	Type of works			For multiple processes, hold the 'Control' key and select the processes used.	
ST3		Works parameters	Standard of treatment				
ST5		Works parameters	Nitrogen removal		Y/N	Select yes only if at least 90% of nitrogen is removed from effluent.	
ST6		Works parameters	Phosphorus removal		Y/N	Select yes only if this treatment works operates either a chemical dosing facility to precipitate phosphorus or a carefully managed biological nutrient removal (BNR) system.	
ST7q		Works parameters	Total No. STW Operators		n	Total number of sewage treatment works operators at this sewage treatment works.	Include fully qualified operators and any operators in training.
ST25a		Charge for recycled town water from this works	Usage charge for recycled town water		c/kL		
Service Levels							
ST67		Malfunctions at this works	Number of days of major treatment process failure		days	Include days when a significant treatment process was not operating. Exclude periods due to routine maintenance.	Include loss of MLSS and odour production.
ST68	[C11]	Odour complaints relating to this works	Number of odour complaints from this treatment works		n	Exclude complaints that have been investigated and can be shown not to arise from this treatment works.	A complaint is a written or verbal expression of dissatisfaction about an action, proposed action or failure to act by the utility, its employees or contractors. Complaints from separate customers arising from the same cause count as separate complaints. Includes complaints received by the water business in person, by mail, fax, phone, email or text message. If the operator is uncertain whether the customer is DISSATISFIED, the operator should ask 'Do you wish to report a complaint on this matter?'.
ST69	[C11]	Odour complaints relating to this works	Number of odour complaints from pumping stations and the sewerage network in this treatment work's catchment		n	Exclude complaints that have been investigated and can be shown not to arise from the network or pumping stations.	See (ST68).
Sampling Results							
ST8		Compliance summary	Licence expiry date		date		
ST9		Compliance summary	Volume licenced		ML/d		
ST64	E7	Compliance summary	Compliance with environmental regulators		Y/N	Compliance occurs when the licence conditions prescribed for the treatment plant and all attached system components (network, treatment, recycling and disposal) have been met.	Non-compliance is where your utility did not meet licence conditions, or received a financial penalty (>$10,000) or had any successful litigation against it, by the environmental regulator. Include: penalties relating to infringements occurring in a previous reporting year.
ST89		Compliance summary	Pollution Incident Response Management Plan?		Y/N	Is a Pollution Incident Response Management Plan (PIRMP) currently in place for this sewage treatment works?	
ST63		Sampling days	Number of scheduled sampling days		days	The scheduled sampling days are those specified in the treatment work's licence.	
ST49		Biochemical oxygen demand	90th percentile limit		mg/L	The limit shown is reproduced from this plant's EPA licence. 100 percentile limits are shown where 90th percentiles are not specified. Absence of a value indicates that no limit is specified.	
ST50		Biochemical oxygen demand	Percent compliance		%	Where the licence specifies a 90th percentile limit and the number of complying samples divided by the total number of scheduled samples is greater than 90%, compliance is deemed to be	
ST51		Total suspended solids	90th percentile limit		mg/L	The limit shown is reproduced from this plant's EPA licence. 100 percentile limits are shown where 90th percentiles are not specified. Absence of a value indicates that no limit is specified.	
ST52		Total suspended solids	Percent compliance		%	Where the licence specifies a 90th percentile limit and the number of complying samples divided by the total number of scheduled samples is greater than 90%, compliance is deemed to be	
ST53		Nitrogen (total)	90th percentile limit		mg/L	The limit shown is reproduced from this plant's EPA licence. 100 percentile limits are shown where 90th percentiles are not specified. Absence of a value indicates that no limit is specified.	
ST54		Nitrogen (total)	Percent compliance		%	Where the licence specifies a 90th percentile limit and the number of complying samples divided by the total number of scheduled samples is greater than 90%, compliance is deemed to be	
ST55		Ammonia	90th percentile limit		mg/L	The limit shown is reproduced from this plant's EPA licence. 100 percentile limits are shown where 90th percentiles are not specified. Many licences specifiy that where a limit is not specified, no concentration of the pollutant is authorised to be released.	
ST56		Ammonia	Percent compliance		%	Where the licence specifies a 90th percentile limit and the number of complying samples divided by the total number of scheduled samples is greater than 90%, compliance is deemed to be	
ST59		Phosphorus (total)	90th percentile limit		mg/L	The limit shown is reproduced from this plant's EPA licence. 100 percentile limits are shown where 90th percentiles are not specified. Absence of a value indicates that no limit is specified.	

B1.4 Sewerage treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
ST60		Phosphorus (total)	Percent compliance		%	Where the licence specifies a 90th percentile limit and the number of complying samples divided by the total number of scheduled samples is greater than 90%, compliance is deemed to be	
ST57		Oil and grease	90th percentile limit		mg/L	The limit shown is reproduced from this plant's EPA licence. 100 percentile limits are shown where 90th percentiles are not specified. Absence of a value indicates that no limit is specified.	
ST58		Oil and grease	Percent compliance		%	Where the licence specifies a 90th percentile limit and the number of complying samples divided by the total number of scheduled samples is greater than 90%, compliance is deemed to be	
ST61		Faecal coliforms	90th percentile limit		cfu/100 mL	The limit shown is reproduced from this plant's EPA licence. 100 percentile limits are shown where 90th percentiles are not specified. Absence of a value indicates that no limit is specified.	
ST62		Faecal coliforms	Percent compliance		%	Where the licence specifies a 90th percentile limit and the number of complying samples divided by the total number of scheduled samples is greater than 90%, compliance is deemed to be	
ST71		pH	Percent compliance			The limit shown is reproduced from this treatment works' EPA licence. 100 percentile limits are shown where 90th percentiles are not specified. Many licences specify that where a limit is not specified, no concentration of the pollutant is authorised to be released.	
ST72		pH	Percent compliance		%	Where the licence specifies a 90th percentile limit and the number of complying samples divided by the total number of scheduled samples is greater than 90%, compliance is deemed to be 100%.	
ST73		Overall	Percent compliance		%	Overall sampling result covering all pollutants applicable in the treatment works' EPA licence – BOD, SS, Total Nitrogen, Ammonia, Oil & Grease, Total Phosphorus, Faecal Coliforms, pH. Results at the 50th percentile limit should be taken into account in the overall result.	
Water Data							
ST32	[W16]	Volumes collected by this works	Network residential		ML	Estimated network residential sewage.	
ST33	[W16]	Volumes collected by this works	Network non-residential		ML	Estimated network non-residential sewage excluding sewer mining.	
ST31	[W16]	Volumes collected by this works	Network infiltration - inflow		ML	Estimated groundwater infiltration and stormwater inflow.	
ST33a	W18.2	Volumes collected by this works	Sewage received from other utilities		ML	Bulk volume of sewage received from other utilities outside your utility's geographic area of responsibility.	
ST33b	W18.3	Volumes collected by this works	Sewage collected from sewer mining		ML	Volumes collected from sewer mining within your utility's geographic area of responsibility.	
ST12	[W16]	Volumes collected by this works	Tankered septic tank effluent		kL	Enter volume in kilolitres not Megalitres.	
ST13	[W16]	Volumes collected by this works	Tankered septic sludge - pan		kL	Enter volume in kilolitres not Megalitres.	
ST34	W17	Volumes collected by this works	Network trade waste		ML	Estimated non-metered and metered network trade waste.	
ST14	[W16]	Volumes collected by this works	Tankered grease trap waste		kL	Enter volume in kilolitres not Megalitres.	
ST15	W18	Volumes collected by this works	Total sewage collected		ML	Sum of all volumes collected: (ST31) + (ST32) + (ST33) + (ST34) + (ST12) + (ST13) + (ST14).	
ST16		Volumes treated by this works	No treatment		ML		
ST17	E1	Volumes treated by this works	Primary treatment only		ML	Include only volume treated to remove suspended solids (primary standard). Exclude volumes treated to secondary or tertiary standard.	Primary treatment may include screening, clarification and grease removal.
ST18	E2	Volumes treated by this works	Secondary treatment only		ML	Include only volume treated to primary standard with further polishing of effluent to reduce at least 85% of biochemical oxygen demand and suspended solids (secondary standard). Exclude volume treated to primary standard only or tertiary standard.	Secondary treatment may include a polishing step, activated sludge, anaerobic/aerobic processes, biological/sand filtration and lagoon sedimentation.
ST19	E3	Volumes treated by this works	Tertiary treatment only		ML	Include only volume treated to secondary standard with further disinfection of effluent and filtering to remove nutrients and nitrogen using artificial wetland, ponds, chlorination, ozonation or UV treatment (tertiary standard). Exclude volume treated to primary or secondary standard only.	Tertiary treatment may include biological/chemical dosing nutrient removal, reverse osmosis, advanced filtration systems, membrane bioreactors and secondary treatment with wetland nutrient removal.
ST80	[W20]	Volumes recycled and supplied by this works	Residential		ML	Recycled water for potable and non-potable town water supply reticulated to residential customers. Excludes urban stormwater use.	Include metered and estimated unmetered recycled water supplied.
ST81	[W21]	Volumes recycled and supplied by this works	Commercial, Industrial, Municipal		ML	Recycled water supplied to commercial, industrial, municipal properties. Includes golf courses. Excludes urban stormwater use.	
ST82	[W22]	Volumes recycled and supplied by this works	Agricultural		ML	Recycled water supplied for agricultural purposes. Includes irrigation, forestry and livestock. Excludes urban stormwater use.	
ST83	[W23]	Volumes recycled and supplied by this works	Environmental		ML	Recycled water supplied for environmental purposes as prescribed by the environmental regulator. Includes discharge to rivers, sea or natural wetlands, provided there is a beneficial use rather than disposal.	
ST84	[W24]	Volumes recycled and supplied by this works	On-site		ML	Recycled water used on-site external to the treatment process.	

B1.4 Sewerage treatment data

NSW No.	NWI No.	Indicator Group	Reported Indicator	2015/16	Unit	Indicator Definition	Instruction
ST85	[W25]	Volumes recycled and supplied by this works	Other		ML	Recycled water supplied to other users including managed aquifer recharge, firefighting, mains flushing, losses and leakage.	
ST86	[W25.1]	Volumes recycled and supplied by this works	Managed aquifer recharge		ML	Recycled water supplied for managed aquifer recharge, excluding environmental water and urban stormwater use.	
ST87	[W15]	Volumes recycled and supplied by this works	Bulk recycled water exports		ML	Recycled water supplied to other utilities or entities outside your utility's geographic area of responsibility. Excludes urban stormwater.	
ST88	[W26]	Volumes recycled and supplied by this works	Total recycled supplied		ML	Total treated effluent excluding evaporation and urban stormwater use. ST88 = ST80 + ST81 + ST82 + ST83 + ST84 + ST85 or NWI Indicator W26 = W20 + W21 + W22 + W23 + W24 + W25.	
ST40		Volumes disposed by this works	Volume disposed to ocean		ML	Include effluent disposed within estuaries.	
ST41		Volumes disposed by this works	Volume disposed to river - creek		ML	Include effluent disposed to wetlands connected to a river or creek. Exclude disposal within estuaries. Exclude volumes recycled for environmental purposes.	
ST42		Volumes disposed by this works	Volume disposed to land		ML	Include effluent disposed to evaporation basins, dunes and exfiltration beds. Exclude recycled water (ie. reuse farms etc).	
ST70	W18.1	Volume exported by this works	Sewage supplied to other utilities		ML	Bulk volume of sewage supplied to other utilities outside your utility's geographic area of responsibility.	
ST43		Flow data	Average dry weather flow - permanent population		L/s	Summed values of dry weather flows outside peak population periods divided by number of these records.	
ST44		Flow data	Average dry weather flow - peak population		L/s	Summed values of dry weather flows during peak population periods divided by number of these records.	
ST45		Flow data	Peak dry weather flow - permanent population		L/s	Maximum flow rate recorded during dry weather outside peak population periods.	
ST46		Flow data	Peak dry weather flow - peak population		L/s	Maximum flow rate recorded during dry weather during peak population periods.	
ST48		Flow data	Peak 1 hour wet weather flow		L/s	Maximum volume recorded in any 1 hour period following a wet weather event during the reporting year.	
ST47		Flow data	Peak 24 hr wet weather volume		ML	Maximum volume recorded in any 24 hour period following a wet weather event during the reporting year.	
ST26	[E8]	Biosolids produced by this works	Mass extracted		tonnes	Include stabilised organic solids extracted from effluent. Exclude screened inorganic material.	
ST27	E8	Biosolids produced by this works	Percentage of mass reused		%	Include application as a soil conditioner on land used for agriculture or forestry, rehabilitation of mine and industrial sites and general landscaping. Include use in manufacturing other products. Include energy generation. Exclude landfill.	

B2 Australian Drinking Water Guidelines 2011 and NSW Health Drinking Water Monitoring Program – Sampling location and frequency

B2.1 Guidelines

The Australian Drinking Water Guidelines 2011 (NHMRC/NRMMC) supersede the 2004 Guidelines. The 2011 Guidelines continue to emphasise the need to implement a framework for good management of drinking water supplies in order to assure safety at point of use.

NSW local water utilities (LWUs) are required to adopt a 'best practice' approach for the supply of drinking water using the Framework for Management of Drinking Water Quality (*Public Health Act 2010*). LWUs need to prepare, implement and annually review a risk based drinking water management system in accordance with the NSW guidelines for drinking water management systems, NSW Health and NSW Office of Water, 2013. Refer also to section 4.3. The management systems must include verification monitoring of drinking water quality. The measurable characteristics fall into the following categories:

- Microbiological
- Physical
- Chemical
- Radiological.

For each characteristic, the Guidelines identify three parameters, namely location of sampling, frequency of sampling and acceptable performance measures. Compliance requires that all three parameters be satisfied. NSW Health advises each LWU of the recommended minimum number of samples to be tested annually. See the *NSW Health Drinking Water Monitoring Program* booklet for more information.

Table 1 indicates the number of microbiological samples recommended annually for systems supplying populations of varying sizes. See note to Table 1.

B2.2 Sampling location

Samples for verification monitoring should be taken at representative locations throughout the drinking water distribution system. Suggested locations for each characteristic are shown on pages 9-19 (page numbers refer to the 2011 Guidelines). NSW Health recommends that drinking water quality monitoring rotate amongst designated sample sites throughout the distribution system. Sample sites should give good geographical representation of the water supply system and enable the comparison of water quality over time for particular sections of the system. For more information refer to the NSW Health Drinking Water Monitoring Program (http://www.health.nsw.gov.au/environment/water/Pages/drinkwater-nsw.aspx).

B2.3 Sampling frequency

The frequency of sampling is dependent on the type of characteristic. The suggested sampling frequency for various drinking water characteristics are shown on pages 9-20 to 9-21.

The sampling frequency required for microbiological quality is provided in Table 9.4 on page 9-20 and summarised in Table 1 below. The frequency should be increased following repair work, interruptions to supply, at times of flooding or during/after emergency operations. With small water supply systems, periodic sanitary surveys are likely to yield more information than infrequent sampling.

Table 1 - Microbiological sampling frequency

Discrete systems (supplying a single town and surrounds)	
Town population	**Recommended minimum number of samples+**
<100	12 samples per year (1 per month)
<500	26 samples per year (1 per fortnight)
500 - 5,000	52 samples per year (1 per week)
5,000 - 100,000	52 samples per year (1 per week), plus one additional sample per month for each 5,000 above 5,000
>100,000	6 samples per week, plus one additional sample per month for each 10,000 above 100,000
+ Note: The above indicates that for a system supplying a population of under 100, under 500, 5,000, 50,000, 100,000 and 150,000, the recommended minimum number of samples per year are 12, 26, 52, 160, 280 and 380 respectively.	
Complex systems (supplying more than one town and surrounds)	
Note: the sample numbers apply to each town or zone within the system and the total number of samples must be not less than 52	
<1,000	12 samples per year (1 per month)
1,000 - 5,000	26 samples per year (1 per fortnight)
5,000 - 100,000	52 samples per year (1 per week), plus one additional sample per month for each 5,000 above 5,000

The sampling frequency required for physical, chemical and radiological quality is provided in *NSW Health Drinking Water Monitoring Program* and Table 9.5 on page 9-21 and summarised in Tables 2 and 3 below.

Sampling for the key physical characteristics should be carried out as shown in Table 5 where these are significant.

Table 2 - Physical quality sampling frequency+

Characteristic	Sampling frequency
pH, Turbidity, Colour, total dissolved solids (or conductivity)	Weekly at water treatment works or chlorinator. Monthly sample to lab in systems serving a population of 5,000 or more, otherwise biannually.
Hardness	Monthly or more frequent at treatment works (or lab) if treating for hardness. Otherwise as above.
+ All of these are aesthetic (non-health related). However, turbidity >1 may reduce the effectiveness of disinfection.	

NSW Health recommends monthly physical/chemical sampling for systems serving a population of 5,000 or more, otherwise biannually. NSW Health recommends a minimum set of characteristics to be tested (see Table 3). In addition, tests for key characteristics of a particular water supply should be undertaken more frequently as shown in Table 3 where these are significant.

Table 3 - Chemical quality sampling frequency#

Characteristic	Sampling frequency
Fluoride	Daily at treatment works and monthly sample to lab if the water supply is fluoridated
Antimony, arsenic, cadmium, chromium, copper, fluoride, iodine, iron, lead, manganese, mercury, nickel, nitrate, nitrite, sulfate	Monthly in systems serving a population of 5,000 or more, otherwise biannually.
# NSW Health may agree to vary this list where indicated by a risk assessment. NSW Health Forensic and Analytical Science service test for a wider range of characteristics than listed above.	

The need for radiological (Radionuclides) sampling should be assessed annually. New supplies should be assessed quarterly for one year, then every 2 years (groundwater) or 5 years (surface water).

Increase frequency to quarterly if guideline screening levels are exceeded (page 9-21).

Water utilities should assess risks and, if necessary, monitor to satisfy themselves of the safety of their supply with respect to pesticides, disinfection by-products and other organic chemicals. Pesticide and organic toxicants – monthly or quarterly sampling if previously (or potentially) detected; seasonally annually, or event-related (e.g. storm events, spills) for other pesticides/organic toxicants.

In order to satisfy the guidelines it may be necessary to carry out more frequent monitoring for some characteristics. Each water utility should carry out a detailed assessment of its water supply system when planning a monitoring program.

B2.4 Performance

Performance measure for Escherichia coli within the distribution system is summarised in Table 4.

Table 4 - Microbiological performance

Indicator	Guideline value
E. coli	Should not be detected in a minimum 100mL sample of drinking water. If detected, immediate corrective action must be taken[1].
1 Such action is needed to determine whether there is a real problem with drinking water quality in accordance with the NSW Health Protocol: (http://www.health.nsw.gov.au/environment/water/Pages/nswhrp-microbiological.aspx)	

Microbiological compliance is achieved if the required number of samples has been tested and at least 98% of the samples had no E. coli. 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.

Tables 10.4 and 10.5 on pages 10-19 to 10-32 of the guidelines summarise the guideline values for microbial, chemical and physical characteristics, to provide a ready reference when monitoring results are being evaluated. More detailed information on each characteristic can be found in the relevant fact sheet in the guidelines.

B3 Examples of environmental and public health incidents

B3.1 Water supply

Environmental incidents (NSW Indicators WB137 to WB140 of Appendix B1)

Category 1 – Minor incidents with inconsequential effects

- A reportable incident but not a breach of environmental regulations.
- An incident resulting in under four days of odour or noise complaints.
- A minor spillage of non-toxic chemicals or sludge to waterway or land.

Category 2 – Incident with limited environmental effects

- A minor breach of environmental regulations, e.g. non maintenance of the required environmental flows.
- An incident resulting in over four days of odour or noise complaints.
- A major soil erosion incident requiring remediation.
- A significant chemical or sludge spill to waterway or land.

Category 3 – Severe incident with irreversible environmental effects

- A major breach of environmental regulations.
- A dam failure.
- A severe algal outbreak in storages/waterways.
- A major toxic chemical or sludge spill into waterways.
- Widespread destruction of native forests/ecosystems.

Public health incidents (NSW Indicators WB115 to WB118 of Appendix B1)

Category 1 – Minor incidents with inconsequential effects

- A minor failure of water treatment processes.
- An incident resulting in a limited boil water notice.

Category 2 – Incidents with limited health effects

- Non-compliance with health parameters (E. coli) of 2011 NHMRC/NRMMC Australian Drinking Water Guidelines (ADWG) for over seven days.
- A system-wide boil water notice.
- A failure of a disinfection system for over three days.
- A failure of major treatment processes at a treatment works for over four days.
- A chlorine or ammonia gas leak (chlorination/chloramination).
- Non-pathogenic/toxic contamination of the potable water supply due to a cross connection.
- An incident resulting in unplanned interruptions to supply for > 2 days (if > 7 days report as Category 3).

Category 3 – Incidents with major health effects

- An outbreak of water borne disease due to water supply system.
- Hospitalisations from water borne disease due to water supply.
- An incident resulting in unplanned interruptions to supply for over seven days.
- A pathogenic contamination of the potable water supply due to a cross connection.
- A toxic contamination of water supply.

Notes:

- Environmental regulations include any licence conditions.
- An incident with both environmental and public health impacts should be reported in both categories.

B3.2 Sewerage

Environmental incidents (NSW Indicators SB69 to SB72 of Appendix B1)

Category 1 – Minor Incidents with Inconsequential Effects

- A reportable incident but not a breach of environmental regulations
- An incident resulting in under 4 days of odour or noise complaints
- A minor spillage of non-toxic chemicals or sludge to waterway or land

Category 2 – Incident with limited environmental effects

- A minor breach of environmental regulations, e.g.:
    - discharge of partially treated effluent to receiving waters
    - embankment failure of an effluent pond.
- A wet weather sewer overflow for under three hours.
- An incident resulting in over four days of odour or noise complaints.
- A major soil erosion incident requiring remediation.
- A significant chemical or sludge spill to waterways or land.

Category 3 – Severe incident with irreversible environmental effects

- A dry weather sewer overflow
- A major breach of environmental regulations, e.g.:
    - a major wet weather sewer overflow or an overflow for over three hours
    - a failure of STW, resulting in discharge of large volume of untreated sewage to environment
    - a major toxic chemical or sludge spill into waterways
    - widespread destruction of native forests/ecosystems
    - embankment failure of a sludge lagoon.

Public health incidents (NSW Indicators SB44 to SB47 of Appendix B1)

Category 1 – Minor Incidents with Inconsequential Effects

- A minor failure of sewage treatment processes.

Category 2 – Incidents with limited health effects

- An algal outbreak in receiving waters attributable to sewerage system.
- Issue of public no-contact notice with receiving waters.
- Sewer overflow affecting public access to land or water.
- Sewage contamination of fishing or recreational water areas.
- A failure of effluent disinfection system.
- A failure of major treatment processes at a treatment works for over four days.
- An incident resulting in unplanned interruptions to service for over three days (if over 20 days, report as Category 3).
- A chlorine leak.

Category 3 – Incidents with major health effects

- An outbreak of water borne disease due to sewerage system.
- Hospitalisations from water borne disease due to sewerage system.
- Contamination of an oyster farming area due to sewerage system.
- A sewer overflow into a water supply catchment.

An incident resulting in unplanned interruptions to service for over 20 days.

B4 Special schedules (financial statements)

B4.1 Special schedule 3

NSW Council

Special Schedule 3 - Water Supply Income Statement (Gross including internal transactions) for the year ended 30 June 2016 ($'000)

	A Expenses and Income	2016	2015
	Expenses		
1	Management expenses		
	a. Administration		
	b. Engineering and Supervision		
2	Operation and Maintenance		
	- Dams and Weirs		
	a. Operation expenses		
	b. Maintenance expenses		
	- Mains		
	c. Operation expenses		
	d. Maintenance expenses		
	- Reservoirs		
	e. Operation expenses		
	f. Maintenance expenses		
	- Pumping Stations		
	g. Operation expenses (excluding energy costs)		
	h. Energy costs		
	i. Maintenance expenses		
	- Treatment		
	j. Operation expenses (excluding chemical costs)		
	k. Chemical costs		
	l. Maintenance expenses		
	- Other		
	m. Operation expenses		
	n. Maintenance expenses		
	o. Purchase of water		
3.	Depreciation		
	a. System assets		
	b. Plant and equipment		
4.	Miscellaneous expenses		
	a. Interest expenses		
	b. Other expenses		
	c. Aboriginal Communities Water & Sewerage Program		
5.	**Total expenses**		
	Income		
6.	Residential charges		
	a. Access (including rates)		
	b. Usage charges		
7.	Non-residential charges		
	a. Access (including rates)		
	b. Usage charges		
8.	Extra charges		
9.	Interest income		
10.	Other income		
10a.	Aboriginal Communities Water and Sewerage Program		
11.	Grants		
	a. Grants for acquisition of assets		
	b. Grants for pensioner rebates		
	c. Other grants		

NSW Council

Special Schedule 3 (continued) - Water Supply Income Statement (Gross including internal transactions) for the year ended 30 June 2016 ($'000)

		2016	2015
A	**Expenses and Income (continued)**		
12.	Contributions		
	a. Developer charges		
	b. Developer provided assets		
	c. Other contributions		
13.	**Total income**		
14.	Gain or loss on disposal of assets		
15.	Operating result		
15a.	**Operating result** (less grants for acquisition of assets)		
B	**Capital transactions**		
	Non-operating expenditures		
16.	Acquisition of Fixed Assets		
	a. New assets for Improved Standards		
	b. New assets for Growth		
	c. Renewals		
	d. Plant and equipment		
17.	Repayment of debt		
18.	**Totals**		
	Non-operating funds employed		
19.	Proceeds from disposal of assets		
20.	Borrowing utilised		
21.	**Totals**		
C	**Rates and charges**		
22.	Number of assessments		
	a. Residential (occupied)		
	b. Residential (unoccupied ie vacant lot)		
	c. Non-residential (occupied)		
	d. Non-residential (unoccupied ie vacant lot)		
23.	Number of ETs for which developer charges were received	ET	
24.	Total amount of pensioner rebates	$	

B4.2 Special schedule 4

NSW Council

Special Schedule 4 - Water Supply – Statement of Financial Position (Gross including internal transactions) as at 30 June 2016 $'000

		Current	Non current	Total
	ASSETS			
25.	Cash and investments			
	a. Developer charges			
	b. Special purpose grants			
	c. Accrued leave			
	d. Unexpended loans			
	e. Other			
26.	Receivables			
	a. Specific purpose grants			
	b. Rates and charges			
	c. User charges			
	d. Other			
27.	Inventories			
28.	Property, plant and equipment			
	a. System assets			
	b. Plant and equipment			
29.	Other assets			
30.	**Total assets**			
	LIABILITIES			
31.	Creditors			
32.	Borrowings			
33.	Provisions			
	a. Tax equivalents			
	b. Dividend			
	c. Other			
34.	**Total liabilities**			
35.	**Net assets committed**			
	EQUITY			
36.	Accumulated surplus			
37.	Asset revaluation reserve			
38.	**Total equity**			
	Note to system assets:			
39.	Current replacement cost of system assets			
40.	Accumulated current cost depreciation of system assets			
41.	Written down current cost of system assets			

B4.3 Special schedule 5

NSW Council

Special Schedule 5 - Sewerage Income Statement (Gross including internal transactions) as at 30 June 2016 ($'000)

		2016	2015
A	**Expenses and Income**		
	Expenses		
1.	Management expenses		
	a. Administration		
	b. Engineering and Supervision		
2.	Operations and Maintenance Expenses		
	- Mains		
	a. Operation expenses		
	b. Maintenance expenses		
	- Pumping Stations		
	c. Operation expenses (excluding energy costs)		
	d. Energy costs		
	e. Maintenance expenses		
	- Treatment		
	f. Operation expenses (excluding chemical, energy, effluent and biosolids		
	g. Chemical costs		
	h. Energy costs		
	i. Effluent management		
	j. Biosolids management		
	k. Maintenance expenses		
	- Other		
	l. Operation expenses		
	m. Maintenance expenses		
3.	Depreciation		
	a. System assets		
	b. Plant and equipment		
4.	Miscellaneous		
	a. Interest expenses		
	b. Other expenses		
	c. Aboriginal Communities Water and Sewerage Program		
5.	**Total expenses**		
	Income		
6.	Residential charges (including rates)		
7.	Non-residential charges		
	a. Access (including rates)		
	b. Usage charges		
8.	Trade Waste Charges		
	a. Annual fees		
	b. Usage fees		
	c. Excess mass charges		
	d. Re-inspection fees		
9.	Extra charges		
10.	Interest income		
11.	Other income		
11a.	Aboriginal Communities Water and Sewerage Program		
12.	Grants		
	a. Grants for acquisition of assets		
	b. Grants for pensioner rebates		
	c. Other grants		

NSW Council

Special Schedule 5 (continued) - Sewerage Income Statement (Gross including internal transactions) as at 30 June 2016 $'000

			2016	2015
A	**Expenses and Income (continued)**			
13.	Contributions			
	a. Developer charges			
	b. Developer provided assets			
	c. Other contributions			
14.	**Total income**			
15.	Gain or loss on disposal of assets			
16.	Operating result			
16a.	**Operating result** (less grants for acquisition of assets)			
B	**Capital transactions**			
	Non-operating expenditures			
17.	Acquisition of Fixed Assets			
	a. New assets for Improved Standards			
	b. New assets for Growth			
	c. Renewals			
	d. Plant and equipment			
18.	Repayment of debt			
19.	**Totals**			
	Non-operating funds employed			
20.	Proceeds from disposal of assets			
21.	Borrowing utilised			
22.	**Totals**			
C	**Rates and charges**			
23.	Number of assessments			
	a. Residential (occupied)			
	b. Residential (unoccupied ie vacant lot)			
	c. Non-residential (occupied)			
	d. Non-residential (unoccupied ie vacant lot)			
24.	Number of ETs for which developer charges were received		ET	
25.	Total amount of pensioner rebates	$		

B4.4 Special schedule 6

NSW Council

Special Schedule 6 - Sewerage service – Statement of Financial Position (Gross including internal transactions) as at 30 June 2016 $'000

		Current	Non current	Total
	Assets			
26.	Cash and investments			
	a. Developer charges			
	b. Special purpose grants			
	c. Accrued leave			
	d. Unexpended loans			
	e. Other			
27.	Receivables			
	a. Specific purpose grants			
	b. Rates and charges			
	c. User charges			
	d. Other			
28.	Inventories			
29.	Property, plant and equipment			
	a. System assets			
	b. Plant and equipment			
30.	Other assets			
31.	**Total assets**			
	Liabilities			
32.	Creditors			
33.	Borrowings			
34.	Provisions			
	a. Tax equivalents			
	b. Dividend			
	c. Other			
35.	**Total liabilities**			
36.	**Net assets committed**			
	Equity			
37.	Accumulated surplus			
38.	Asset revaluation reserve			
39.	**Total equity**			
	Note to system assets:			
40.	Current replacement cost of system assets			
41.	Accumulated current cost depreciation of system assets			
42.	Written down current cost of system assets			

B4.5 Notes to special schedules 3 and 5

Notes to Special Schedules 3 and 5

Administration[(1)] (item 1a of Special Schedules 3 and 5) comprises the following:

- Administration staff:
  - Salaries and allowance
  - Travelling expenses
  - Accrual of leave entitlements
  - Employment overheads.
- Meter reading.
- Bad and doubtful debts.
- Other administrative/corporate support services.

Engineering and supervision[(1)] (item 1b of Special Schedules 3 and 5) comprises the following:

- Engineering staff:
  - Salaries and allowance
  - Travelling expenses
  - Accrual of leave entitlements
  - Employment overheads.
- Other technical and supervision staff:
  - Salaries and allowance
  - Travelling expenses
  - Accrual of leave entitlements
  - Employment overheads.

Operation expenses (item 2 of Special Schedules 3 and 5) comprise the day to day operational expenses excluding maintenance expenses.

Maintenance expenses (item 2 of Special Schedules 3 and 5) comprise the day to day repair and maintenance expenses. (Refer to Section 5 of the Local Government Asset Accounting Manual regarding capitalisation principles and the distinction between capital and maintenance expenditure).

Other expenses (item 4b of Special Schedules 3 and 5) include all expenses not recorded elsewhere, including impairment losses (used when the carrying amount of an asset exceeds its recoverable amount) and revaluation decrements (used when infrastructure assets have decreased in value and there is no related revaluation reserve).

Aboriginal Communities Water and Sewerage Program (item 4c of Special Schedules 3 and 5) is to be used when operation and maintenance work has been undertaken on behalf of the Aboriginal Communities Water and Sewerage Program. Similarly, income for item 11a of Special Schedule 3 and item 12a of Special Schedule 5 are for services provided to the Aboriginal Communities Water and Sewerage Program and is not part of Council's water supply and sewerage revenue.

Residential charges[(2)] (items 6a, 6b and item 6 of Special Schedules 3 and 5 respectively) include all income from residential charges. Item 6 of Schedule 3 should be separated into 6a Access Charges (including rates if applicable) and 6b User Charges. Exclude non-residential charges.

Non-residential charges[(2)] (items 7a, 7b of Special Schedules 3 and 5) include all income from non-residential charges separated into 7a Access Charges (including rates if applicable) and 7b User Charges. Exclude residential charges.

Trade waste charges (item 8 of Special Schedule 5) include all income from trade waste charges separated into 8a Annual Fees, 8b Usage Charges, 8c Excess Mass Charges and 8d Re-inspection Fees.

Other income (items 10 and 11 of Special Schedules 3 and 5 respectively) include all income not recorded elsewhere.

Other contributions (items 12c and 13c of Special Schedules 3 and 5 respectively) include capital contributions for water supply or sewerage services received by Council under Section 565 of the Local Government Act.

Notes:

(1) Administration and engineering costs for the development of capital works projects should be reported as part of the capital cost of the project and not as part of the recurrent expenditure (ie. in item 16 for water supply and item 17 for sewerage, and **not** in items 1a and 1b).

(2) To enable accurate reporting of **residential revenue from usage charges**, it is essential for councils to accurately separate their residential (item 6) and non-residential (item 7) charges.

B4.6 Special schedule 7

NSW Council
Special Schedule 7 Report on Infrastructure Assets as at 30 June 2016

Asset class	Asset category	Estimated cost to bring assets to satisfactory standard	Estimated cost to bring to the agreed level of service set by council	2015/16 Required maintenance^	2015/16 Actual maintenance	Carrying value	Gross replacement cost (GRC)	Assets in condition as % of Gross Replacement Cost				
		$'000	$'000	$'000	$'000	$'000	$'000	1	2	3	4	5
Buildings												
Other structures												
Roads	Sealed roads											
	Unsealed roads											
	Bridges											
	Footpaths											
	Other road assets (incl. bulk earth works)											
	Sub-total											
Water supply network												
Sewerage network												
Stormwater drainage												
Open space/ recreational assets	Swimming pools											
	Other open space/ recreational assets											
	Sub-total											
Other infrastructure assets												
Total classes	**Total – all assets**											

	Condition	IP&R description
1	Excellent	No work required (normal maintenance)
2	Good	Only minor maintenance work required
3	Average	Maintenance work required
4	Poor	Renewal required
5	Very Poor	Urgent renewal/upgrading required

* Must reconcile with Note 9.
^ Required maintenance is the amount identified in council's asset management plans.

NSW Council

Special Schedule 7 Report on Infrastructure Assets as at 30 June 2016

Infrastructure asset performance indicators* – consolidated

$'000	**Amounts**	**Current year indicators**	2015	2014
Building and infrastructure renewals ratio				
Asset renewals	$.			
Depreciation, amortisation and impairment	$			
Infrastructure backlog				
Estimated cost to bring to satisfactory standard	$.			
Carrying value of infrastructure assets	$			
Asset maintenance ratio^				
Actual asset maintenance	$.			
Required asset maintenance	$			
Cost to bring assets to agreed service level (not mandatory for 2015-16)				
Estimated cost to bring to an agreed level of service set by council	$.			
Gross replacement cost	$			

Infrastructure asset performance indicators – general, water & sewer Funds

Current year - $'000	**General**	**Water**	**Sewer**
Building and infrastructure renewals ratio			
Asset renewals			
Depreciation, amortisation and impairment			
Infrastructure backlog			
Estimated cost to bring to satisfactory standard			
Carrying value of infrastructure assets			
Asset maintenance ratio^			
Actual asset maintenance			
Required asset maintenance			
Cost to bring assets to agreed service level (not mandatory for 2015-16)			
Estimated cost to bring to an agreed level of service set by council			
Gross replacement cost			

* All indicators are calculated using the asset classes identified in the above table
^ Clarification of calculation and definition below to be undertaken for the 2016-17 year

B4.7 Commentary – report on infrastructure assets

Commentary – Report on Infrastructure Assets

The Report on Infrastructure Assets provides additional information on a council's infrastructure assets to that contained in Note 9 Infrastructure, Property, Plant and Equipment. The nature of the information in the Report on Infrastructure Assets is related to maintenance, renewal, condition and costs. This information should be consistent and derived from council's asset management plans.

The format of Special Schedule 7 is mandatory. The detailed commentary has been provided to assist councils in completing the Schedule and to ensure a consistent approach across the sector.

Asset Classes

'Other structures' is designed for such infrastructure assets as: statues, fences, monuments, clock towers and so on. 'Open space/recreational assets' may include assets such as swimming pools (but not including buildings, plant and equipment, car parks etc. that are associated with the swimming pool complex), playground equipment, BBQs and outdoor fitness facilities. 'Other infrastructure' may include jetties, boat ramps, sea/rock/retaining walls etc.

Asset Renewal

The cost of renewal shall include renewal and major rehabilitation works. Renewal shall be defined as the works required to replace existing assets or facilities with assets or facilities of equivalent capacity or performance capability. Where renewal is undertaken, provision may be made to provide the modern engineering equivalent replacement asset (MEERA) and the estimate of current replacement cost calculated accordingly.

Renewal under the MEERA may address functional improvements and network deficiencies as part of the work. For example, were an existing toilet block is to be replaced, the new toilet block may incorporate an accessible toilet that did not exist previously as required under the Disability Inclusion Act 2014 (NSW).

Council should include that proportion of costs attributable to renewing an upgraded asset. For example, were a road upgrade undertaken to provide additional lanes to address capacity, the road pavement within the existing traffic lanes are renewed as part of the works. The component of costs attributable to the renewal of the existing lanes should be included in the actual expenditure to determine the asset renewal ratio.

Where major rehabilitation works are undertaken to restore an asset to an accepted condition state, such works may also be included in the renewal expenditure, provided these works extend the life of the asset beyond the previously predicted useful life. Otherwise, these costs should be incorporated within the asset maintenance costs and ratio calculations.

Examples of renewals and major rehabilitation works are provided in Appendix B.

Renewal is defined by the IIMM as "works to upgrade, refurbish or replace existing facilities with facilities of equivalent capacity or performance capability".

Major rehabilitation is expenditure on an existing asset, or on replacing an existing asset, which returns the service capability of the asset up to that which it had originally and extends its useful life. It is periodically required expenditure, and relatively large (material) in value compared with the value of the components or subcomponents of the asset being renewed. As it reinstates existing service capacity it generally has no impact on revenue, but may reduce future operating and maintenance expenditure if completed at the optimum time.

Enhancement means to "heighten, intensify or improve the facilities".

Estimated cost to bring to a satisfactory standard (BTS):

'Satisfactory' is defined as "affording satisfaction; fulfilling all demands or requirements" (The Australian Macquarie Dictionary). The estimated cost to bring assets to a satisfactory standard is the amount of money that is required to be spent on an asset that is currently not at the condition determined to be satisfactory by the council and community. This should not include any planned enhancements. However, it is noted that in practical terms, the asset will be renewed to condition 1 at the time of work.

Unless council has undertaken consultation with their community and has agreed to a condition level for council's assets, the BTS should be measured against the condition 2 rating of 'Good' as stated in the Integrated Planning and Reporting Manual for local government in NSW.

Carrying value: is the amount at which an asset is recognised after deducting any accumulated depreciation and accumulated impairment losses (AASB116).

Useful life is determined in accordance with AASB116.

Asset condition is the process of continuous or periodic inspection, assessment, measurement and interpretation of the data to indicate the condition of a specific asset so as to determine the need for some preventative or remedial action.

Councils are strongly encouraged to use the asset condition rankings as set out in the Asset Condition Assessment table in the Integrated Planning and Reporting Manual for local government in NSW. Asset conditions are assessed using a scale of one to five. Assets in condition 'one' are considered to be 'excellent' with no work required beyond normal maintenance, while assets in condition 'five' are considered to be 'very poor', with urgent renewal or upgrading required. Asset conditions should be based on up-to-date asset condition assessments.

This assessment should apply to each class of assets or asset components identified by council.

Condition rating	Condition	IP & R description	IPWEA description
1	Excellent	No work required (normal maintenance)	New or as new condition. Only planned cyclic inspection and maintenance required.
2	Good	Only minor maintenance work required	Sound or good condition with minor defects. Minor routine maintenance along with planned cyclic inspection and maintenance.
3	Average	Maintenance work required	Fair condition with significant defects requiring regular maintenance on top of planned cyclic inspections and maintenance.
4	Poor	Renewal required	Poor condition with asset requiring significant renewal/rehabilitation, or higher levels of inspection and substantial maintenance to keep the asset serviceable.
5	Very Poor	Urgent renewal/upgrading required	Very poor condition. Asset physically unsound and/or beyond rehabilitation. Renewal required.

Required Maintenance

Council shall include those costs identified in the AMPs (for the reporting period) of routine activities that should be undertaken to sustain the asset in a functional state, ensuring the assets reach the predicted useful life, excluding rehabilitation or renewal. This shall include:

i. routine inspection and maintenance activities and minor rehabilitation required to achieve the predicted useful life of the asset or asset component
ii. operating expenses required to keep the asset, or asset components, in a functional state for community use.

These costs should include resources such as manpower, energy, chemicals and materials. Examples of maintenance activities and costs to be included in the ratio are provided in Appendix A.

Major rehabilitation or renewal activities should be excluded (see below). These costs should be included in the Asset Renewal Ratio. The cost of staffing a facility for the business purpose should be excluded (e.g. staffing of a tourist information centre for the business of providing tourist information services should be excluded).

Actual Maintenance

Councils shall include the actual expenditure incurred (for the reporting period) of routine activities undertaken to sustain the asset in a functional state and to ensure the asset reaches the predicted useful life, excluding rehabilitation or renewal. This shall include:

i. routine inspection and maintenance activities and minor rehabilitation required to achieve the predicted useful life of the asset or asset component
ii. operating expenses required to keep the asset, or asset component, in a functional state for community use.

These costs should include resources such as manpower, energy, chemicals and materials. Examples of maintenance activities and costs to be included under this column are provided in Appendix A.

Major rehabilitation or renewal activities should be excluded (see below). These costs should be included in the Asset Renewal Ratio. The cost of staffing a facility for the business purpose should also be excluded (e.g. staffing of a tourist information centre for the business of providing tourist information services should be excluded).

Reason for inclusion of maintenance and operation expenses

The inclusion of maintenance and operation together provides the total cost to keep the asset in a functional state in service to the community, and to ensure the asset reaches the predicted useful life.

Many 'operational' tasks are considered by practitioners to be 'maintenance'. For instance, mowing an oval – if this were not done, as well as being unusable, the field would develop a wide range of grasses and weeds requiring other works to bring it back to a reasonable condition. It makes no sense to exclude the mowing costs. Another example often talked about is activities such as roadside mowing (another is street sweeping). Without this, the road becomes unsafe, woody species invade the area and begin to impact the road surfacing, pavement, pipes and other components. Clearly such activities are part of 'maintaining' the road and keeping it in a functional state and ensuring the asset reaches its useful life.

The key element though is the inclusion of such items significantly reduces the wide ranging inconsistencies seen previously in completing SS7, bringing improved repeatability and comparability.

The inclusion of 'operational' costs such as power, water and other consumables, also allows review of the potential areas of significant savings in running costs that might be re-directed to 'maintenance'.

Also, this approach provides a far better reflection of the actual costs of looking after the asset and is thus far more transparent to the community.

Cost to bring to the accepted level of service set by council

The cost to bring to level of service is an estimate of the cost to renew or rehabilitate existing assets that have reached the condition based intervention level adopted by council. This figure is a snapshot at a point in time, being the end of the financial year. To provide flexibility to adequately manage external changes in condition (such as impacts of varying climatic conditions) and allow good project planning, it is anticipated that councils will have works outstanding to bring to level of service as a normal part of managing infrastructure assets on behalf of the community.

The cost to bring to accepted level of service provides a basis for councils to reset the 10 year long term financial plan (LTFP). The LTFP and council's asset management plans and strategies lay out how the council intends to address the cost to bring asset condition to level of service using methods including, but not limited to:

i. fully funding the annual infrastructure cycle for short lived assets to progressively lower the cost to bring to level of service with time
ii. budgeting for capital works to renew or rehabilitate long lived assets, typically prioritised taking account of risk
iii. prudent use of loan funding
iv. partnering with Government through grants to fund infrastructure replacement/upgrades
v. adjusting the level of service in consultation with the community
vi. strategic review of assets to optimise the asset portfolio under councils control, including clustering and/or removal of some assets
vii. use of new technologies, e.g. sewer relining
viii. implementation of risk management strategies (e.g. higher inspection regimes)
ix. improved asset management, e.g. improved data accuracy, condition assessment, etc.

In future long term financial planning, the requirement to fund maintenance, operation and renewal of existing assets will need to be considered along with other demands to upgrade or provide new infrastructure to address functionality and capacity issues. These matters are beyond the scope of Special Schedule 7.

The cost to bring asset condition to level of service shall be calculated based on the cost to renew or rehabilitate those existing assets, or asset components, that have reached the intervention level set by council, based on condition.

The estimated cost will be based on calculating the estimated cost to undertake the work as it would be done. That is, if the proposed method of work involves a full renewal, then this should be included in the estimated cost. Where full renewal is undertaken, provision may be made to provide the modern engineering equivalent replacement asset and the estimate of cost calculated accordingly.

Each council will set their own intervention levels based on community needs, available funds, council's risk appetite, and the whole of life costs of owning and/or managing the infrastructure assets under their control.

Councils may establish varying intervention levels for different infrastructure, or within infrastructure classes, based on an adopted hierarchy of assets. For instance, for a highly utilised public building or road, council may choose to intervene earlier to maintain and/or renew an asset to provide a higher level of service. For a low use asset, council may choose to adopt a lower level of service.

In making decisions regarding intervention levels, councils should give consideration to matters including, but not limited to:

i. the impacts on the whole of life costs of sustaining the asset, or asset component. In some cases it may be cheaper in the long run to intervene more frequently than to allow an asset to fall into a condition requiring major works
ii. the risk to the community, safety, the environment, financial sustainability, and council's reputation
iii. the affordability of managing the overall suite of assets under council's control.

For example, regular resealing/resurfacing of a road protects the underlying road pavement from moisture intrusion, and also provides a safer driving surface for the community. Council may, however, provide a lower frequency of resealing/resurfacing to a quiet local street compared with a busy high speed distributor road to effectively manage risk of pavement failure and provide for a safer road network.

This approach is one example of focussing resources on effectively managing the risk of asset failure, lowering the overall whole of life cost, and reducing the risk to the community.

Guidance on managing levels of service and assets in different classes can be found at the Institute of Public Works Engineering Australasia website (http://ipwea.org) and the NSW Roads & Transport Directorate website (http://ipwea.org/roadstransportdirectorate).

Gross Replacement Cost

The cost the entity would incur to acquire the asset on the reporting date. The cost is measured with reference to the lowest cost at which the gross future economic benefits could be obtained in the normal course of business, or the minimum it would cost to replace/construct the existing asset with a technologically modern equivalent new asset (not a second hand one) with the same economic benefits (gross service potential) as the existing asset had when it was new, allowing for any differences in the quantity and quality of output and in operating costs.

Infrastructure asset performance indicators.

The Office of Local Government requires a minimum number of prescribed indicators in relation to infrastructure asset management to be presented as follows and includes all asset classes identified in Special Schedule 7 as at 30 June 2016 table above.

1. Building and infrastructure renewal ratio

Purpose: To assess the rate at which these assets are being renewed against the rate at which they are depreciating. The benchmark is greater than 100%.

Asset renewals
Depreciation, amortisation and impairment

2. Infrastructure backlog ratio

Purpose: This ratio shows what proportion the infrastructure backlog is against the total value of a council's infrastructure. The benchmark is less than 2%.

Estimated cost to bring assets to a satisfactory condition
Carrying value of infrastructure, building, other structures and depreciable land improvement assets

3. Asset maintenance ratio (^Clarification of calculation and definition to be undertaken from 2016–17, see definition above and Appendix A)

Purpose: This ratio compares actual versus required annual asset maintenance. A ratio of above 100% indicates that the council is investing enough funds that year to halt the infrastructure backlog from growing. The benchmark is greater than100%.

Actual asset maintenance
Required asset maintenance

4. Cost to bring assets to agreed service level (not mandatory for 2015–16)

Purpose: The ratio indicates proportion of the gross replacement cost of Council assets that have reached the intervention level set by Council based on the condition of the asset. This ratio is simply the sum of the outstanding renewal works, valued as the work will be undertaken, compared to the total replacement cost of Council's assets.

This ratio provides a meaningful snapshot of the proportion of outstanding renewal works compared to the total suite of assets that Council has under its care and stewardship. Council will need to make future budgeting decisions in relation to these outstanding works with those decisions likely to be prioritised in Council's forward plans based on social, economic and environment factors, including risk to the community, Council and/or the asset (or interdependent assets). Council should give consideration to social equity of service delivery in prioritising renewal works.

The use of the gross replacement cost as the denominator in this ratio provides a more stable measure over time and is easier for Councils to calculate with greater consistency year to year.

This ratio provides greater meaning to both infrastructure and finance teams within Councils as it

reflects the actual value of identified renewal works needing to be delivered in the future, calculated at a point in time, being the end of each financial year. The ratio allows the community to monitor short and long term trends in relation to Council's management of community infrastructure in a transparent manner.

This ratio has been introduced following industry feedback

Estimated cost to bring assets to an agreed level of service set by council
Gross replacement cost

Infrastructure asset performance indicators by fund

General Fund refers to all council activities except water and sewer. Where councils do not have water and sewer funds, this is not required.

Auditing infrastructure asset information

The Local Government Infrastructure Audit undertaken by the Office of Local Government recommended that:

- "clearly defined and specific asset management measurement parameters to be developed with the local government sector"

and for

- "aspects of asset management to be subjected to an audit. Audit parameters to be developed to ensure a level of assurance that asset management information is reliable"

A commitment was made during the release of the Local Government Code of Accounting Practice and Financial Reporting Code Update No. 22 that the infrastructure asset information of councils would be audited in 2015.

A three stage approach has been developed to meet the requirement of auditing infrastructure asset information. The approach has been developed taking into account the requirements of councils in the Fit for the Future program, the need for a review of Special Schedule 7 to occur, the importance of infrastructure assets in the delivery of services, and the need to ensure that the auditing process is appropriate.

Stage one

Local government auditors were required to check the systems and processes councils have in place for capturing, recording and reporting councils' asset information via the Asset Management Preparedness Review. The purpose of this was to test how prepared councils are for an audit.

Councils should use this review to implement any practices, processes and policies that were identified, prior to the audit implementation.

Stage two

This stage involves reviewing the Report on Infrastructure Assets (SS7) as well as the information contained within the Integrated Planning and Reporting Manual and Guidelines.

It has been recognised by the industry and the Office that more information needs to be available to councils related to SS7, together with a more consistent approach to calculating the cost to bring assets to a satisfactory standard. An updated SS7 is contained in this Code.

A review of the IP&R asset management information will also take place to ensure there is consistency between the two.

Stage three

SS7 will not be audited in the 2015/16 financial year. The OLG is working with the NSW Audit Office and the Local Government Auditor's Association of NSW to develop an audit framework. The auditing of SS7 will be the subject of further consultation.

Appendix A - Examples of maintenance and operational activities

This Appendix outlines those items to be included under the heading of 'maintenance' within Special Schedule 7.

For the purpose of Special Schedule 7, council shall include the budgeted and actual costs of routine activities undertaken and costs incurred to sustain the asset in a functional state. This shall include:

i. routine maintenance activities and minor rehabilitation required to achieve the predicted useful life of the asset or asset component
ii. operating expenses required to keep the asset, or asset component, in a functional state for community use.

Maintenance
All routine activities necessary for retaining an asset as near as practicable to its original condition, but excluding rehabilitation or renewal. Maintenance does not increase the service potential of the asset or keep it in its original condition, rather it slows down deterioration and delays the necessity of rehabilitation or renewal. Maintenance is a routine activity that ensures the asset reaches its useful life.

Operation
The active process of utilising an asset which will consume resources such as manpower, energy, chemicals and materials. This includes asset-related overheads, but excludes depreciation and corporate/general overhead.

Major rehabilitation or renewal activities should be excluded. The cost of staffing a facility for its business purpose should also be excluded. For example, staffing of a tourist information centre for the business of providing tourist information services should be excluded.

Following are example maintenance and operational costs and activities that are applicable to all asset classes: cleaning, repair of surfaces (where the useful life remains unchanged), asset inspections, associated stores, wages and salaries of staff undertaking operation and maintenance, associated staff training, legal costs, printing and stationary, insurance costs, litter and dumped rubbish removal, waste costs.

The following are example maintenance and operational costs and activities specific to particular asset classes:

Table A1 - Examples of maintenance and operational activities

Asset class	Asset category	Example costs and activities
Buildings Other structures		Painting, air conditioning, changing light fixtures, furniture repair, pest control, drain clearing, water and energy charges, elevator servicing, water and sewer charges, signage, security costs, mowing, waterproofing, fire protection servicing, parking, goods delivery, phone servicing, IT servicing.
Roads	Sealed roads Unsealed roads Bridges Other road assets including paths and carparks	Pothole repair, crack sealing, heavy patching (where the useful life remains unchanged), street lighting energy and operating costs, pavement markings, guide posts, vegetation control, mowing, roadside slashing, table drain clearing, grading unsealed surfaces, enrichment seals, traffic control, signage (individual placement), kerb and gutter repair, footway and cycleway maintenance, street furniture repair, clearing subsoil drains, tree inspection and maintenance, grout injection for rigid pavements, paver sealing, utility works inspections, utility works and associated betterment (where useful life unchanged).
Water supply networks		Routine activities such as water treatment plant operations, pump maintenance, water main and water service repairs, valve exercising, hydrant inspections, reservoir inspections, power consumption, chemical use, water meter reading, water sampling and testing, vegetation control/mowing, licensing, payment for bulk water supply.
Sewerage network		Routine activities such as sewage treatment plant operations, pump maintenance, sewer main repairs, clearing sewer chokes, pump station inspections/cleaning, CCTV sewer inspections, power consumption, chemical use, licensing, effluent re-use operations.
Stormwater drainage		CCTV, pipe blockage cleaning and associated disposal costs, pipe repair, tree root removal, relining (which does not extend useful life), repair pits and lids, clear/repair GPTs, rain garden soil cleaning, rain garden plants, flood control device maintenance, traffic control, management of new connections.
Open space/recreational	Swimming pools	Water cleaning costs, chemicals, membrane and tile repair, repairing pool devices, repairing gym equipment, repairing shade

assets		structures, kiosk operations, advertising signs, and all building asset class example costs and activities.
	Other open space/recreational assets	Mowing, signage, pest control, play/sports equipment repair, path repair, lighting energy and operating costs, tree maintenance, garden plants, gardening, linemarking, fence painting and repair, events management, furniture repairs, water feature servicing, footbridges repair. For associated kiosks, grandstands and amenities, refer to the 'Buildings' asset class; for associated drains, refer to the 'Stormwater drainage' asset class; for associated carparks, refer to the 'Roads' asset class.
Other infrastructure assets		

Appendix B - Examples of renewal and rehabilitation costs and activities

Renewal

Works to replace existing assets or facilities with assets or facilities of equivalent capacity or performance capability. Renewal costs are based on the modern engineering equivalent asset, includes the disposal of the former asset and excludes upgrades. When an asset is partially renewed, if doing so extends the useful life it is considered renewal.

Rehabilitation

Works to rebuild or replace parts or components of an asset, to restore it to a required functional condition and extend its life, which may incorporate some modification. Rehabilitation generally involves repairing an asset to deliver its original level of service without resorting to significant upgrading or renewal, using available techniques and standards.

Following are example renewal and rehabilitation costs and activities that are applicable to all asset classes: design, planning approval, procurement costs, wages and salaries of staff completing renewal and rehabilitation, associated staff training, legal costs, printing and stationary, insurance costs, waste costs.

The following are example renewal and rehabilitation costs and activities specific to certain asset classes:

Table B1 - Examples of renewal and rehabilitation costs and activities

Asset class	Asset category	Example costs and activities
Buildings Other structures		Replacement of whole components such as windows, roof, wall, doors, floor coverings, furniture, bathrooms, kitchens, stages, railings, fences, external landscape, electrical systems, security systems, air conditioners and elevators.
Roads	Sealed roads Unsealed roads Bridges Other road assets including paths and carparks	Micro-surfacing, reseal, rejuvenation, stabilisation, asphalt, gravel resheeting, major rehabilitation (that extends the useful life compared to that predicted), guardrail replacement, signage group replacement, base/sub-base replacement, full bridge component replacement, footway replacement, rigid pavement replacement, light pole replacement, kerb and gutter replacement, traffic island replacement, street furniture replacement.
Water supply networks		Water treatment plant and pumping station augmentations, pump replacement, water main replacement, hydrant and valve replacement, telemetry and control system replacement, water meter replacement, reservoir replacement, major rehabilitation on structures/dams. (For buildings, roads and pathways, see elsewhere in this table).
Sewerage network		Sewage treatment plant and pumping station augmentations, pump replacement, sewer main replacement or relining, manhole replacement, telemetry and control system replacement, major rehabilitation on structures.(For buildings, roads and pathways, see elsewhere in this table).
Stormwater drainage		Replacement of whole components such as pipe, pit, GPT, rain garden, flood control monitoring and control equipment, pipe relining (that extends useful life).
Open space/recreational assets	Swimming pools	Replacement of whole components such as tiling, pumps, heating equipment, water treatment equipment, pool shells, sporting equipment, shade structures, furniture, paths. (For building structures, see the 'Buildings' asset class).
	Other open space/recreational assets	Replacement of whole components such as turf, field surfacing, trees, paths, lighting, recreational/sport facilities and fences. (For associated kiosks, grandstands and amenities, refer to the 'Buildings' asset class; for associated drains, refer to the 'Stormwater drainage' asset class; for associated carparks, refer to the 'Roads; asset class.)
Other infrastructure assets		Replacement of water harvesting and reticulation, energy reticulation, levees, transport interchanges, livestock sale yards, and waste handling facilities; creation of new air space in landfills.

B4.8 Notes 2 and 3 to the special purpose financial statements

Note 2 Water Supply Business best practice management disclosure requirements

			2016
1. Calculation and Payment of Tax-Equivalents			
(i)	Calculated Tax Equivalents	$	
(ii)	No of assessments multiplied by $3/assessment	$	
(iii)	Amounts payable for Tax Equivalents *(lesser of (i) and (ii))*	$	
(iv)	Tax Equivalents paid	$	
2. Dividend from Surplus			
(i)	50% of Surplus before Dividends *(Calculated in accordance with Best Practice Management for Water Supply and Sewerage guidelines.)*	$	
(ii)	No of assessments multiplied by $30/assessment, less tax equivalent charges/assessment	$	
(iii)	Cumulative Surplus before Dividends for 3 years to 30 June 2016, less cumulative dividends paid for 2 years to 30 June 2015	$	
(iv)	Maximum Dividend from Surplus *(least of (i), (ii) and (iii))*	$	
(v)	Dividend paid from Surplus	$	
(vi)	Are the overhead reallocation charges to the water business fair and reasonable? [a]	Yes/No	
3. Required Outcomes for 6 Criteria			
(i)	Complete current Strategic Business Plan (including Financial Plan)	Yes/No	
(ii)	Full cost-recovery, without significant cross subsidies *(Item 2(a) in Table 1 on page 22 of Best Practice Management Guidelines)*	Yes/No	
	Complying charges *(Item 2(b) in Table 1)*	Yes/No	
	DSP with Commercial Developer Charges *(Item 2(e) in Table 1)*	Yes/No	
	If Dual Water Supplies, Complying Charges *(Item 2(g) in Table 1)*	Yes/No	
(iii)	Sound Water Conservation & Demand Management implemented	Yes/No	
(iv)	Sound Drought Management implemented	Yes/No	
(v)	Complete Performance Reporting *(by 15 September each year)*	Yes/No	
(vi)	a. Complete Integrated Water Cycle Management Evaluation	Yes/No	
	b. Complete and implement Integrated Water Cycle Management Strategy	Yes/No	
National Water Initiative (NWI) Financial Performance Indicators			
NWI F1	Total Revenue (Water) *= Total income (w13))* *- Grants for acquisition of assets (w11a) - Interest income (w9)- Aboriginal Communities W&S Program Income (w10a)*	$ ('000)	
NWI F4	Revenue from Residential Usage Charges (Water) *= Income from residential usage charges (w6b) x 100* */ (Income from residential usage charges (w6a)* *+ Income from residential access charges (w6b))*	%	
NWI F9	Written Down Replacement Cost of Fixed Assets (Water) *= Written down current cost of system assets (w41)*	$ ('000)	
NWI F11	Operating Cost (OMA) (Water) *= Management expenses (w1) + Operation and maintenance expenses (w2)*	$ ('000)	
NWI F14	Capital Expenditure (Water) *= Acquisition of fixed assets (w16)*	$ ('000)	
NWI F17	Economic Real Rate of Return (Water) *= (Total income (w13) - Interest income (w9) - Grants for acquisition of assets (w11a)* *– Operating cost (NWI F11) – Current cost depreciation (w3)) x 100* */* *(Written down current cost of system assets (w41) + Plant and equipment (w28b)).*	%	
NWI F26	Capital Works Grants (Water) *= Grants for acquisition of assets (w11a)*	$ ('000)	

Notes:

1 References to w (eg. w12) refer to item numbers in Special Schedules Nos. 3 and 4 of each Council's Annual Financial Statements.

2 The NWI performance indicators are based on the National Performance Framework handbook for Urban Performance Reporting Indicators and Definitions.
The NWI indicators are to be calculated using the formulae shown above.

a refer to 3.2 (2) on page 15 of the Best-Practice Management of Water Supply and Sewerage Guidelines, 2007

Note 3 Sewerage Business best practice management disclosure requirements

			2016
1. Calculation and Payment of Tax-Equivalents			
(i)	Calculated Tax Equivalents	$	
(ii)	No of assessments multiplied by $3/assessment	$	
(iii)	Amounts payable for Tax Equivalents *(lesser of (i) and (ii))*	$	
(iv)	Tax Equivalents paid	$	
2. Dividend from Surplus			
(i)	50% of Surplus before Dividends *(Calculated in accordance with Best Practice Management for Water Supply and Sewerage guidelines.)*	$	
(ii)	No of assessments multiplied by $30/assessment, less tax equivalent charges/ Assessment	$	
(iii)	Cumulative Surplus before Dividends for 3 years to 30 June 2016, less cumulative dividends paid for 2 years to 30 June 2015	$	
(iv)	Maximum Dividend from Surplus *(least of (i), (ii) and (iii))*	$	
(v)	Dividend paid from Surplus	$	
(vi)	Are the overhead reallocation charges to the water business fair and reasonable? [a]	Yes/No	
3. Required Outcomes for 4 Criteria			
(i)	Complete current Strategic Business Plan (including Financial Plan)	Yes/No	
(ii)	Pricing with full cost-recovery, without significant cross subsidies *(Item 2(a) in Table 1 on page 22 of Best Practice guidelines)*	Yes/No	
	Complying charges (a) Residential *(Item 2(c) in Table 1)*	Yes/No	
	(b) Non-Residential *(Item 2(c) in Table 1)*	Yes/No	
	(c) Trade Waste *(Item 2(d) in Table 1)*	Yes/No	
	DSP with Commercial Developer Charges *(Item 2(e) in Table 1)*	Yes/No	
	Liquid Trade Waste Approvals & Policy *(Item 2(f) in Table 1)*	Yes/No	
(iii)	Complete Performance Reporting Form *(by 15 September each year)*	Yes/No	
(iv)	a. Complete Integrated Water Cycle Management Evaluation	Yes/No	
	b. Complete and implement Integrated Water Cycle Management Strategy	Yes/No	
National Water Initiative (NWI) Financial Performance Indicators			
NWI F2	Total Revenue (Sewerage) *= Total income (s14) - Grants for acquisition of assets (s12a) - Interest income (s10) - Aboriginal Communities W&S Program Income (w10a)*	$ ('000)	
NWI F10	Written Down Replacement Cost of Fixed Assets (Sewerage) *= Written down current cost of system assets (s42)*	$ ('000)	
NWI F12	Operating cost (Sewerage) *= Management expenses (s1) + Operation and maintenance expenses (s2)*	$ ('000)	
NWI F15	Capital Expenditure (Sewerage) *= Acquisition of fixed assets (s17)*	$ ('000)	
NWI F18	Economic Real Rate of Return (Sewerage) *=((Total income (s14) - Interest income (s10) - Grants for acquisition of assets (s12a) - Operating cost (NWI F12) – Current cost depreciation (s3)) x 100 / (Written down current cost (WDCC) of system assets (s42) + Plant and equipment (s29b))*	%	
NWI F27	Capital Works Grants (Sewerage) *= Grants for acquisition of assets (s12a)*	$ ('000)	
NWI F3	Total Income (Water and Sewerage) *= Total income (w13+s14) + Gain/loss on disposal of assets (w14+s15) - Grants for acquisition of assets (w11a+s12a) - Interest income (w9+s10)*	$ ('000)	
NWI F8	Revenue from Community Service Obligations (Water and Sewerage) *= Community service obligations (NWI F25) x 100 / Total income (NWI F3)*	%	
NWI F16	Capital Expenditure (Water and Sewerage) *= Acquisition of fixed assets (w16 + s17)*	$ ('000)	
NWI F19	Economic Real Rate of Return (Water and Sewerage) *= (Total income (w13 + s14) - Interest income (w9 + s10) - Grants for acquisition of assets (w11a + s12a) - Operating cost (NWI F11 + NWI F12) - Current cost depreciation (w3 + s3)) x 100 / (Written down replacement cost of fixed assets (NWIF9 + NWIF10) + Plant and equipment (w28b + s29b))*	%	
NWI F20	Dividend (Water and Sewerage) *= Dividend paid from surplus (2(v) of Note 2 + 2(v) of Note 3)*	$ ('000)	
NWIF21	Dividend Payout Ratio (Water and Sewerage) *= Dividend (NWI F20) x 100 / Net profit after tax (NWI F24)*	%	
NWI F22	Net Debt to Equity (Water and Sewerage) *= (Borrowings (w32 + s33) - Cash and investments (w25 + s26)) x 100 / (Total assets (w30 + s31) - Total liabilities (w35 + s36))*	%	
NWI F23	Interest Cover (Water and Sewerage) *= EBIT / NI* ***Earnings before Interest and Tax (EBIT)** = Operating result (w15a+s16a) + Interest expense (w4a + s4a) – Interest income (w9 + s10) – Gain/loss on disposal of assets (w14 + s15) + Miscellaneous expenses (w4c + s4c)* ***Net Interest (NI)** = Interest expense (w4a+s4a) – Interest income (w9+s10)* ***Note:** If EBIT >0 AND Net Interest <=0 THEN Interest Cover is to be reported as ">100"* *If EBIT <0 THEN Interest Cover = 0*		
NWI F24	Net Profit After Tax (Water and Sewerage) *=(Surplus before dividends (w15a + s16a) - Tax paid (1(iv) of Note 2 + 1(iv) of Note 3))*	$ ('000)	
NWI F25	Community Service Obligations (Water and Sewerage) *= Grants for pensioner rebates (w11b + s12b)*	$ ('000)	

Notes:

1 References to s (eg s12) refer to item numbers in Special Schedules Nos. 5 and 6 of each Council's Annual Financial Statements.

2 The NWI performance indicators are based on the National Performance Framework handbook for Urban Performance Reporting Indicators and Definitions.
The NWI indicators are to be calculated using the formulae shown above.

a refer to 3.2 (2) on page 15 of the Best-Practice Management of Water Supply and Sewerage Guidelines, 2007

B5 Formulae for calculation of performance indicators in tables 5 to 18

Formulae for calculation of performance indicators in table 5

5. 2015/16 NSW Water Utility Performance Summary

Column No.	Performance Indicator	Background to Formula	Formula
(1)	Water Supply Connected Properties (No.)	Total number of water supply connected properties (Residential plus Non-residential).	From Col (20) Table 9
(2)	Total Urban Water Supplied (ML)	Total annual water supplied (Potable plus Non-potable plus recycled. Excludes bulk water supplied). Where a Local Water Utility (LWU) has not reported the total water supplied, the previous year's value has been used and is shown in italics bold.	From Col (49) Table 10
(3)	Residential Revenue from Usage Charges - Water Supply (% of residential bills)	Revenue from residential usage charges divided by total residential revenue (residential usage plus access charges including any rates).	W_6b x 100 ÷ [W_6a + W_6b]
(4)	Typical Residential Bill - Water Supply ($/assessment) (see note B)	Calculated using the average residential water supplied for 2015/16 multiplied by the usage charges for 2015/16 plus the access charge for 2015/16.	Col (5) x Col (14a) ÷ 100 + Col (2) Table 6
(5)	Typical Residential Bill - Sewerage ($/assessment) (see note B)	Calculated using the access charge for 2015/16 plus, if council has residential sewer usage charges, the average residential water consumption for 2015/16 multiplied by the usage charges and usage factor for 2015/16.	Col (1) + Col (1a) Table 7
(6)	Typical Residential Bill - Water Supply & Sewerage ($/assessment)	Sum of water supply and sewerage Typical Residential Bills.	Col (4) Table 5 + Col (5) Table 5
(7)	Typical Developer Charge - Water Supply & Sewerage ($/ET)	Sum of water and sewerage Typical Developer Charges.	Col (7) Table 6 + Col (7) Table 7
(8)	Current Replacement Cost per Assessment - W&S ($/assessment)	The value of the infrastructure assets divided by the number of assessments.	Col (62) Table 11 + Col (47) Table 16
(9)	E. coli Compliance Achieved?	E. coli water quality compliance (ADWG 2011) achieved - Yes or % if No. Number of samples tested that meet the water quality requirements divided by the total number of samples tested.	From Col (71) Table 12
(10)	% Population with E. coli Compliance	From population served and compliance achieved by each zone.	From Col (71c) Table 12
(11)	Chemical Compliance Achieved?	Chemical water quality compliance (ADWG 2011) achieved - Yes or % if No.	From Col (70) Table 12
(12)	% of Population with Chemical Compliance	From population served and compliance achieved by each zone.	From Col (70c) Table 12
(13)	Water Quality Complaints (per 1000 properties)	Complaints are any expression of customer dissatisfaction reported in person, by phone, fax, letter or email. Water quality complaints are reported under the relevant source water treatment works.	From Col (73) Table 12
(14)	Average Duration of an Unplanned Interruption (mins) - Water Supply	Sum of total minutes of interruption divided by the total number of interruptions.	From Col (78) Table 12
(15)	Water Main Breaks (per 100km of main)	Number of main breaks per 100km of main. A main break is where the water main has to be shut down. Excludes service connection breaks.	From Col (42) Table 10
(16)	Total Water Supply and Sewerage Complaints (no.)	Sum of water supply complaints (service, billing, water quality, other) and sewerage complaints (sewage chokes, service, billing, odour).	WB102 + SB40
(17)	Average Annual Residential Water Supplied (kL/connected property)	Average annual residential consumption (potable + non potable).	From Col (56) Table 10
(18)	Real Losses (L/connection/d) - Water Supply	Real loss or leakage L per day per connection.	From Col (41) Table 10
(19)	% Sewage Treated that was Compliant	The number of scheduled samples that complied in the reporting period divided by the number of scheduled samples in the reporting period.	From Col (33a) Table 15
(20)	Breaks and Chokes - Sewerage (No. per 100km of main)	Breaks and chokes are partial or total blockages resulting in an interruption to sewerage services or overflows at gully traps. Blockages in risers and sidelines are excluded.	SB64 ÷ (SB9 ÷ 100)
(21)	Recycled Water (% of effluent)	Percent of Effluent Recycled	From Col (41c) Table 15
(22)	Recycled Water (Total ML)	Total Effluent Recycled	From Col (41a) Table 15
(23)	Total Revenue - W&S ($M)	Sum of water supply revenue and sewerage revenue.	[Col (57) Table 11 + Col (42) Table 16] ÷ 1000
(24)	Net Debt to Equity - W&S (%)	See Col (26) of Table 5A	From Col (26) Table 5A
(25)	Capital Expenditure - W&S ($/prop)	Assets, renewals, plant/equipment.	From Col (24b) Table 5A
(26)	Capital Expenditure - W&S ($M)	Assets, renewals, plant/equipment.	Col (31a) Table 9 + Col (13a) Table 14
(27)	Economic Real Rate of Return - Water Supply (%)	See Col (12) of Table 6	From Col (12) Table 6
(28)	Economic Real Rate of Return - Sewerage (%)	See Col (11) of Table 7	From Col (11) Table 7
(29)	Full Cost Recovery - Water Supply (N / Y* / Y)	Achieved if either the economic real rate of return or return on assets is >=0, or if a LWU has significantly increased its charges to recover its costs.	From Col (14d) Table 6
(30)	Full Cost Recovery - Sewerage (N / Y* / Y)	Achieved if either the economic real rate of return or return on assets is >=0, or if a LWU has significantly increased its charges to recover its costs.	From Col (11a) Table 7
(31)	OMA Cost - Water Supply ($/connected property)	See Col (67) of Table 11	From Col (67) Table 11
(32)	OMA Cost - Sewerage ($/connected property)	See Col (52) of Table 16	From Col (52) Table 16
(33)	Best Practice Implementation - Water Supply and Sewerage (%)	Implementation of the 19 requirements of the Best-Practice Management Framework for Water Supply and Sewerage.	From Col (7) Table 3

Notes:

A. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Similarly, references to S_ (eg. S_16) refer to each LWU's Special Schedules Nos 5 and 6. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

B. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

C. References to WB and SB (eg. WB15, SB9) refer to questions in each LWU's Water Supply or Sewerage Performance Monitoring Database. Eg. refer to Appendices B1.1 and B1.3.

Formulae for calculation of performance indicators in table 5A

5A. 2015/16 NSW Water Utility Performance Summary

Column No.	Performance Indicator	Background to Formula	Formula
	Water Supply & Sewerage		
(23)	Operating Cost (OMA) ($/property)	Total water supply and sewerage operation, maintenance and administration (OMA) costs (excluding cost of purchasing water) divided by number of connected properties. OMA includes engineering and supervision costs.	Col (67) Table 11 + Col (52) Table 16
(23a)	Operating Cost (OMA) ($M)	Total water supply and sewerage operation, maintenance and administration (OMA) costs (including cost of purchasing water). OMA includes engineering and supervision costs.	(W_1 + W_2 + S_1 + S_2) ÷ 1,000,000
(24)	Income per Property ($/property)	Total income divided by total connected properties (water or sewerage)	Col (24a) ÷ Col (20) Table 9
(24a)	Total Income ($M)	Total income plus gain/loss on disposal of assets less grants for acquisition of assets less interest income.	[(W_13 + W_14 - W_11a - W_9) + (S_14 + S_15 - S_12a - S_10)] ÷ 1,000,000
(24d)	Revenue from Rates and Charges ($M)	Total water supply and sewerage revenue from residential and non-residential rates and charges (excluding extra charges).	(W_6 + W_7 + S_6 + S_7 + S_8) ÷ 1,000,000
(24b)	Capital Expenditure ($/property)	Assets, Renewals, Plant/Equipment.	(W_16 ÷ Col (20) Table 9) + (S_17 ÷ Col (3) Table 14)
(24c)	Return on Assets (%)	Total revenue less grants for acquisition of assets less total expenses plus other expenses divided by written down replacement value of operational assets. Total revenue excludes gain/loss on disposal of assets. Operational assets include system assets plus plant and equipment.	[(W_13 - W_11a - W_5 + W_4b) + (S_14 - S_12a - S_5 + S_4b)] x 100 ÷ (W_41 + W_28b + S_42 + S_29b)
(24e)	Ratio of OMA to Rates and Charges Revenue (%)	Total OMA divided by total rates and charges revenue for water and sewerage.	Col (23a) ÷ Col (24d) Table 5A
(25)	Economic Real Rate of Return (%)	Revenue from operations (water supply and sewerage) less operating expenses (OMA + current cost depreciation) divided by written down replacement value of water supply and sewerage operational assets. Revenue from operations excludes interest income, grants for acquisition of assets or gain/loss on disposal of assets. Operational assets include system assets and plant and equipment.	[(W_13 - W_9 - W_11a - W_1 - W_2 - W_3) + (S_14 - S_10 - S_12a - S_1 - S_2 - S_3)] x 100 ÷ (W_41 + W_28b + S_42 + S_29b)
(26)	Net Debt to Equity - W&S (%)	Net debt (water supply and sewerage) divided by equity (water supply and sewerage). Net debt is borrowings less cash and investments. Equity is Total Assets less Total Liabilities.	[(W_32 - W_25) + (S_33 - S_26)] x 100 ÷ (W_38 + S_39)
(27)	Interest Cover	Earnings before interest and tax (EBIT) for the whole water utility (water supply and sewerage) divided by net interest expense for the whole water utility (water supply and sewerage). The interest cover is nil for a loss making utility. Net interest expense is interest expenses less interest income and is zero for interest income greater than interest expense.	[(W_15a + W_4a - W_9 - W_14 + W_4b + W_4c) + (S_16a + S_4a - S_10 - S_15 + S_4b + S_4c)] ÷ (W_4a - W_9 + S_4a - S_10)
(28)	Dividend Payable ($'000)	Dividends paid, payable or proposed to be paid in relation to current year profit for the water and sewerage business for the whole water utility.	From SPFR Notes 2 & 3
(29)	Dividend Payout Ratio (%)	From SPFR Note 3	(Dividend paid or payable or proposed) x 100 ÷ (Net profit after tax)
(30)	CSOs ($'000)	Subsidy provided by government to allow for the provision of a service at less than the total cost. Eg. If legislation requires a utility to provide a $100 reduction to the water bills for pensioners for which the government provides $60, the CSO is $60.	From SPFR Note 3
(31)	% Revenue from CSOs	Revenue from CSOs divided by the total revenue (including CSOs).	[Col (30) ÷ Col (24a) Table 5A] x 100
(32)	Net Profit After Tax (NPAT) ($'000)	Surplus before dividends less tax paid.	[(W_15a + S_16a) - Tax paid] ÷ 1000 From SPFR Notes 2 & 3
(32a)	NPAT Ratio	Net profit after tax divided by Total Income.	Col (32) ÷ [Col (24a) Table 5A x 1000] x 100

Notes:

A. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Similarly, references to S_ (eg. S_16) refer to each LWU's Special Schedules Nos 5 and 6. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

B. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

C. References to WB and SB (eg. WB15, SB9) refer to questions in each LWU's Water Supply or Sewerage Performance Monitoring Database. Eg. refer to Appendices B1.1 and B1.3.

Formulae for calculation of performance indicators in table 5B

5B. 2015/16 NSW Water Utility Performance Summary

Column No.	Performance Indicator	Background to Formula	Formula
	Water Supply & Sewerage		
(33)	Billing Complaints (per 1000 properties)	Billing complaints for both water supply and sewerage businesses.	(WB99 + SB37) ÷ Col (20) Table 9
(34)	% of calls answered by Operator within 30 seconds	Proportion of calls that, where the customer has selected a relevant operator option, are answered by an operator within 30 seconds.	WB103
(35a)	Greenhouse Gas Emissions - Water (tonnes CO2 per 1000 properties)	The greenhouse gas emissions (CO2-equivalent) generated by the water utility, directly (scope 1) and indirectly (scope 2), through all its operations relating to water supply.	WB148
(35b)	Greenhouse Gas Emissions - Sewerage (tonnes CO2 per 1000 properties)	The greenhouse gas emissions (CO2-equivalent) generated by the water utility, directly (scope 1) and indirectly (scope 2), through all its operations relating to sewerage.	SB80a
(35c)	Greenhouse Gas Emissions - Other (tonnes CO2 per 1000 properties)	This indicator is a balancing item, which reports the net greenhouse gas emissions generated by the water utility, directly (scope 1) and indirectly (scope 2) relating to other activities such as transport (vehicles) and office buildings. Scope 3 emissions are excluded.	WB148b + SB80b
(35d)	Greenhouse Gas Emissions - Total (tonnes CO2 per 1000 properties)	Total net greenhouse gas emissions from water, sewerage and other.	WB148 + SB80a + WB148b + SB80b
(36)	Major Sources of Water	The utility's major sources of water, including ground water in ML/d, surface water, bulk supply and the towns supplied to.	
(37)	Storage Dams	Major dams used to source water and their capacity.	
(38)	Bulk Raw Water Supply	Bulk raw water supplier.	
(39)	>50% of Supply from Ground Water	More than 50% of the utility's water is sourced from ground water.	
(40)	No. Bores	Bore holes connecting to an aquifer from which water is drawn.	Col (29) Table 9
(41)	Bulk Supplier (potable water)	Bulk potable water supplier.	WB51

Notes:

A. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Similarly, references to S_ (eg. S_16) refer to each LWU's Special Schedules Nos 5 and 6. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

B. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

C. References to WB and SB (eg. WB15, SB9) refer to questions in each LWU's Water Supply or Sewerage Performance Monitoring Database. Eg. refer to Appendices B1.1 and B1.3.

Formulae for calculation of performance indicators in table 5C

5C. Water Supply 2015/16 - Infrastructure Asset Condition and Performance

Column No.	Performance Indicator	Background to Formula	Formula
(42)	Written Down Value Current Replacement Cost per property ($)	The written down value of the infrastructure assets divided by the number of connected properties.	From Col (62a) Table 11.
(43)	Current Replacement Cost (CRC) of System Assets ($'000)	The value of the infrastructure assets expressed in terms of how much it would cost to construct modern assets to provide the same function (ie. MEERA - Modern Engineering Equivalent Replacement Asset).	Col (61) Table 11 x 1,000
(44)	Written Down Replacement Cost ($'000)	Written down replacement cost of system assets.	Col (60) Table 11 x 1,000
(45)	Current Depreciation of System Assets ($'000)	Depreciation expense of system assets and plant and equipment.	From Special Schedule 3: W_3a + W_3b
(46)	Capital Expenditure (Total $'000)	Assets, renewals, plant/equipment.	Col (31a) Table 9 x 1,000
(47)	Estimated Cost to Bring to a Satisfactory Standard ($'000)	The amount of money that is required to be spent on an asset to ensure that it is in a satisfactory standard.	From Special Schedule 7
(48)	Actual Annual Maintenance ($'000)	Amount spent in the current year to maintain the assets.	From Special Schedule 7
(49)	Mains Maintenance Cost ($'000/100km)	Expenditure on maintenance of mains per 100km of main.	From Col (48) Table 10
(50)	Rehabilitation of mains (km/100km)	Length of mains rehabilitated per 100km of main.	From Col (44) Table 10
(51)	Rehabilitation of service connections (%)	Number of service connections rehabilitated as % of total.	From Col (45) Table 10
(52)	Rehabilitation of water meters (%)	Number of water meters rehabilitated as % of total.	From Col (45a) Table 10
(53)	Asset Renewals ($'000)	Expenditure on renewals.	From Special Schedule 3: W_16c
(54)	Asset Renewals ($'000 per 100km of main)	Expenditure on renewals per 100km of main.	From Col (46) Table 10
(55)	Asset Renewals (% of CRC)	Expenditure on renewals as percentage of Current Replacement Cost (CRC) of systems assets.	From Col (47) Table 10
(56)	Assets in Condition as % of GRC	Assets in condition one are considered to be excellent and that there is no work required (other than normal maintenance) while assets in condition five are considered to be very poor with urgent renewal or upgrading being required.	From Special Schedule 7
(57)	Renewals Ratio (%)	Asset renewals (building and infrastructure) divided by Depreciation, amortisation and impairment (building and infrastructure). (Expressed as a ratio).	From Special Schedule 7
(58)	Backlog Ratio (%)	Estimated cost to bring assets to a satisfactory condition divided by total written down value of infrastructure, building, other structures and depreciable land improvement assets.	From Special Schedule 7
(59)	Asset Maintenance Ratio (%)	Actual asset maintenance divided by Required asset maintenance.	From Special Schedule 7
(61)	Operating Cost OMA ($/property)	Total operation, maintenance and administration costs (plus proportion of bulk supplier OMA or purchase cost of water if no bulk supplier) divided by total number of connected properties.	From Col (67) Table 11
(62)	Net Debt to Equity - W&S (%)	Net debt (water supply and sewerage) divided by equity (water supply and sewerage). Net debt is borrowings less cash and investments. Equity is Total Assets less Total Liabilities.	From Col (26) Table 5A
(63)	Economic Real Rate of Return - Water Supply (%)	Revenue from operations less operating expenses (OMA + current cost depreciation) divided by written down replacement value of operational assets. Revenue from operations excludes interest income and grants for acquisition of assets and gain/loss on disposal of assets. Operational assets include system assets plus plant and equipment.	From Col (12) Table 6
(64)	Main Breaks (per 100km of main)	Number of main breaks per 100km of main. A main break is where the water main has to be shut down. Excludes service connection breaks.	From Col (42) Table 10
(65)	Unplanned Interruptions to Supply (per 1000 properties)	Number of properties affected by unplanned interruptions to supply per 1000 properties. Includes each occurrence. Excludes breaks in service connections or instances of low pressure.	From Col (43) Table 10
(66)	Real Losses (Leakage) (L/d/c)	Real loss or leakage L per day per connection.	From Col (41) Table 10
(67)	Water Quality Complaints (per 1000 properties)	Complaints are any expression of customer dissatisfaction reported in person, by phone, fax, letter or email. Water quality complaints are reported under the relevant source water treatment works.	From Col (73) Table 12
(68)	Water Service Complaints (per 1000 properties)	Complaints are any expression of customer dissatisfaction reported in person, by phone, fax, letter or email.	From Col (74) Table 12
(69)	% of Population with E. coli Compliance	From population served and compliance achieved by each zone.	From Col (71c) Table 12
(70)	Typical Residential Bill - Water Supply ($/assessment)	Calculated using the average residential water supplied for 2015/16 multiplied by the usage charges for 2016/17 plus the access charge for 2016/17.	From Col (8) Table 6
(70a)	Drinking Water Management System (DWMS)? (Yes/No)	May include HACCP, ISO 9001, WSAA ADWG Aquality assessment, ADWG Framework for Management of Drinking Water Quality.	From Col (68a) Table 12
(70b)	No. of Water Treatment Operators Meeting National Certification Requirements (No.)	Operators with a Certificate III in Water Operations (Water Treatment) or equivalent; OR a NSW Office of Water Part 1 Certificate (Chemical Dosing Systems) or equivalent AND have completed chlorine safety training. Employed in operating a LWU treatment works or a chlorinator/aerator.	From Appendix I: Col (1) + Col (2)
(71)	Best Practice Implementation - Water Supply (%)	Implementation of the 10 requirements of the Best-Practice Management Framework for Water Supply.	From Col (7) Table 3

Notes:

A. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

B. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 5D

5D. Sewerage 2015/16 - Infrastructure Asset Condition and Performance

Column No.	Performance Indicator	Background to Formula	Formula
(73)	Written Down Value Current Replacement Cost per property ($)	The written down value of the infrastructure assets divided by the number of connected properties.	From Col (47a) Table 16.
(74)	Current Replacement Cost (CRC) of System Assets ($'000)	The value of the infrastructure assets expressed in terms of how much it would cost to construct modern assets to provide the same function (ie. MEERA - Modern Engineering Equivalent Replacement Asset).	Col (46) Table 16 x 1,000
(75)	Written Down Replacement Cost ($'000)	Written down replacement cost of system assets.	Col (45) Table 16 x 1,000
(76)	Current Depreciation of System Assets ($'000)	Depreciation expense of system assets and plant and equipment.	From Special Schedule 5: S_3a + S_3b
(77)	Capital Expenditure (Total $'000)	Assets, renewals, plant/equipment.	Col (13a) Table 14 x 1,000
(78)	Estimated Cost to Bring to a Satisfactory Standard ($'000)	The amount of money that is required to be spent on an asset to ensure that it is in a satisfactory standard.	From Special Schedule 7
(79)	Actual Annual Maintenance ($'000)	What has been spent in the current year to maintain the assets.	From Special Schedule 7
(80)	Mains Maintenance Cost ($'000/100km)	Expenditure on maintenance of mains per 100km of main.	Col (31) Table 15
(81)	Rehabilitation of mains (km/100km)	Length of mains rehabilitated per 100km of main.	From Col (27) Table 15
(82)	Rehabilitation of service connections (%)	Number of service connections rehabilitated as % of total.	From Col (28) Table 15
(83)	Asset Renewals ($'000)	Expenditure on renewals.	From Special Schedule 5: S_17c
(84)	Asset Renewals ($'000 per 100km of main)	Expenditure on renewals per 100km of main.	From Col (29) Table 15
(85)	Asset Renewals (% of CRC)	Expenditure on renewals as percentage of Current Replacement Cost (CRC) of systems assets.	From Col (30) Table 15
(86)	Assets in Condition as % of GRC	Assets in condition one are considered to be excellent and that there is no work required (other than normal maintenance) while assets in condition five are considered to be very poor with urgent renewal or upgrading being required.	From Special Schedule 7
(87)	Renewals Ratio (%)	Asset renewals (building and infrastructure) divided by Depreciation, amortisation and impairment (building and infrastructure). (Expressed as a ratio).	From Special Schedule 7
(88)	Backlog Ratio (%)	Estimated cost to bring assets to a satisfactory condition divided by total written down	From Special Schedule 7
(89)	Asset Maintenance Ratio (%)	Actual asset maintenance divided by Required asset maintenance.	From Special Schedule 7
(91)	Operating Cost OMA ($/property)	Total operation, maintenance and administration costs (plus proportion of bulk supplier OMA or purchase cost of water if no bulk supplier) divided by total number of connected properties.	From Col (52) Table 16
(92)	Net Debt to Equity - W&S (%)	Net debt (water supply and sewerage) divided by equity (water supply and sewerage). Net debt is borrowings less cash and investments. Equity is Total Assets less Total Liabilities.	From Col (26) Table 5A
(93)	Economic Real Rate of Return - Sewerage (%)	Revenue from operations less operating expenses (OMA + current cost depreciation) divided by written down replacement value of operational assets. Revenue from operations excludes interest income, grants for acquisition of assets and gain/loss on disposal. Operational assets include system assets plus plant and equipment.	From Col (11) Table 7
(94)	Breaks and Chokes (No. per 100km of main)	Breaks and chokes are partial or total blockages resulting in an interruption to sewerage services or overflows at gully traps. Blockages in risers and sidelines are excluded.	From Col (24) Table 15
(95)	Infiltration (ML per 100km of main)	Estimated groundwater infiltration and stormwater inflow into the system per 100km of main.	From Col (23) Table 15
(96)	Overflows (No. per 100km of main)	Recorded overflows in sewers, access chambers and pumping stations. Overflows in	From Col (25) Table 15
(97)	Service Complaints (per 1000 properties)	Service complaints including chokes and odour, but excluding billing. Exclude queries.	From Col (62) Table 17
(98)	Sewage Treated that was Compliant (%)	Percent of sewage volume treated that was compliant.	From Col (59e) Table 17
(99)	Odour Complaints (per 1000 properties)	Odour complaints for treatment works, pumping stations and pipe network in your sewerage business.	From Col (61) Table 17
(100)	Typical Residential Bill - Sewerage ($/assessment)	Calculated using the access charge for 2016/17 plus, if council has residential sewer usage charges, the average residential water consumption for 2015/16 multiplied by the usage charges and usage factor for 2016/17.	From Col (8) Table 7
(100a)	Pollution Incident Response Management Plan (PIRMP)? (Yes/No)	A Pollution Incident Response Management Plan (PIRMP) is made available on the utility's website for each sewage treatment works, as required by EPA.	From Col (64a) Appendix D2
(100b)	No. of Wastewater Treatment Operators (No.)	The number of suitably qualified employees operating the utility's sewage treatment works.	From Appendix I: Col (5)
(101)	Best Practice Implementation - Sewerage (%)	Implementation of the 9 requirements of the Best-Practice Management Framework for Sewerage.	From Col (7) Table 3

Notes:

A. References to S_ (eg. S_16) refer to items in Special Schedules Nos 5 and 6 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

B. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 6

6. Water Supply - 2015/16 Charges, 2016/17 Bills

Column No.	Performance Indicator	Background to Formula	Formula
(1)	Type of Tariff	Tariff structure - Two Part, Inclining Block, Unmetered.	From Council's Schedule of Fees and Charges
(2)	Fixed Charge (or Minimum) ($)	Fixed charge component of tariff.	From Council's Schedule of Fees and Charges
(5a-d)	Usage Charge for Steps 1 and 2 (c/kL)	Includes first two steps of usage charges ("All" if no steps or blank if not applicable).	From Council's Schedule of Fees and Charges
(5e)	Billing (2006 National Guidelines) (% implementation)		
(6)	Operating Cost (OMA) c/kL	Total operation, maintenance and administration cost (excluding purchase of water) divided by total annual town water supplied (potable + non-potable).	[W_1 + W_2] x 100 ÷ [[Col (13) + Col (14) Table 8] x 1000]
(7)	Typical Developer Charge ($/Equivalent Tenement (ET))	Upfront infrastructure contribution for new developments.	WB136 (see note C)
(8)	Typical Residential Bill ($/assessment) (see note C)	Calculated using the average residential water supplied for 2015/16 multiplied by the usage charges for 2016/17 plus the access charge for 2016/17.	Col (5) x Col (14a) ÷ 100 + Col (2) Table 6
(11)	Return on Assets (%)	Total revenue less grants for acquisition of assets less total expenses plus other expenses divided by written down replacement value of operational assets. Total revenue excludes gain/loss on disposal of assets. Operational assets include system assets plus plant and equipment.	[(W_13 - W_11a - W_5 + W_4b)] x 100 ÷ (W_41 + W_28b)
(12)	Economic Real Rate of Return (%)	Revenue from operations less operating expenses (OMA + current cost depreciation) divided by written down replacement value of operational assets. Revenue from operations excludes interest income and grants for acquisition of assets and gain/loss on disposal of assets. Operational assets include system assets plus plant and equipment.	(W_13 - W_9 - W_11a - W_1 - W_2 - W_3) x 100 ÷ (W_41 + W_28b)
(13)	Residential Revenue from Usage Charges (% of residential bills)	Revenue from residential usage charges divided by total residential revenue (residential usage plus access charges including any rates).	W_6b x 100 ÷ [W_6a + W_6b]
(14a)	Average Annual Residential Water Supplied (potable) (kL/property)	Average annual residential water supplied (potable). Where an LWU has not reported residential water supplied and at least one of commercial and industrial consumption, 58% of the total potable supply has been used.	[Col (1) Table 8] ÷ [Cols (18) x (21) x (22) Table 9]
(14b)	Average Annual Residential Water Supplied (potable + non potable) (kL/property)	Average annual residential water supplied (potable and non potable).	[Col (1) + Col (11) + Col (12a) Table 8] ÷ [Cols (18) x (21) x (22) Table 9]
(14c)	Average Annual Residential Water Supplied (potable + non potable) (L/c/d)	Average annual residential water supplied per capita per day.	[Col (1) + Col (11) + Col (12a) Table 8] ÷ [Col (23) Table 9] ÷ 365
(14d)	Full Cost Recovery? (N / Y* / Y)	Achieved if either the economic real rate of return or return on assets is >=0, or if a LWU has significantly increased its charges to recover its costs.	From NOW records
(15)	Total Connected Properties	Total connected properties (residential plus non-residential). Calculated from number of assessments multiplied by the ratio of connected properties to assessments.	from Col (20) Table 9

Notes:

A. References to WB (eg. WB99) refer to questions in each LWU's Water Supply Performance Monitoring Database. Eg. refer to Appendix B1.1

B. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 7

7. Sewerage - 2015/16 Charges, 2016/17 Bills

Column No.	Performance Indicator	Background to Formula	Formula
(1)	Fixed Charge (or Minimum) ($)	Fixed charge component of tariff.	From Council's Schedule of Fees and Charges
(2)	Operating Cost (OMA) c/kL	Total operation, maintenance and administration cost divided by total volume of sewage collected.	[S_1 + S_2] x 100 ÷ [Col (32) Table 15 x 1000]
(3a)	Non-residential Sewer Usage Charge (Not including SDF) (c/kL)	Non-residential sewer usage charges not including sewer discharge factor.	From Council's Schedule of Fees and Charges
(3b)	Trade Waste Usage Charge (c/kL)	Charge applied to liquid trade waste dischargers.	From Council's Schedule of Fees and Charges
(4)	Appropriate Liquid Trade Waste Fees & Charges? (Yes/No)	Appropriate trade waste fees and charges are applied to all liquid trade waste dischargers.	From Council's Schedule of Rates, Fees and Charges
(5)	Non-residential & Trade Waste Charges (% of Annual Rates and Charges)	Non-residential charges plus trade waste charges divided by (residential charges + non-residential charges + trade waste charges).	[S_7 + S_8] x 100 ÷ [S_6 + S_7 + S_8]
(6)	Non-residential & Trade Waste Volume (% of Total Volume of Sewage Collected)	Percentage of total sewage collected.	Col (36) + Col (37) Table 15
(7)	Typical Developer Charge ($/Equivalent Tenement(ET))	Upfront infrastructure contribution for new developments.	SB62 (see note C)
(8)	Typical Residential Bill ($/assessment) (see note C)	Calculated using the access charge for 2016/17 plus, if council has residential sewer usage charges, the average residential water consumption for 2015/16 multiplied by the usage charges and usage factor for 2016/17.	Col (1) + Col (1a) Table 7
(9)	Return on Assets (%)	Total revenue less grants for acquisition of assets less total expenses plus other expenses divided by written down replacement value of operational assets. Total revenue excludes gain/loss on disposal of assets. Operational assets include system assets plus plant and equipment.	[(S_14 - S_5 - S_12a + S_4b)] x 100 ÷ (S_42 + S_29b)
(11)	Economic Real Rate of Return (%)	Revenue from operations less operating expenses (OMA + current cost depreciation) divided by written down replacement value of operational assets. Revenue from operations excludes interest income, grants for acquisition of assets and gain/loss on disposal. Operational assets include system assets plus plant and equipment.	(S_14 - S_10 - S_12a - S_1 - S_2 - S_3) x 100 ÷ (S_42 + S_29b)
(11a)	Full Cost Recovery? (N / Y* / Y)	Achieved if either the economic real rate of return or the return on assets is >=0, or if a LWU has significantly increased its charges in order to recover its costs.	From NOW records
(11b)	Recycled Water Usage Charge (c/kL)	Charge applied for use of recycled water.	From Council's Schedule of Fees and Charges
(11c)	Sewage Collected (kL/property)	Includes residential, non-residential and trade waste.	Col (39) Table 15
(12)	Connected Properties (No.)	Total connected properties (residential plus non-residential). Calculated from number of assessments multiplied by the ratio of connected properties to assessments.	From Col (3) Table 14

Notes:

A. References to SB (eg. SB9) refer to questions in each LWU's Sewerage Performance Monitoring Database. Eg. refer to Appendix B1.3.

B. References to S_ (eg. S_16) refer to items in Special Schedules Nos 5 and 6 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 8

8. 2015/16 Water Supplied in Regional NSW

Column No.	Performance Indicator	Background to Formula	Formula
(1)	Residential	Domestic (inhouse and ex-house) potable water supplied.	WB54
(2)	Commercial	Offices, shops, clubs, hotels, motels, caravan parks potable water supplied.	WB55
(3)	Industrial	Factories, mills, poultry, feed lots, sale yards, abbatoirs, mining potable consumption.	WB56 + WB56a + WB56b + WB56c
(4)	Rural	Farms or hobby farms outside urban zoned land, includes stock and domestic uses, market gardens, agricultural irrigation potable water supplied.	WB57
(5)	Institutional	Hospitals, schools, colleges etc potable water supplied.	WB58
(6)	Public Parks and Gardens	Watering of public parks, gardens, ovals etc using potable water.	WB60
(7)	Total Revenue Water (potable)	Excludes revenue from recycled water and urban stormwater used.	Sum Col (1) to (6) Table 8
(8)	Real Loss (Leakage)	Leakage. Real loss is included in water losses (see Note C).	WB68
(8a)	Apparent Loss	Illegal use plus meter inaccuracies	WB67
(8b)	Unbilled Authorised Consumption	Includes fire fighting and flushing (see Note C).	WB61
(9)	Total Non-Revenue Water	Sum unbilled authorised water supplied plus water losses (potable).	Col (8b) + Col (8a) + Col (8) Table 8 or Col (7) / 0.9 - Col (7) Table 8
(10)	Total Potable Urban Water Supplied	Sum of Total Revenue water plus Total Non-revenue water.	Col (7) + Col (9) Table 8
(11)	Recycled Water for Non-Potable Urban Residential Water Supply	Total metered and estimated non-metered supply of non-potable recycled water by residential properties for the reporting period, excluding urban stormwater.	WB150
(11a)	Recycled Water for Urban Non-Residential	Total metered and estimated non-metered supply of recycled water by commercial, municipal, industrial properties and other users (fire fighting, mains flushing etc) for the reporting period, excluding urban stormwater.	WB151 + WB155 - WB156
(11b)	Total Recycled Urban Water	Total metered and estimated non-metered supply of non-potable recycled water by residential and non-residential properties and other users for the reporting period, excluding urban stormwater.	Col (11) + Col (11a) Table 8
(11e)	Urban Stormwater Used	Includes potable and non-potable urban stormwater used by the utility for urban water supply.	WB174
(12a)	Non-Potable Urban Residential Water Supplied	Non-potable water reticulated to residential customers.	WB63
(12b)	Non-Potable Urban Non-Residential Water Supplied	Total metered and estimated non-metered non-potable water supplied to commercial, mining, manufacturing, electricity generators, other industrial, rural, municipal, public parks and unbilled, excluding recycled and urban stormwater.	WB63a + WB63b + WB63c + WB63d + WB63e + WB63f + WB63g + WB63i + WB63j
(12c)	Non-Potable Urban Water Supplied	Includes untreated water for industry or non-potable water component in a dual water supply system and may also include recycled water .	Col (12a) + Col (12b) Table 8
(12d)	Total Non-Potable Water Supplied	Total non-potable water supplied, including recycled water and urban stormwater.	Col (11b) + Col (11e) + Col (12c) Table 8
(13)	Total Annual Urban Water Supplied	Total water supplied equals the sum of potable water supplied plus non-potable supply for industry or non-potable component in a dual supply system less recycled water for non-potable supply.	Col (10) + Col (12d) Table 8
(14)	Bulk Water Exports	Sales to other Local Water Utilities (LWUs) of potable and non-potable water.	WB59
(11c)	Recycled Water - Non-Urban	Total recycled water supplied - non-urban.	WB152 + WB153 + WB154 + WB156
(11d)	Total Urban + Non-Urban Recycled Water	Total recycled water supplied - urban and non-urban.	Col (11b) + Col (11c) Table 8
(15)	Surface Water	Surface water + ground water + bulk purchases should equal total annual water supplied.	WB41 + WB42 + WB43 + WB44
(16)	Groundwater	Volume extracted from groundwater.	WB45
(16b)	Recycled Water	Volume of water sourced from recycling.	WB47
(17)	Bulk Purchase	Potable plus non-potable bulk water purchased.	WB52b
(17b)	Total Sourced Water	Excluding non-urban recycled.	Col (15) + Col (16) + Col (16b) + Col (17) Table 8

Notes:

A. References to WB (eg. WB99) refer to questions in each LWU's Water Supply Performance Monitoring Database. Eg. refer to Appendix B1.1

B. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 9

9. Water Supply - 2015/16 Utility Characteristics

Column No.	Performance Indicator	Background to Formula	Formula
(18)	Total No. of Assessments (see note C)	Where this data is ambiguous or missing, it has been estimated from other supporting information.	WB36
(18a)	Number of Service Connections	Number of physical connections to the water supply system (ie. A multiple dwelling with a single metered connection to the water supply system is counted as one connection).	WB30
(19)	Ratio of Connected Properties to Assessments (see note C)	This ratio has been determined from previous performance reports. It does not normally change from year to year and will be continued unless change is considered warranted by the LWU, in which case evidence of a different factor should be provided by the LWU.	WB37
(20)	Connected Properties	Total connected properties (residential plus non-residential). Calculated from number of assessments multiplied by the ratio of connected properties to assessments.	Col (18) x Col (19) Table 9
(21)	Ratio of Residential Assessments to Total Assessments (see note C)	This ratio has been determined from previous performance reports. It does not normally change from year to year and will be continued unless change is considered warranted by the LWU, in which case evidence of a different factor should be provided by the LWU.	WB37a
(22)	Ratio of Residential Connections to Residential Assessments (see note C)	This ratio has been determined from previous performance reports. It does not normally change from year to year and will be continued unless change is considered warranted by the LWU, in which case evidence of a different factor should be provided by the LWU.	WB38
(22a)	Connected Residential Properties (No.)	A residential property connected to the water supply system, which may or may not have a separate assessment.	Col (18) x Col (21) x Col (22) Table 9
(22b)	New Residential Dwellings Connected (%)	New residences connected this reporting year as percentage of connected residential properties.	WB31 ÷ Col (22a) Table 9
(23)	Permanent Population	Where this data is ambiguous or missing, it has been estimated from other supporting information (financial data, previous year's data).	WB1
(24)	Peak Population (% of permanent)	Maximum population supplied anytime this reporting year.	WB2 x 100 ÷ WB1
(25)	Headworks Transfer Mains (raw water) (km)	Trunk mains which are part of the headworks system (eg. dam, river) for delivery of water either from scheme to scheme or to treatment works.	WB20a
(25a)	Trunk and Reticulation Mains (km)	Total length of mains including trunk mains and reticulation.	WB22
(26)	Properties Served per km of main	Total number of connected properties divided by length of mains.	Col (20) ÷ Col (25a) Table 9
(27)	Water Treatment Works	Number of works providing full treatment.	WB17
(28)	Dams	Number of dams.	WB7
(29)	Bores	Number of water supply bores.	WB13
(30)	Pumping Stations	Number of pumping stations.	WB15
(30a)	Pumping Stations per 100km of main	Number of pumping stations divided by length of main.	Col (30) ÷ [Col (25a) ÷ 100] Table 9
(31)	Capital Expenditure ($/property)	Assets, renewals, plant/equipment.	Col (31a) x 1,000,000 ÷ Col (20) Table 9
(31a)	Capital Expenditure (Total $M)	Assets, renewals, plant/equipment.	W_16 ÷ 1,000,000
(31b)	Capital Works Grants ($'000)	Grants for acquisition of assets.	W_11a
(32)	Total Workforce (water supply) (Employees/1000 properties)	Equivalent full time employees involved with water supply.	WB120
(34)	% Undergoing Training	% of employees in water supply workforce undergoing training for 2+ days during the year.	WB122 x 100 ÷ WB120
(37)	Outsourcing % of Maintenance Cost	% expended on outsourcing for maintenance of water supply business.	WB130
(38)	Number of Injuries	Number of injuries (fatality, permanent disability or time loss of 1+ days) in water business.	WB124
(39)	Total Days Lost (%)	Number of days lost for all reasons (disputes, sick leave, accidents) in water supply business expressed as a percentage of the total number of days worked.	WB123 ÷ (230 x WB120)
(40a)	Days Lost due to Injuries	Number of days lost due to injuries (time loss of 1+ days) in water supply business.	WB125
(40b)	Days Lost due to Injuries (% of Total Days Worked)	Number of days lost due to injuries (time loss of one or more days) as a percentage of total days worked in water supply business.	(WB125 x 100) ÷ (230 x WB120)

Notes:

A. References to WB (eg. WB99) refer to questions in each LWU's Water Supply Performance Monitoring Database. Eg. refer to Appendix B1.1

B. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 10

10. Water Supply - 2015/16 Asset Management

Column No.	Performance Indicator	Background to Formula	Formula
(41)	Real Losses (Leakage) (L/d/c)	Real loss or leakage L per day per connection.	WB68 ÷ 365 ÷ Col (18a) Table 9
(41a)	Real Losses (Leakage) (kL/km/d)	Real loss or leakage kL per km of main per day.	WB68 x 1000 ÷ WB22 ÷ 365
(41b)	Infrastructure Leakage Index (ILI)	Ratio of Current Annual Real Loss to Unavoidable Annual Real Loss.	Determined as per NPF
(41c) (41d) (41e)	Leakage Test (Type & Extent) (Year) (Result %)	Type and extent of Leakage Test undertaken, the year and the result of the test.	Most 2015/16 results from Regional NSW Water Loss Management Program
(41f)	Total Non-Revenue Water	Sum unbilled authorised consumption plus water losses (potable).	From Col (9) Table 8
(42)	Main Breaks (per 100km of main)	Number of main breaks per 100km of main. A main break is where the water main has to be shut down. Excludes service connection breaks.	WB104 ÷ (WB22 ÷ 100)
(43)	Unplanned Interruptions to Supply (per 1000 properties)	Number of properties affected by unplanned interruptions to supply per 1000 properties. Includes each occurrence. Excludes breaks in service connections or instances of low pressure.	WB106 x 1000 ÷ Col (20) Table 9
(44)	Rehabilitation of mains (% of total length)	Length of mains rehabilitated as % of total length of main.	WB23 ÷ (WB22 ÷ 100)
(45)	Rehabilitation of service connections (%)	Number of service connections rehabilitated as % of total.	WB24 x 100 ÷ Col (18a) Table 9
(45a)	Rehabilitation of water meters (%)	Number of water meters rehabilitated as % of total.	WB25 x 100 ÷ Col (18a) Table 9
(46)	Renewals ($'000 per 100km of main)	Expenditure on renewals per 100km of main.	W_16c ÷ (WB22 ÷ 100)
(47)	Renewals (% of CRC)	Expenditure on renewals as percentage of Current Replacement Cost (CRC) of systems assets.	W_16c x 100 ÷ (Col (61) Table 11 x 1000)
(48)	Mains Maintenance Cost ($'000/100km of main)	Expenditure on maintenance of mains per 100km of main.	(W_2d ÷ 1000) ÷ (WB22 ÷ 100)
(49)	Total Urban Water Supplied (ML)	Where an LWU has not reported total potable consumption, the previous year's consumption has been adopted and is shown in italics bold.	From Col (13) Table 8
(50)	Non-potable Urban Water Supplied (ML)	Where an LWU has not reported total potable consumption, the previous year's consumption has been adopted and is shown in italics bold.	From Col (12c) Table 8
(51)	% Water Recycled	For non-potable urban water supplied.	Col (11c) x 100 ÷ Col (13) Table 8
(52)	Peak Day to Average Consumption (%)	Maximum 24 hour potable water supplied in reporting year (ML/d) divided by average daily consumption.	WB82 ÷ [Col (49) ÷ 365]
(53)	Peak Week to Average Consumption (%)	Average daily consumption over peak week (ML/d) divided by average daily consumption.	WB83 ÷ [Col (49) ÷ 365]
(56a)	Average Annual Residential Water Supplied (Potable) (kL/property)	Average annual residential consumption (potable). Where an LWU has not reported residential consumption and at least one of commercial and industrial consumption, 58% of the total potable supply has been used.	[Col (1) Table 8] ÷ [Cols (18) x (21) x (22) Table 9]
(56)	Average Annual Residential Water Supplied (Potable + Non Potable) (kL/property)	Average annual residential consumption (potable + non potable). See column 56a above.	[Col (1) + Col (11) + Col (12a) Table 8] ÷ [Cols (18) x (21) x (22) Table 9]

Notes:

A. References to WB (eg. WB99) refer to questions in each LWU's Water Supply Performance Monitoring Database. Eg. refer to Appendix B1.1
B. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.
C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 10A

10A. Water Supply - 2015/16 Estimated Real Water Losses

Column No.	Performance Indicator	Background to Formula	Formula
(1)	Water Utility	Only water utilities that participated in the Water Loss Management Program (WLMP) for Regional NSW Water Utilities are included.	Appendix 1 of the WLMP Report.
(2)	Zone	Where water utilities have been divided up into different zones, these are listed separately.	Appendices 3 and 4 of the WLMP Report.
(3)	Utility Connections 2009-10 (No.)	Number of physical connections to the water supply system for the water utility in 2009-10 (ie. A multiple dwelling with a single metered connection to the water supply system is counted as one connection).	Col (18a) Table 9 [2009-10 Benchmarking Report]
(4)	Zone Connections (No.)	Number of physical connections to the water supply system for each zone.	Appendices 3 and 4 of the WLMP Report.
(5)	Connection Ratio (Zone:Utility)	The ratio of connections for each zone to the total connections for the water utility.	100 x Col (4) ÷ Col (3)
(6)	ILI Before	Infrastructure Leakage Index (ILI) before the WLMP.	Appendices 3 and 4 of the WLMP Report.
(7)	Utility Potable Annual Water Supplied 2009-10 (ML)	Sum of Total Revenue water plus Total Non-revenue water for the water utility in 2009-10.	Col (10) Table 8 [2009-10 Benchmarking Report]
(8)	Estimated Water Loss - Before (L/c/d)	Estimated water losses before leakage detection and repair.	Appendices 3 and 4 of the WLMP Report.
(9)	Estimated Water Loss - Before (ML)	Estimated water losses before leakage detection and repair.	Col (8) x Col (3) x 365 ÷ 106
(10)	Estimated Water Loss - Before (%)	Estimated water losses before leakage detection and repair.	100 x Col (9) ÷ Col (7)
(11)	Estimated Water Loss - After (L/c/d)	Estimated water losses after leakage detection and repair.	Appendix 4 of the WLMP Report.
(12)	Estimated Water Loss - After (ML)	Estimated water losses after leakage detection and repair.	Col (11) x Col (3) x 365 ÷ 106
(13)	Estimated Water Loss - After (%)	Estimated water losses after leakage detection and repair.	100 x Col (11) ÷ Col (7)
(14)	Annual Water Savings (ML)	Annual water savings for each zone and the water utility as a whole after leakage detection and repair.	Col (9) - Col (12)
(15)	Test	The type and extent of leakage detection and repair and/or pressure reduction undertaken for each water utility. Eg. L95 indicates that the leakage detection and repair project carried out covered 95% of the utility's service connections.	Appendix 4 of the WLMP Report.
(16)	Test Year	The year the above test was performed.	Appendix 4 of the WLMP Report.
(17)	Page	Page reference of the water utility's project summary in the WLMP Report.	Appendix 1 of the WLMP Report.
(18)	Comments	Details on any significant outcomes from the WLMP.	Appendices 3 and 4 of the WLMP Report.

Notes:

A. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 11

11. Water Supply - 2015/16 Financial, Efficiency

Column No.	Performance Indicator	Background to Formula	Formula
(57)	Total Revenue (excl Capital Works Grants) ($'000)	Total Revenue excluding grants for acquisition of assets, interest income and gain/loss from disposal of assets [Residential Charges + Non-residential Charges + Extra Charges + Other Revenues + Grants (excluding for Acquisition of Assets) + Contributions (Developer Charges + Developer Provided Assets + Other Contributions)].	(W_13 - W_9 - W_11a) ÷ 1000
(57a)	Revenue per property ($)	Total revenue per connected property.	[Col (57) Table 11] x 1000 ÷ [Col (20) Table 9]
(57b)	Revenue from Rates and Charges ($'000)	Total water supply revenue from residential and non-residential rates and charges (excluding extra charges).	(W_6 + W_7) ÷ 1000
(57c)	Operating Cost (OMA) ($'000)	Total water supply operation, maintenance and administration (OMA) costs (including cost of purchasing water). OMA includes engineering and supervision costs.	(W_1 + W_2) ÷ 1000
(57d)	Ratio of OMA to Rates and Charges Revenue (%)	Total OMA divided by total rates and charges revenue for water supply.	Col (57c) ÷ Col (57b) Table 11
(58)	Residential Revenue (% of rates and charges total)	Where an LWU has not reported a breakdown of revenue from rates and charges and sales into residential and non-residential, the percentage revenue for such LWUs has been estimated from the reported percentages of similar LWUs.	(W_6a + W_6b) x 100 ÷ (W_6 + W_7)
(59)	Residential Water Supplied (% of potable water supplied excluding water losses)	% of potable water excluding water losses.	(WB54a ÷ WB62) x 100
(58a)	Residential Revenue from usage charges (%)	Resential revenue from usage charges.	W_6b x 100 ÷ (W_6a + W_6b)
(60)	Written Down Replacement Cost ($M)	Written down replacement cost of system assets.	W_41 ÷ 1,000,000
(61)	Current Replacement Cost (CRC) of System Assets ($M)	The value of the infrastructure assets expressed in terms of how much it would cost to construct modern assets to provide the same function (ie. MEERA - Modern Engineering Equivalent Replacement Asset).	W_39 ÷ 1,000,000
(62)	Current Replacement Cost per Assessment ($)	The value of the infrastructure assets divided by the number of assessments.	W_39 ÷ Col (18) Table 9
(63)	Net Debt to Equity - W&S (%)	All repayable borrowings, interest bearing non-repayable borrowings, advances and leases less cash and investments divided by total equity.	[(W_32 - W_25) + (S_33 - S_26)] x 100 ÷ (W_38 + S_39)
(62a)	Written Down Value of Current Replacement Cost per property ($)	The written down value of the infrastructure assets divided by the number of connected properties.	W_41 ÷ Col (20) Table 9
(63a)	Economic Real Rate of Return (%)	See Col (12) Table 6.	From Col (12) Table 6.
(63b)	Return on Assets (%)	See Col (11) Table 6.	From Col (11) Table 6.
(65)	Operating Result ($/property)	Total revenue less total expenses less grants for acquisition of assets divided by total number of connected properties.	W_15a ÷ Col (20) Table 9
(66)	Externalities ($/property)	Water fees paid by LWUs to Water NSW.	From Water NSW records
(66a)	Loan Payment ($/property)	Includes interest expenses, repayment of debt (Loans, Advances, Finance Leases).	(W_4a + W_17) ÷ Col (20) Table 9
(67)	Operating Cost OMA ($/property)	Total operation, maintenance and administration costs (plus proportion of bulk supplier OMA or purchase cost of water if no bulk supplier) divided by total number of connected properties.	[W_1 + W_2] ÷ Col (20) Table 9 plus bulk suppliers OMA
(68)	Management Cost ($/property)	Total management costs divided by total number of connected properties.	W_1 ÷ Col (20) Table 9

Notes:

A. References to WB (eg. WB99) refer to questions in each LWU's Water Supply Performance Monitoring Database. Eg. refer to Appendix B1.1

B. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 12

12. Water Supply - 2015/16 Health, Levels of Service

Column No.	Performance Indicator	Background to Formula	Formula
(68a)	Drinking Water Management System (DWMS) - Basis (e.g. ADWG, HACCP)	May include HACCP, ISO 9001, WSAA ADWG Aquality assessment, ADWG Framework for Management of Drinking Water Quality.	WB113a
(68b)	Drinking Water Management System (DWMS) - External Assessment? (Y/N)	Audited by an external accredited assessor and received certification for ISO 9001, HACCP or assessed against WSAA ADWG or ADWG.	WB114
(69)	Physical - % of Samples Complying with 2011 ADWG	Physical water quality compliance achieved - %. Overall compliance with physical requirements including the key characteristics of turbidity, pH and colour. Compliance refers to the number of samples taken for system performance monitoring and not the number of tests. Excludes samples taken for operational monitoring.	see note C
(69a)	Physical Compliance Achieved?	Physical water quality compliance (ADWG 2011) achieved - Yes or No. Also see 69 above.	'Yes' if Col (69) ≥ 50%
(70)	Chemical - % of Samples Complying with 2011 ADWG	Chemical water quality compliance achieved - %. Overall compliance with chemical requirements. Compliance refers to the number of samples taken for system performance monitoring and not the number of tests. Excludes samples taken for operational monitoring.	see note C
(70a)	Chemical Compliance Achieved?	Chemical water quality compliance (ADWG 2011) achieved - Yes or No. Also see 70 above.	'Yes' if Col (70) ≥ 95%
(70b)	No. of Zones where Chemical Compliance was Achieved	Assessment with the chemical requirements of the water quality guidelines for each zone of the system.	Report as number of zones complying out of the total number of zones
(70c)	% of Population with Chemical Compliance	From population served and compliance achieved by each zone.	
(71)	Microbiological - % of Samples Complying with 2011 ADWG	E. coli water quality compliance (ADWG 2011) achieved - %. E. coli contamination is the primary health-related indicator. Compliance refers to the number of samples taken for system performance monitoring and not the number of tests. Excludes samples taken for operational monitoring.	see note D
(71a)	E. coli Compliance Achieved?	E. coli water quality compliance (ADWG 2011) achieved - Yes or No. Also see 71 above.	'Yes' if Col (71) ≥ 98%
(71b)	No. of Zones where E. coli Compliance was Achieved	Assessment with the E. coli requirements of the water quality guidelines for each zone of the system.	Report as number of zones complying out of the total number of zones
(71c)	% of Population with E. coli Compliance	From population served and compliance achieved by each zone.	As per NPF
(73)	Water Quality Complaints (per 1000 properties)	Complaints are any expression of customer dissatisfaction reported in person, by phone, fax, letter or email. Water quality complaints are reported under the relevant source water treatment works.	(WB101a + WB101b) x 1000 ÷ Col (20) Table 9
(74)	Water Service Complaints (per 1000 properties)	Complaints are any expression of customer dissatisfaction reported in person, by phone, fax, letter or email.	WB96 x 1000 ÷ Col (20) Table 9
(75a)	Customers with Restrictions for Non-payment of Bills (per 1000 properties)	Restrictions and disconnections applied for non-payment of water bills in the reporting period.	WB132a x 1000 ÷ Col (20) Table 9
(75b)	Customers with Legal Action for Non-payment of Bills (per 1000 properties)	Legal actions for non-payment of water bills in the reporting period.	WB132b x 1000 ÷ Col (20) Table 9
(77)	Incidence of Unplanned Interruptions (No./1000 properties)	Includes each occurrence of unplanned interruptions to supply. Excludes reduced levels of service or breaks in service connections.	WB105 x 1000 ÷ Col (20) Table 9
(78)	Average Duration of Interruptions (minutes)	Average duration of unplanned interruptions.	WB107
(78a)	Drought Water Restrictions (% of time)	Percent of time that water restrictions apply.	(WB95 ÷ 365) x 100

Notes:

A. References to WB and WT (eg. WB99, WT16) refer to questions in each LWU's Water Supply Performance Monitoring Database. Eg. refer to Appendix B1.1.

B. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Physical compliance - sum for all treatment works, the product of WT16 multiplied by WT17 for each treatment works. Divide the total by the sum of WT16 for all treatment works.

Chemical compliance - sum for all treatment works, the product of WT18 multiplied by WT19 for each treatment works. Divide the total by the sum of WT18 for all treatment works.

D. Sum for all treatment works, the product of WT26 multiplied by WT27 for each treatment works. Divide the total by the sum of WT26 for all treatment works.

An LWU complied with the 2011 NHMRC/NRMMC Australian Drinking Water Guidelines for E. coli if the required number of samples was tested and:

At least 98% of the samples contained no E. coli

For LWUs which did not comply, the percentage of samples complying is shown.

E. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 13

13. Water Supply - 2015/16 Benchmarking Cost Data

Column No.	Performance Indicator	Background to Formula	Formula
(79a)	Total O&M Cost ($/property)	Maintenance, Operation, Energy, Chemical and Bulk Purchase costs.	Col (79) + Col (80) + Col (81) + Col (82) + Col (82a) Table 13
(79)	Operating Cost Components - Maintenance ($/property)	Maintenance cost of all water system assets.	[W_2b + W_2d + W_2f + W_2i + W_2l + W_2n] ÷ Col (20) Table 9
(80)	Operating Cost Components - Operation ($/property)	Operation cost of all water system assets.	[W_2a + W_2c + W_2e + W_2g + W_2j + W_2m] ÷ Col (20) Table 9
(81)	Operating Cost Components - Energy ($/property)	Energy cost of water pumping and treatment.	W_2h ÷ Col (20) Table 9
(82)	Operating Cost Components - Chemicals ($/property)	The chemicals cost for water treatment.	W_2k ÷ Col (20) Table 9
(82a)	Operating Cost Components - Bulk Purchase ($/property)	Purchase of water cost.	W_2o ÷ Col (20) Table 9
(83)	Operating Cost Components - Dams & Weirs ($/property)	Operation and Maintenance cost of dams and weirs.	[W_2a + W_2b] ÷ Col (20) Table 9
(84)	Operating Cost Components - Mains ($/property)	Operation and Maintenance cost of water mains.	[W_2c + W_2d] ÷ Col (20) Table 9
(85)	Operating Cost Components - Reservoirs ($/property)	Operation and Maintenance cost of reservoirs.	[W_2e + W_2f] ÷ Col (20) Table 9
(86)	Operating Cost Components - Pumping Stations ($/property)	Operation, Energy and Maintenance cost of water pumping stations.	[W_2g + W_2h + W_2i] ÷ Col (20) Table 9
(87)	Operating Cost Components - Water Treatment ($/property)	Operation, Chemical, Maintenance and Bulk Purchase cost of water treatment works.	[W_2j + W_2k + W_2l] ÷ Col (20) Table 9
(88)	Operating Cost Components - Other ($/property)	Operation and Maintenance cost of other water system assets.	[W_2m + W_2n + W_2o] ÷ Col (20) Table 9
(89)	Management Cost Components - Administration ($/property)	Administration costs.	W_1a ÷ Col (20) Table 9
(90)	Management Cost Components - Engineering & Supervision ($/property)	Engineering and Supervision costs.	W_1b ÷ Col (20) Table 9
(91a)	Management Cost Components - Total ($/property)	Administration, Engineering and Supervision costs.	Col (89) + Col (90) Table 13
(91)	Management Cost Components - Total (c/kL)	Management cost per kL of urban water supplied.	[W_1a + W_1b] x 100 ÷ [Col (49) Table 10 x 1000]
(91b)	Total OMA Cost ($/property)	Operation, Maintenance and Management costs.	Col (79a) + Col (91a) Table 13
(92)	Headworks Component ($/property)	From the headworks component estimated in the reporting forms.	[W_1 + W_2] x [WB133 ÷ 100] ÷ Col (20) Table 9
(93)	Distribution Component ($/property)	From the distribution component estimated in the reporting forms.	[W_1 + W_2] x [WB134 ÷ 100] ÷ Col (20) Table 9
(94)	Pumping Cost Components - Total Water Pumping Cost (c/kL)	From special schedule No. 3.	[W_2g + W_2h + W_2i] x 100 ÷ [Col (49) Table 10 x 1000]
(95)	Pumping Cost Components - Total Water Pumping Cost ($'000/pumping station)	From special schedule No. 3.	[W_2g + W_2h + W_2i] ÷ 1000 ÷ Col (30) Table 9
(96)	Pumping Cost Components - Operation ($'000/pumping station)	From special schedule No. 3.	[W_2g ÷ 1000] ÷ Col (30) Table 9
(97)	Pumping Cost Components - Maintenance ($'000/pumping station)	From special schedule No. 3.	[W_2i ÷ 1000] ÷ Col (30) Table 9
(98)	Pumping Cost Components - Energy ($'000/pumping station)	From special schedule No. 3.	[W_2h ÷ 1000] ÷ Col (30) Table 9
(100)	Water Main Cost Components - Total Water Main Cost (c/kL)	From special schedule No. 3.	[W_2c + W_2d] x 100 ÷ [Col (49) Table 10 x 1000]
(101)	Water Main Cost Components - Total Water Main Cost ($'000/100km)	From special schedule No. 3.	[W_2c + W_2d] ÷ 1000 ÷ [Col (25a) Table 9 ÷ 100]
(102)	Water Main Cost Components - Operation ($'000/100km)	From special schedule No. 3.	[W_2c ÷ 1000] ÷ [Col (25a) Table 9 ÷ 100]
(103)	Water Main Cost Components - Maintenance ($'000/100km)	From special schedule No. 3.	[W_2d ÷ 1000] ÷ [Col (25a) Table 9 ÷ 100]
(104)	Treatment Cost Components - Total Water Treatment Cost (c/kL)	From special schedule No. 3.	[W_2j + W_2k + W_2l] ÷ [10 x Col (49) Table 10]
(105)	Treatment Cost Components - Operation ($/property)	From special schedule No. 3.	W_2j ÷ Col (20) Table 9
(106)	Treatment Cost Components - Maintenance ($/property)	From special schedule No. 3.	W_2l ÷ Col (20) Table 9
(107)	Treatment Cost Components - Chemical ($/property)	From special schedule No. 3.	W_2k ÷ Col (20) Table 9

Notes:

A. References to WB (eg. WB99) refer to questions in each LWU's Water Supply Performance Monitoring Database. Eg. refer to Appendix B1.1

B. References to W_ (eg. W_15) refer to items in Special Schedules Nos 3 and 4 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 14

14. Sewerage - 2015/16 Utility Characteristics

Column No.	Performance Indicator	Background to Formula	Formula
(1)	Total No. of Assessments (see note C)	Where this data is ambiguous or missing, it has been estimated from other supporting information (financial data, previous year's data).	SB17
(2)	Ratio of Connected Properties to Assessments (see note C)	This ratio has been determined from previous performance reports. It does not normally change from year to year and will be continued unless change is considered warranted by the LWU, in which case evidence of a different factor should be provided by the LWU.	SB18
(3)	Connected Properties	Total connected properties (residential plus non-residential). Calculated from number of assessments multiplied by the ratio of connected properties to assessments.	Col (1) x Col (2) Table 14
(4)	Ratio of Residential Assessments to Total Assessments	This ratio has been determined from previous performance reports. It does not normally change from year to year and will be continued unless change is considered warranted by the LWU, in which case evidence of a different factor should be provided by the LWU.	SB18a
(5)	Ratio of Residential Connections to Residential Assessments	This ratio has been determined from previous performance reports. It does not normally change from year to year and will be continued unless change is considered warranted by the LWU, in which case evidence of a different factor should be provided by the LWU.	SB19
(5a)	Connected Residential Properties	A residential property connected to the sewerage system, which may or may not have a separate assessment.	Col (1) x Col (4) x Col (5) Table 14
(6)	Permanent Population	Where this data is ambiguous or missing, it has been estimated from other supporting information (financial data, previous year's data).	SB1
(7)	Peak Population (% of permanent)	Maximum population served anytime this reporting year.	SB2 x 100 ÷ SB1
(8)	Mains (km)	Total length of sewer mains including reticulation, gravity and rising mains.	SB9
(9)	Properties Served per km of main	Total number of connected properties divided by length of mains.	Col (3) ÷ Col (8) Table 14
(10)	Sewage Treatment Works (No.)	Number of treatment works.	SB3
(11)	Pumping Stations	Number of sewage pumping stations.	SB5
(12)	Pumping Stations per 100km of main	Number of pumping stations divided by length of main.	Col (11) ÷ [Col (8) Table 14 ÷ 100]
(13)	Capital Expenditure ($/property)	Assets, renewals, plant/equipment.	Col (13a) x 1,000,000 ÷ Col (3) Table 14
(13a)	Capital Expenditure ($M)	Assets, renewals, plant/equipment.	S_17 ÷ 1,000,000
(13b)	Capital Works Grants ($'000)	Grants for acquisition of assets.	S_12a
(14)	Total Workforce (sewerage) (Employees/1000 properties)	Equivalent full time employees involved in sewerage business.	SB49
(15)	% Female	% of equivalent full time female employees in total sewerage business workforce.	SB50 x 100 ÷ SB49
(16)	% Undergoing Training	% of employees in sewerage workforce undergoing training for 2+ days during the year.	SB51 x 100 ÷ SB49
(19)	Outsourcing % of Maintenance Cost	% expended on outsourcing for maintenance of sewerage business.	SB59
(20)	Number of Injuries	Number of injuries (fatality, permanent disability or time loss of one or more days) in water supply business.	SB53
(21)	Total Days Lost (%)	Number of days lost for all reasons (disputes, sick leave, accidents) in sewerage business expressed as a percentage of the total number of days worked.	SB52 ÷ (230 x SB49)
(22)	Days Lost due to Injuries (No.)	Number of days lost due to injuries (time loss of one or more days) in sewerage business.	SB54
(22a)	Days Lost due to Injuries (% of Total Days Lost)	Number of days lost due to injuries (time loss of one or more days) as a percentage of number of days lost for all reasons in sewerage business.	(SB54 x 100) / SB52

Notes:

A. References to SB (eg. SB9) refer to questions in each LWU's Sewerage Performance Monitoring Database. Eg. refer to Appendix B1.3.

B. References to S_ (eg. S_16) refer to items in Special Schedules Nos 5 and 6 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 15

15. Sewerage - 2015/16 Asset Management

Column No.	Performance Indicator	Background to Formula	Formula
(23)	Infiltration (ML per 100km of main)	Estimated groundwater infiltration and stormwater inflow into the system per 100km of main.	ΣST31 ÷ (SB9 ÷ 100)
(24)	Breaks and Chokes (No. per 100km of main)	Breaks and chokes are partial or total blockages resulting in an interruption to sewerage services or overflows at gully traps. Blockages in risers and sidelines are excluded.	SB64 ÷ (SB9 ÷ 100)
(25)	Overflows (No. per 100km of main)	Recorded overflows in sewers, access chambers and pumping stations. Overflows in risers and sidelines are excluded.	SB63a ÷ (SB9 ÷ 100)
(27)	Rehabilitation of mains (% of total length)	Length of mains rehabilitated as % of total length of main.	(SB10 ÷ SB9) x 100)
(28)	Rehabilitation of service connections (%)	Number of service connections rehabilitated as % of total.	SB11 x 100 ÷ Col(3) Table 14
(29)	Renewals ($'000 per 100km of main)	Expenditure on renewals per 100km of main.	(S_17c ÷ 1000) ÷ (SB9 ÷ 100)
(30)	Renewals (% of CRC)	Expenditure on renewals as % of Current Replacement Cost (CRC) of systems assets.	S_17c x 100 ÷ [Col (46) Table 16 x 1000]
(31)	Mains Maintenance Cost ($'000 per 100km of main)	Expenditure on maintenance of mains per 100km of main.	(S_2b ÷ 1000) ÷ (SB9 ÷ 100)
(31a)	Overflows Reported to Regulator (No. per 100km of main)	Untreated sewage spills or discharges escape from the sewerage system to the external environment, reported as per utility's licence.	SB63b ÷ (SB9 ÷ 100)
(32)	Total Volume of Sewage Collected (ML)	Total volume transported through sewerage network.	ΣST15
(32a)	Volume of Trade Waste (ML)	Network trade waste.	ΣST34
(33)	Percentage of Sewage Treated (%)	% of total sewage treated.	[ΣST18 + ΣST19] x 100 ÷ Col (32) Table 15
(33a)	% Sewage Treated that was Compliant	The number of scheduled samples that complied in the reporting period divided by the number of scheduled samples in the reporting period.	(No. of scheduled samples complying with licence limits) x 100 ÷ Total No. of scheduled samples in reporting period.
(33b)	STWs Compliant at all times	Compliance is where effluent from the sewage treatment plant meets the licence conditions prescribed by the environmental regulator.	As per NPF
(34)	Percentage of Total Sewage Collected - Infiltration/Inflow	% of total sewage collected.	ΣST31 x 100 ÷ ΣST15
(35)	Percentage of Total Sewage Collected - Residential	% of total sewage collected.	ΣST32 x 100 ÷ ΣST15
(36)	Percentage of Total Sewage Collected - Non-residential	% of total sewage collected.	ΣST33 x 100 ÷ ΣST15
(37)	Percentage of Total Sewage Collected - Trade Waste	% of total sewage collected.	ΣST34 x 100 ÷ ΣST15
(38)	Percentage of Total Sewage Collected - Other	Remainder not reported under columns (34), (35), (36) or (37). % of total sewage collected.	100 - Col (34) - Col (35) - Col (36) - Col (37) Table 15
(39a)	Level of Treatment - Primary Level (%)	Primary treatment only.	[ΣST17 x 100] ÷ Col (32) Table 15
(39b)	Level of Treatment - Secondary Level (%)	Secondary treatment only.	[ΣST18 x 100] ÷ Col (32) Table 15
(39c)	Level of Treatment - Tertiary Level (%)	Tertiary treatment only.	[ΣST19 x 100] ÷ Col (32) Table 15
(39)	Volume of Sewage Collected per property (kL/property)	Includes residential, non-residential and trade waste.	Col (32) Table 15 ÷ Col (3) Table 14
(40)	Biosolids Reused (%)	% of biosolids (sludge) to farmland, landfill etc.	Σ[ST27 ÷ 100 x ST26] ÷ ΣST26
(41a)	Effluent Recycled - Total (ML)	Total volume recycled.	ΣST25
(41b)	Effluent Recycled - Urban Water (ML)	Total urban water recycled (excluding agricultural, environmental and bulk).	Σ[ST21 + ST22 + ST23 + ST24 + ST24a]
(41c)	% of Effluent Recycled	Percentage of effluent that is recycled.	100 x Col (41a) ÷ Col (32) Table 15

Notes:

A. References to SB and ST (eg. SB9, ST32) refer to questions in each LWU's Sewerage Performance Monitoring Database. ΣST17 refers to the sum of values for each treatment works. Eg. refer to Appendix B1.3.

B. References to S_ (eg. S_16) refer to items in Special Schedules Nos 5 and 6 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 16

16. Sewerage - 2015/16 Financial, Efficiency

Column No.	Performance Indicator	Background to Formula	Formula
(42)	Total Revenue (excl Capital Works Grants) ($'000)	Total Revenue excluding grants for acquisition of assets, interest income and gain/loss on disposal of assets [Residential Charges + Non-residential Charges + Trade Waste Charges + Extra Charges + Other Revenues + Grants (excluding receipts from government for Acquisition of Assets) + Contributions (Developer Charges + Developer Provided Assets + Other Contributions)].	(S_14 - S_10 - S_12a) ÷ 1000
(42a)	Revenue per property ($)	Total revenue per connected property.	[Col (42) Table 16 x 1000] ÷ [Col (3) Table 14]
(42b)	Revenue from Rates and Charges ($'000)	Total sewerage revenue from residential, non-residential and trade waste rates and charges (excluding extra charges).	(S_6 + S_7 + S_8) ÷ 1000
(42c)	Operating Cost (OMA) ($'000)	Total sewerage operation, maintenance and administration (OMA) costs. OMA includes engineering and supervision costs.	(S_1 + S_2) ÷ 1000
(42d)	Ratio of OMA to Rates and Charges Revenue (%)	Total OMA divided by total rates and charges revenue for sewerage.	Col (42c) ÷ Col (42b) Table 16
(43)	Residential Revenue (% of rates and charges total)	Where an LWU has not reported a breakdown of revenue from rates and charges and sales into residential and non-residential, the percentage revenue for such LWUs has been estimated from the reported percentages of similar LWUs.	(S_6) x 100 ÷ (S_6 + S_7 + S_8)
(44)	Residential Sewage (% of total collected excl infiltration/inflow)	% of total collected excluding infiltration and inflow.	[ΣST32 ÷ (ΣST15 - ΣST31)] x 100
(45)	Written Down Replacement Cost ($M)	Written down replacement cost of system assets.	S_42 ÷ 1,000,000
(46)	Current Replacement Cost (CRC) of System Assets ($M)	The value of the infrastructure assets expressed in terms of how much it would cost to construct modern assets to provide the same function (ie. MEERA - Modern Engineering Equivalent Replacement Asset).	S_40 ÷ 1,000,000
(47)	Current Replacement Cost per Assessment ($)	The value of the infrastructure assets divided by the number of assessments.	S_40 ÷ Col (1) Table 14
(48)	Net Debt to Equity - W&S (%)	All repayable borrowings, interest bearing non-repayable borrowings, advances and leases less cash & investments ÷ total equity.	[(W_32 - W_25) + (S_33 - S_26)] x 100 ÷ (W_38 + S_39)
(48a)	Return on Assets (%)	See Col (9) in Table 7.	From Col (9) Table 7
(48b)	Economic Real Rate of Return (%)	See Col (11) in Table 7.	From Col (11) Table 7
(50)	Operating Result ($/property)	Total revenue less total expenses less grants for acquisition of assets divided by total number of connected properties.	(S_16a) ÷ Col (3) Table 14
(47a)	Written Down Value of Current Replacement Cost per property ($)	The written down value of the infrastructure assets divided by the number of connected properties.	S_42 ÷ Col (3) Table 14
(51)	Externalities ($/property)	Sewage treatment works licence fees paid by LWUs to EPA.	From EPA records
(51a)	Loan Payment ($/property)	Includes interest expenses, repayment of debt (Loans, Advances, Finance Leases).	(S_4a + S_18) ÷ Col (3) Table 14
(52)	Operating Cost OMA ($/property)	Total operation, maintenance and administration costs divided by total number of connected properties.	[S_1 + S_2] ÷ Col (3) Table 14
(54)	Management Cost ($/property)	Total management costs divided by total number of connected properties.	S_1 ÷ Col (3) Table 14

Notes:

A. References to SB and ST (eg. SB9, ST32) refer to questions in each LWU's Sewerage Performance Monitoring Database. ΣST17 refers to the sum of values for each treatment works. Eg. refer to Appendix B1.3.

B. References to S_ (eg. S_16) refer to items in Special Schedules Nos 5 and 6 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

Formulae for calculation of performance indicators in table 17

17. Sewerage - 2015/16 Environmental, Levels of Service

Column No.	Performance Indicator	Background to Formula	Formula
(55)	EPA Licence Compliance BOD (%)	Compliance refers to the number of samples taken for system performance monitoring and not the number of tests.	see note B
(56)	BOD 90 Percentile Discharge Licence Limit (mg/L)	Some councils only have 100 percentile licence limits for their treatment works. In this case the 100 percentile limits should be reported.	see note B
(57)	EPA Licence Compliance SS (%)	Compliance refers to the number of samples taken for system performance monitoring and not the number of tests.	see note C
(58)	SS 90 Percentile Discharge Licence Limit (mg/L)	Some councils only have 100 percentile licence limits for their treatment works. In this case the 100 percentile limits should be reported.	see note C
(59a)	EPA Licence Compliance N (%)	Compliance refers to the number of samples taken for system performance monitoring and not the number of tests.	see note B
(59b)	EPA Licence Compliance P (%)	Compliance refers to the number of samples taken for system performance monitoring and not the number of tests.	see note B
(59c)	EPA Licence Compliance Oil & Grease (%)	Compliance refers to the number of samples taken for system performance monitoring and not the number of tests.	see note B
(59d)	EPA Licence Compliance Faecal Coliform (%)	Compliance refers to the number of samples taken for system performance monitoring and not the number of tests.	see note B
(59e)	Sewage Treated that was Compliant (%)	Percent of sewage volume treated that was compliant.	see note E
(59f)	STWs Compliant at all times	Number of treatment works compliant with licence conditions.	see note F
(60)	Compliance with Environmental Regulator (Y/N)		see note C
(61)	Odour Complaints (per 1000 properties)	Odour complaints for treatment works, pumping stations and pipe network in your sewerage business.	SB39 x 1000 ÷ Col (3) Table 14
(62)	Service Complaints (per 1000 properties)	Service complaints including chokes and odour, but excluding billing. Exclude queries.	[SB38 + SB34 + SB39] x 1000 ÷ Col (3) Table 14
(65)	Average Sewerage Interruption (minutes)	Measured from time when utility is aware that sewerage services are no longer available. Sum of total minutes of interruption divided by the total number of interruptions.	SB43

Notes:

A. References to SB (eg. SB9) refer to questions in each LWU's Sewerage Performance Monitoring Database. Eg. refer to Appendix B1.3.

B. For multiple treatment works, the Licence Compliance indicators are calculated as a weighted average on the basis of the number of sampling days for each treatment works.
ie. For BOD compliance, sum for all treatment works, the product of ST50 multiplied by ST63 for each treatment works.
Divide this total by the sum of ST63 for all treatment works.

C. SS compliance is calculated in a similar manner to BOD compliance.
ie. For SS compliance, sum for all treatment works, the product of ST52 multiplied by ST63 for each treatment works.
Divide the total by the sum of ST63 for all treatment works.

D. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

E. From page 57 of the 2013-14 National Performance Framework.

F. From page 59 of the 2013-14 National Performance Framework.

Formulae for calculation of performance indicators in table 18

18. Sewerage - 2015/16 Benchmarking Cost Data

Column No.	Performance Indicator	Background to Formula	Formula
(66a)	Total O&M Cost ($/property)	Operation, Maintenance, Energy, Chemical, Effluent Management and Biosolids Management costs.	Col (66) + Col (67) + Col (68) + Col (69) + Col (69a) Table 18
(66)	Operating Cost Components - Maintenance ($/property)	Maintenance cost of all sewerage system assets.	[S_2b + S_2e + S_2k + S_2m] ÷ Col (3) Table 14
(67)	Operating Cost Components - Operation ($/property)	Operation cost of all sewerage system assets.	[S_2a + S_2c + S_2f + S_2l] ÷ Col (3) Table 14
(68)	Operating Cost Components - Energy ($/property)	Energy cost of sewage treatment and pumping	S_2h ÷ Col (3) Table 14
(69)	Operating Cost Components - Chemical Treatment ($/property)	The chemical cost of sewage treatment.	S_2g ÷ Col (3) Table 14
(69a)	Operating Cost Components - Effluent & Biosolids ($/property)	Effluent Management and Biosolids Management cost of sewage treatment.	[S_2i + S_2j] ÷ Col (3) Table 14
(70)	Operating Cost Components - Mains ($/property)	Operation and Maintenance cost of sewage mains.	[S_2a + S_2b] ÷ Col (3) Table 14
(71)	Operating Cost Components - Pumping Stations ($/property)	Operation, Energy and Maintenance cost of sewage pumping stations.	[S_2c + S_2d + S_2e] ÷ Col (3) Table 14
(72)	Operating Cost Components - Sewage Treatment ($/property)	Operation, Chemical, Energy, Effluent Management, Biosolids Management and Maintenance cost of sewage treatment.	[S_2f + S_2g + S_2h + S_2i + S_2j + S_2k] ÷ Col (3) Table 14
(73)	Operating Cost Components - Other ($/property)	Operation and maintenance cost of other sewerage system assets.	[S_2l + S_2m] ÷ Col (3) Table 14
(74)	Management Cost Components - Administration ($/property)	Administration costs.	S_1a ÷ Col (3) Table 14
(75)	Management Cost Components - Engineering & Supervision ($/property)	Engineering and Supervision costs.	S_1b ÷ Col (3) Table 14
(76a)	Management Cost Components - Total ($/property)	Administration, Engineering and Supervision costs.	Col (74) + Col (75) Table 18
(76)	Management Cost Components - Total (c/kL)	Management cost per kL of sewage treated.	[S_1a + S_1b] x 100 ÷ Col (32) Table 15
(76b)	Total OMA Cost ($/property)	Operation, Maintenance and Management costs.	Col (66a) + Col (76a) Table 18
(77)	Wholesale Component (Treatment) ($/property)	The cost of sewage treatment.	[S_2f + S_2g + S_2h + S_2i + S_2j + S_2k] ÷ Col (3) Table 14
(78)	Retail Component (Reticulation) ($/property)	The cost of transportation and reticulation.	[S_2a + S_2b + S_2c + S_2d + S_2e] ÷ Col (3) Table 14
(79)	Pumping Cost Components - Total Sewage Pumping Cost (c/kL)	From special schedule No. 5.	[S_2c + S_2d + S_2e] x 100 ÷ [Col (32) Table 15 x 1000]
(80)	Pumping Cost Components - Total Sewage Pumping Cost ($'000/pumping station)	From special schedule No. 5.	[S_2c + S_2d + S_2e] ÷ 1000 ÷ Col (11) Table 14
(81)	Pumping Cost Components - Operation ($'000/pumping station)	From special schedule No. 5.	[S_2c ÷ 1000] ÷ Col (11) Table 14
(82)	Pumping Cost Components - Maintenance ($'000/pumping station)	From special schedule No. 5.	[S_2e ÷ 1000] ÷ Col (11) Table 14
(83)	Pumping Cost Components - Energy ($'000/pumping station)	From special schedule No. 5.	[S_2d ÷ 1000] ÷ Col (11) Table 14
(85)	Sewer Main Cost Components - Total Sewer Main Cost (c/kL)	From special schedule No. 5.	[S_2a + S_2b] x 100 ÷ [Col (32) Table 15 x 1000]
(86)	Sewer Main Cost Components - Total Sewer Main Cost ($'000/100km)	From special schedule No. 5.	[S_2a + S_2b] ÷ 1000 ÷ [Col (8) Table 14 ÷ 100]
(87)	Sewer Main Cost Components - Operation ($'000/100km)	From special schedule No. 5.	[S_2a ÷ 1000] ÷ [Col (8) Table 14 ÷ 100]
(88)	Sewer Main Cost Components - Maintenance ($'000/100km)	From special schedule No. 5.	[S_2b ÷ 1000] ÷ [Col (8) Table 14 ÷ 100]
(89)	Treatment Cost Components - Total Sewage Treatment Cost (c/kL)	From special schedule No. 5.	[S_2f + S_2g + S_2h + S_2i + S_2j + S_2k] ÷ [10 x Col (32)
(90)	Treatment Cost Components - Operation ($/property)	From special schedule No. 5.	[S_2f] ÷ Col (3) Table 14
(91)	Treatment Cost Components - Maintenance ($/property)	From special schedule No. 5.	[S_2k] ÷ Col (3) Table 14
(92)	Treatment Cost Components - Chemical ($/property)	From special schedule No. 5.	[S_2g] ÷ Col (3) Table 14

Notes:

A. References to SB (eg. SB9) refer to questions in each LWU's Sewerage Performance Monitoring Database. Eg. refer to Appendix B1.3.

B. References to S_ (eg. S_16) refer to items in Special Schedules Nos 5 and 6 of each LWU's Annual Financial Statements. Note that dollar values in the Special Schedules are reported in $'000 whereas the whole dollar value is used in these Tables and formulae.

C. Where LWU data is missing or ambiguous, the figure has been determined from other supporting information in accordance with Appendix H2.

APPENDIX C: EXAMPLE 2015-16 WATER SUPPLY AND SEWERAGE TBL PERFORMANCE REPORTS AND ACTION PLANS

C1 Coffs Harbour City Council Water Supply TBL Report (Page 1)

Coffs Harbour City Council **TBL Water Supply Performance** **2015-16**

WATER SUPPLY SYSTEM - Coffs Harbour City Council serves a population of 72,300 (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 529 km of reticulation. 94% of water supplied is potable and 6% nonpotable (recycled).

BPM IMPLEMENTATION - Coffs Harbour City Council achieved 100% implementation of the outcomes required by the NSW BPM Framework, however, Council needs 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) to maintain 100% BPM Implementation.

PERFORMANCE - The 2016-17 typical residential bill was $596 which was close to the statewide median of $625 (Indicator 14). The economic real rate of return was similar to the statewide median (indicator 43). The operating cost (OMA) per property was $388 which was less than the statewide median of $440 (Indicator 49). Water quality complaints were negligible compared to the statewide median of 3 (Indicator 25). Compliance with ADWG was achieved for microbiological water quality (100% of the population, 3 of 3 zones compliant), chemical water quality and physical water quality. The chlorination system failed to operate on 1 day. There were no failures of the treatment system. Coffs Harbour City Council reported no water supply public health incidents. Council has a risk-based Drinking Water Management System (DWMS) and had 0 days of water restrictions. Current replacement cost of system assets was $435M ($16,300 per assessment). Cash and investments were $28.7M, debt was $72M and revenue was $23M (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**	**(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**	**YES***
	(2e) Pricing - DSP with Commercial Developer Charges	Yes		**IMPLEMENTATION OF ALL OUTCOMES**	**100%**

TRIPLE BOTTOM LINE (TBL) PERFORMANCE INDICATORS

		NWI	No.			LWU RESULT	RANKING Size Group 1	RANKING All LWUs	MEDIANS Statewide	MEDIANS National
						Col 1	*Col 2*	*Col 3*	*Col 4*	*Col 5*
UTILITY	CHARACTERISTICS	C1	1	**Population served:**	**72300** Number of assessments: 26660					
		C4	2	**Number of connected properties:**	Council is within Size Group 1: (>10,000 properties)	25,060				
			3	**Residential connected properties**	*% of total*	94			91	
			4	**New residences connected to water supply** (%)	*%*	1.7	2	1	1.0	
		A3	5	**Properties served**	*Prop/km*	38			33	**34**
			6	**Rainfall**	*% median annual rainfall*	59	**5**	**5**	104	
		W11	7	**Total urban water supplied at master meters**	*ML*	6,180			6,900	**9,770**
			8	**Peak week to average consumption**	*%*	120	1	1	142	
			9	**Renewals expenditure**	*% CRC*	0.1	**5**	**5**	0.6	
			10	**Employees**	*per 1,000 prop*	1.8	4	3	1.5	
SOCIAL	CHARGES & BILLS	P1		**Residential tariff structure for 2016-17:**	inclining block; independent of land value; access charge $143					
		P1.3	12a	**Residential water usage charge for 2015-16 for usage <365 kL (c/kL)**	*c/kL (2015-16)*	267	2	2	228	**190**
			12	**Residential water usage charge for 2016-17 for usage <365 kL (c/kL)**	*c/kL (2016-17)*	271	2	2	230	
		P3	14a	**Typical residential bill for 2015-16**	*$/assessment (2015-16)*	590	2	2	601	**623**
			14	**Typical residential bill for 2016-17**	*$/assessment (2016-17)*	596	2	2	625	
			15	**Typical developer charge for 2016-17**	*$/ET (2016-17)*	10,300	1	1	5,600	
		F4	16	**Residential revenue from usage charges**	*% residential bills*	76	1	2	73	**66**
		F5	17	**Revenue** - Water	*$/prop*	920	3	3	928	**921**
	HEALTH		18	**Water Supply Coverage** (% of Urban Population with reticulated WS)	*% of population*	99.1	3	2	99.2	
		H4	19b	**% population with chemical compliance**	*% of population*	100	1	1	100	
		H3	20a	**% population with microbiological compliance**	*% of population*	100	1	1	100	**100**
	SERVICE LEVELS	C9	25	**Water quality complaints**	*per 1,000 prop*	0	1	1	3	**2**
		C10	26	**Water service complaints**	*per 1,000 prop*	0	1	1	4	**1**
		C17	27	**Incidence of unplanned interruptions**	*per 1,000 prop*	30	3	4	32	**90**
		A8	30	**Number of water main breaks**	*per 100km main*	7	2	2	9	**13**
			32	**Total days lost**	*%*	4.9	4	4	3.5	
ENVIRON-MENTAL	NATURAL RESOURCE MANAGEMENT	W12	33	**Average annual residential water supplied - STATEWIDE**	*kL/prop*	167	3	2	162	**181**
			33a	**Average annual residential water supplied - COASTAL LWUs**	*kL/prop*	167	4	4	155	
		A10	34	**Real losses** (leakage)	*L/connection/day*	50	2	2	70	**76**
			35	**Energy consumption**	*kWh/ML*	438	2	3	660	
		E12	36a	**Net greenhouse gas emissions - WS & Sge**	*t CO2 eq per 1,000 prop*	460	4	4	390	**402**
ECONOMIC	FINANCE		42	**Current replacement cost**	*$/assessment*	16,300	4	4	17,400	
		F17	43	**Economic real rate of return** - Water	*%*	2.3	3	2	2.3	**2.8**
			44	**Return on assets** - Water	*%*	0.9	4	4	1.7	
		F22	45	**Net Debt to equity** - WS & Sge	*%*	11	1	1	-3	**7**
		F23	46	**Interest cover** - WS & Sge		1	3	3	34	**2**
			47	**Loan payment per property** - Water	*$/prop*	206	1	1	11	
		F24	47b	**Net profit after tax** - WS & Sge	*$'000*	1,260	4	2	3,800	**9,300**
	EFFICIENCY		48	**Operating cost (OMA) per 100km of main**	*$'000*	1,460	4	4	1,120	
		F11	49	**Operating cost (OMA) per property - Note 8**	*$/prop*	388	2	1	440	**485**
			50	**Operating cost (OMA) per kilolitre**	*c/kL*	156	4	4	120	
			51	**Management cost**	*$/prop*	148	3	3	148	
			52	**Treatment cost**	*$/prop*	68	4	2	59	
			53	**Pumping cost**	*$/prop*	8	2	1	28	
			54	**Energy cost**	*$/prop*	5	2	1	17	
			55	**Water main cost**	*$/prop*	105	4	4	71	
		F28	56	**Capital Expenditure**	*$/prop*	48	**5**	**5**	212	**193**

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 75 utilities reporting water supply performance in the National Performance Report 2015-16 (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 2016-17 Non-res tariff: Access Chg based on Meter Size: 40mm $572, Two Part: Usage Chg 271c/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. This indicates fair pricing of services between the residential and non-residential sectors.

8 Operating cost (OMA/ property) was $388. Components were: management ($148), operation ($102), maintenance ($117), energy ($5) & chemical ($13).

9 Rehabilitations included 0.2% of water mains and 5.1% of water meters. Renewals expenditure was $80,000/100km of main.

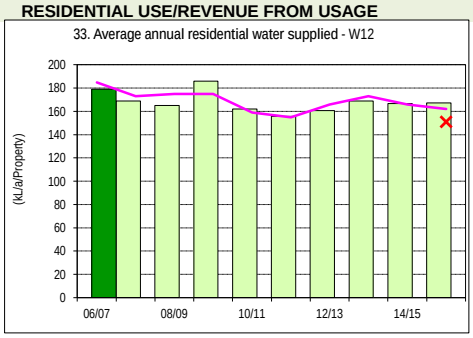
10 Coffs Harbour City Council has 3 fully qualified water treatment operators who meet the requirements of the National Certification Framework.

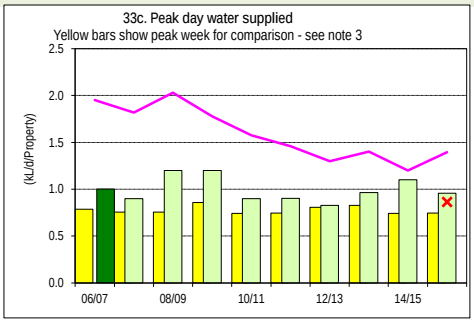
Coffs Harbour City Council Water Supply TBL Report (Page 2)

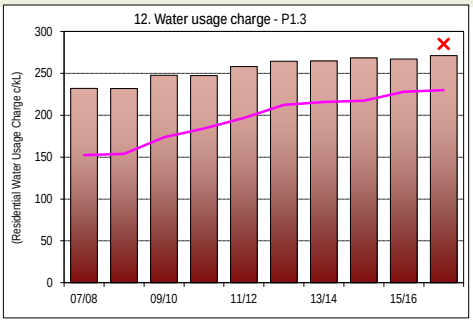
Coffs Harbour City Council **TBL Water Supply Performance (page 2)** **2015-16**

(Results shown for 10 years together with Statewide Median and 2015-16 Top 20%)

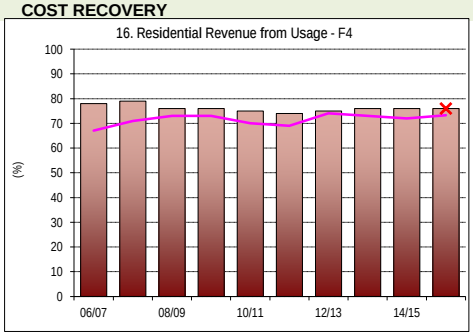
RESIDENTIAL USE/REVENUE FROM USAGE

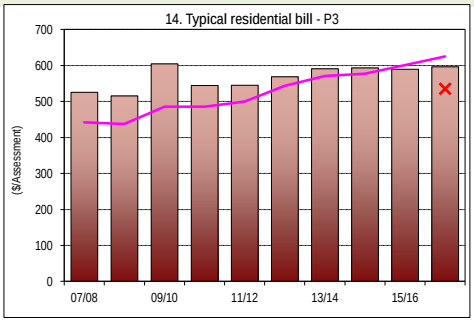


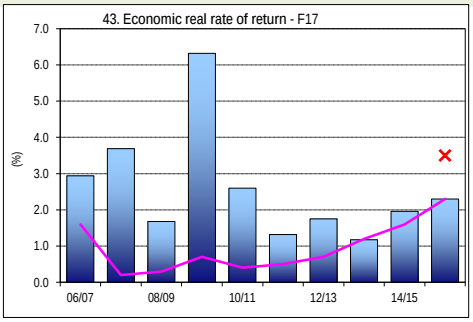




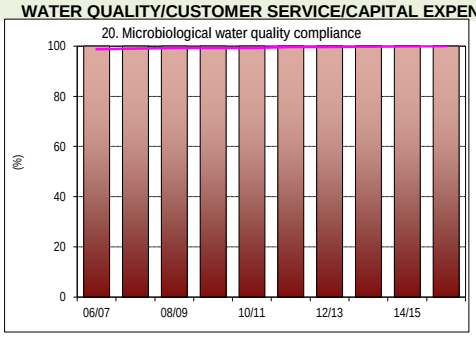
COST RECOVERY

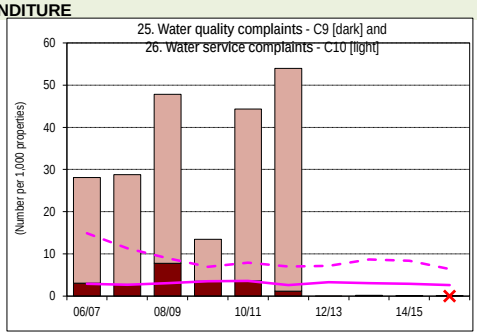


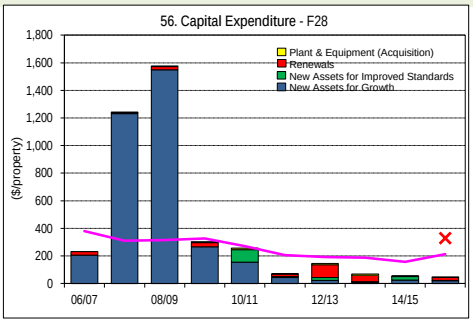




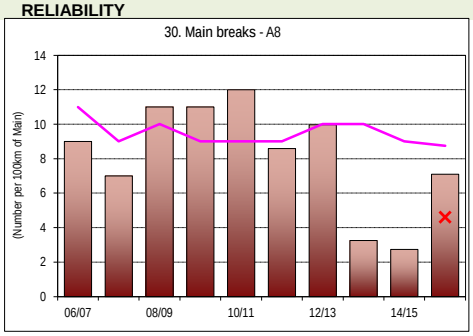
WATER QUALITY/CUSTOMER SERVICE/CAPITAL EXPENDITURE

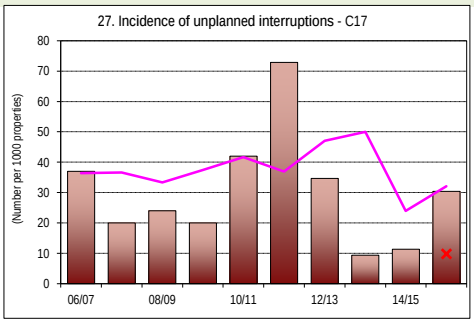


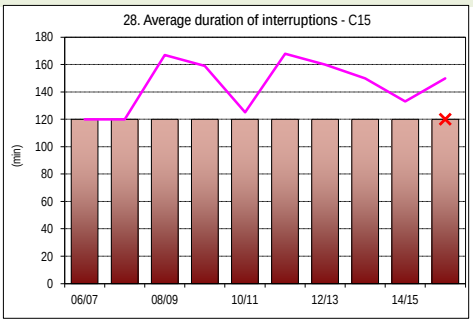




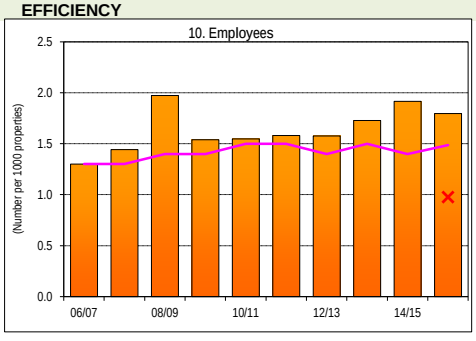
RELIABILITY

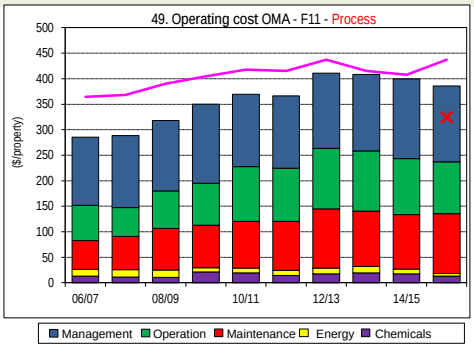


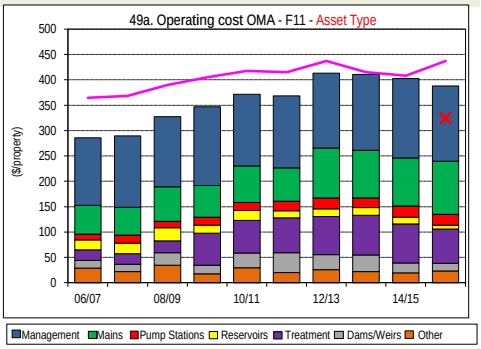




EFFICIENCY







NOTES:

1. Costs are in Jan 2016$ except for graphs 12 and 14, which are in Jan 2017$.
2. Microbiological water quality compliance up to 2010-11 was on the basis of 2004 NHMRC/NRMMC Australian Drinking Water Guidelines (ADWG) and for 2011-12 to 2015-16 compliance was on the basis of the 2011 ADWG.
3. Indicator 33c - Yellow bars show Peak Week Water Supplied for comparison with Peak Day Water Supplied shown in green.
4. 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

LEGEND
State Median for all years
Top 20% for 2015-16

C2 Coffs Harbour City Council Sewerage TBL Report (Page 1)

Coffs Harbour City Council **TBL Sewerage Performance** **2015-16**

SEWERAGE SYSTEM - Coffs Harbour City Council serves a population of 71,000 (23,710 connected properties) and has 4 sewage treatment works providing secondary and tertiary treatment. The system comprises 96,500 EP treatment capacity (Intermittent and Continuous Extended Aeration (Activated Sludge) and Biological Nutrient Removal), 117 pumping stations, 118 km of rising mains and 515 km of gravity trunk mains and reticulation. 19% of effluent was recycled (Indicator 27). Coffs Harbour City Council has 4 Pollution Incident Response Management Plans (PIRMPs) for their sewage treatment works.

BPM IMPLEMENTATION - Coffs Harbour City Council achieved 100% implementation of the outcomes required by the NSW BPM Framework, however, Council needs 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) to maintain 100% BPM Implementation.

PERFORMANCE - Residential growth for 2015-16 was 1.3% which is similar to the statewide median. Coffs Harbour City Council achieved 100% implementation of the outcomes required by the NSW BPM Framework. The 2016-17 typical residential bill was $806 which was above the statewide median of $718 (Indicator 12). The economic real rate of return was 0.8% which was less than the statewide median (Indicator 46). The operating cost per property (OMA) was $583 which was above the statewide median of $470 (Indicator 50). Sewage odour complaints were less than the statewide median of 0.9 (Indicator 21). Coffs Harbour Council reported no public health incidents. Council complied with the requirements of the environmental regulator for effluent discharge. The current replacement cost of system assets was $673M ($26,400 per assessment), cash and investments were $46M, debt was $84M and revenue was $30.3M (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**	**(2e) Pricing** - DSP with commercial developer charges		Yes
(2)	**(2a) Pricing** - Full Cost Recovery without significant cross subsid	Yes	**(2f) Pricing** - Liquid trade waste approvals & policy		Yes
	(2b) Pricing - Appropriate Residential Charges	Yes	**(3) Complete performance reporting** (by 15 September)		**YES**
	(2c) Pricing - Appropriate Non-Residential Charges	Yes	**(4) Integrated water cycle management strategy**		**YES***
	(2d) Pricing - Appropriate Trade Waste Fees and Charges	Yes	**IMPLEMENTATION OF ALL OUTCOMES**		**100%**

TRIPLE BOTTOM LINE (TBL) PERFORMANCE INDICATORS						RESULT	RANKING		MEDIANS	
		NWI	No.				Size Group 1	All LWUs	Statewide	National
						Col 1	Col 2	Col 3	Col 4	Col 5
UTILITY	CHARACTERISTICS	C5	1	**Population served: 71,000**	(Number of assessments: 25,500)					
		C8	2	**Number of connected properties:**	Council is within Size Group 1: (>10,000 properties)	23,710				
		C6	3	**Number of residential connected properties**	*No.*	22,250				
			4	**New residences connected to sewerage**	*%*	1.3	4	2	1.2	
		A6	5	**Properties served**	*prop/km main*	37			38	**40**
		W18	6	**Volume of sewage collected**	*ML*	5,706			4,900	**5,610**
			7	**Renewals expenditure**	*% CRC*	0.1	5	5	0.5	
			8	**Employees**	*per 1,000 prop*	1.7	3	3	1.7	
SOCIAL	CHARGES & BILLS	P4		**Description of residential tariff structure for 2016-17:**	access charge/prop; independent of land value					
		P6	12a	**Typical residential bill for 2015-16**	*$/assessment (2015-16)*	806	4	**5**	697	**703**
			12	**Typical residential bill for 2016-17**	*$/assessment (2016-17)*	806	4	**5**	718	
			13	**Typical developer charge for 2016-17**	*$/ET (2016-17)*	9,840	1	1	4,700	
			14	**Non-residential sewer usage charge for 2016-17**	*c/kL (2016-17)*	212	3	2	159	
		F6	15	**Revenue** - Sge	*$/prop*	1,280	2	1	1095	**1032**
	HEALTH		16	**Sewerage Coverage** (% of Urban Population with Reticulated Sge Service)	*% of population*	97.9	2	1	97.8	
		E3	17	**Percent of sewage treated to a tertiary level**	*%*	100	2	3	95	**85**
			18	**Percent of sewage volume treated that was compliant**	*%*	100	1	1	100	
			19	**Number of sewage treatment works compliant at all times**		4 of 4				
	SERVICE LEVELS		21	**Odour complaints**	*per 1,000 prop*	0.0	1	1	0.9	
		C11	22	**Service complaints - sewerage**	*per 1,000 prop*	0.1	1	1	5	**1**
		C16	23a	**Average sewerage interruption**	*min*	115	3	3	108	**101**
			25	**Total days lost**	*%*	5.1	**5**	**5**	3.5	
ENVIRONMENTAL	NATURAL RESOURCE MANAGEMENT	W19	26	**Volume of sewage collected**	*kL/prop*	241	3	4	234	**202**
		W26	26a	**Total recycled water supplied**	*ML*	1,110	2	1	740	**1,580**
		W27	27	**Recycled water**	*% of effluent*	19	2	2	11	**17**
		E8	28	**Biosolids reuse**	*%*	100	1	1	100	**90**
			30	**Energy consumption**	*kWh/ML*	1,272	**5**	**5**	810	
		E12	32	**Net greenhouse gas emissions** - WS & Sge	*t CO2 eq per 1,000 prop*	460	4	4	390	**402**
	ENVIRONMENTAL PERFORMANCE		33	**90th Percentile licence limits for effluent discharge:**						
			34	**Compliance with BOD in licence**	*%*	100	1	1	100	
			35	**Compliance with SS in licence**	*%*	100	1	1	100	
		A14	36	**Sewer main breaks and chokes**	*per 100km main*	97	**5**	**5**	38	**20**
			37a	**Sewer overflows**	*per 100km main*	10	2	4	14	
		E13	37b	**Sewer overflows reported to environmental regulator**	*per 100km main*	0.9	3	4	0.9	**0.8**
			39	**Non residential & trade waste sewage volume**	*% of sewage*				20	
ECONOMIC	FINANCE		43	**Revenue from non-residential plus trade waste charges**	*% of revenue*	21	3	3	19	
			44	**Revenue from trade waste charges**	*% of revenue*	2.0	3	2	1.0	
		F18	46	**Economic real rate of return** - Sge	*%*	0.8	**5**	4	2.5	**2.9**
			46a	**Return on assets** - Sge	*%*	-0.1	**5**	**5**	1.8	
			48a	**Loan payment** - Sge	*$/prop*	259	1	1	83	
	EFFICIENCY		49	**Operating cost (OMA) per 100 km of main**	*$'000*	2,190	4	**5**	1,700	
		F12	50	**Operating cost (OMA) per property (Note 9)**	*$/prop*	583	**5**	**5**	470	**429**
			51	**Operating cost (OMA) per kL**	*c/kL*	242	4	4	208	
			52	**Management cost**	*$/prop*	191	4	4	164	
			53	**Treatment cost**	*$/prop*	14	1	1	159	
			54	**Pumping cost**	*$/prop*	192	**5**	**5**	59	
			55	**Energy cost**	*$/prop*	55	**5**	**5**	34	
			56	**Sewer main cost**	*$/prop*	77	**5**	4	51	
		F29	57	**Capital Expenditure**	*$/prop*	180	3	3	186	**212**

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 Col 2).

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). - see attachment.

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 74 utilities reporting sewerage performance in the National Performance Report 2015-16 (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 Non-residential access charge - $789 x MF x SDF (MF - meter factor = [water meter size (mm)/20]^2 SDF - sewage discharge factor). Sewer usage charge - 212 c/kL.

7 Non-residential revenue was 21% of revenue from access, usage & trade waste charges. The sewage collected (residential, non-residential & trade waste) was not reported.

8 Compliance with Total N in Licence was 100%. Compliance with Total P in Licence was 100%.

9 Operating cost (OMA)/property was $583. Components were: management ($191), operation ($124), maintenance ($145), energy ($55), chemical ($15) & effluent/biosolids ($53).

10 Coffs Harbour City Council rehabilitations included 0.2% of its sewerage mains and 0.2% of its service connections. Renewals expenditure was $119,000/100km of main.

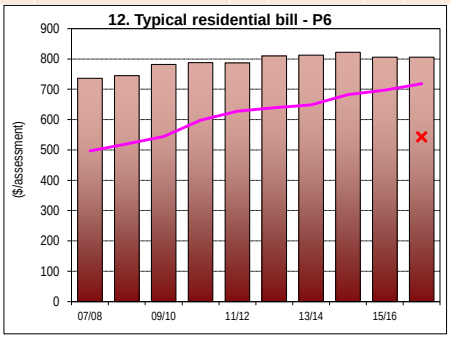
11 Council has 5 fully qualified wastewater treatment operators who meet the NSW Certification requirements.

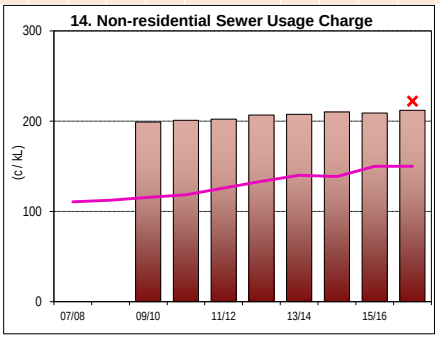
Coffs Harbour City Council Sewerage TBL Report (Page 2)

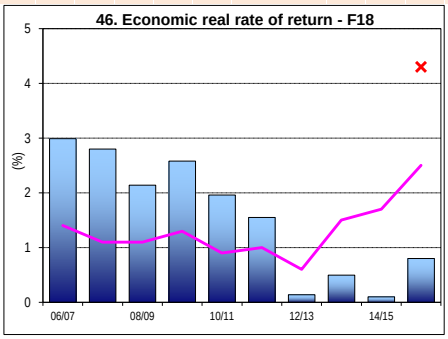
Coffs Harbour City Council | **TBL Sewerage Performance** | **(page 2)** | **2015-16**

(Results shown for 10 years together with Statewide Median and 2015-16 Top 20%)

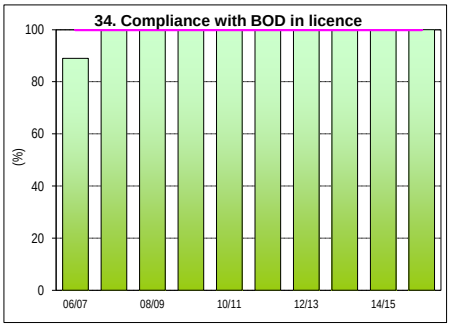
COST RECOVERY

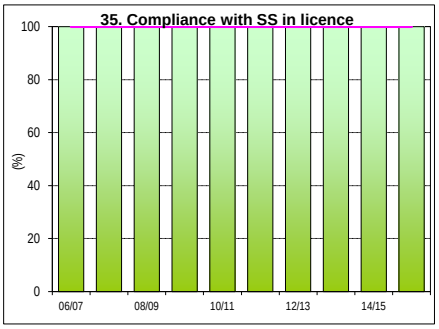


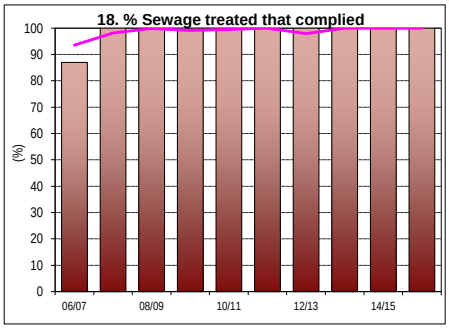




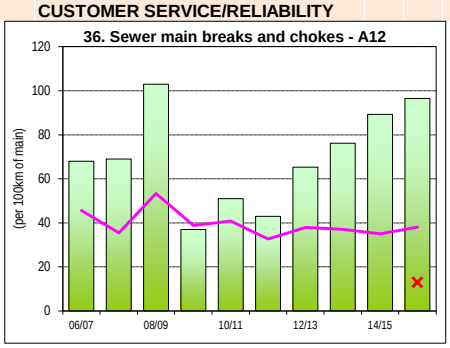
COMPLIANCE

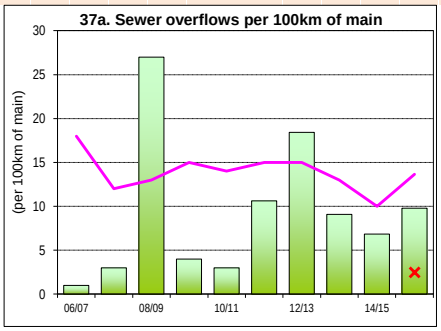


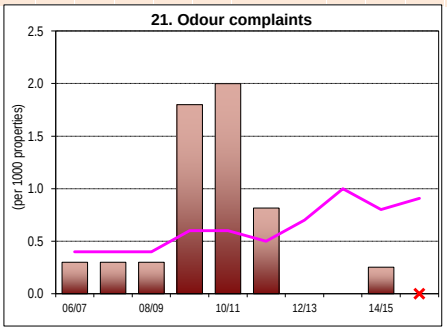




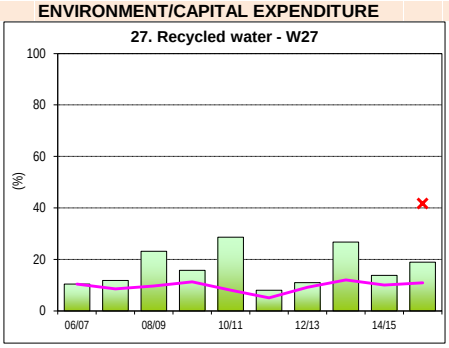
CUSTOMER SERVICE/RELIABILITY

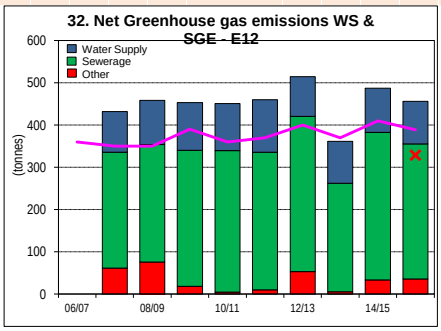


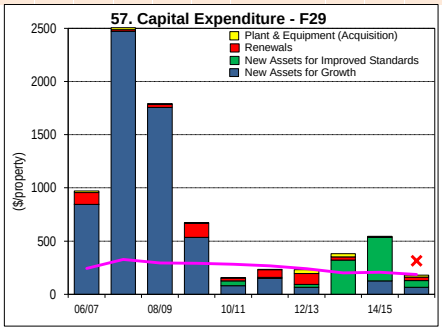




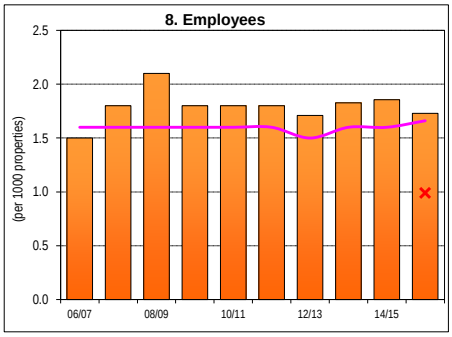
ENVIRONMENT/CAPITAL EXPENDITURE

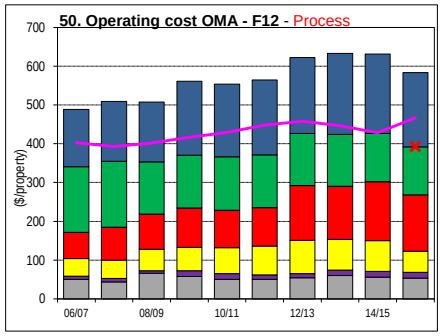


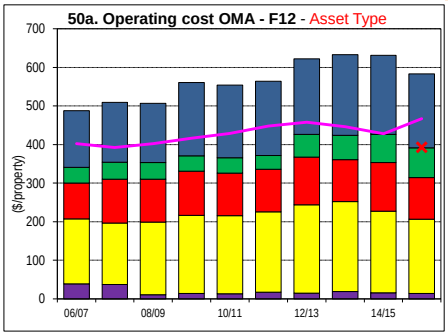




EFFICIENCY







NOTES:

1. Costs are in Jan 2016$ except for graphs 12 and 14, which are in Jan 2017$.

LEGEND

State Median for all years

Top 20% for 2015-16 ×

C3 Coffs Harbour City Council water supply action plan template

Coffs Harbour City Council Water Supply – Action Plan Page 1

Summary
In 2015-16, 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 2017.

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).
CHARACTERISTICS					
5	Connected property density	38 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	0.1% 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	1.8 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	271 c/kL High ranking (2, 2)	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)	$596 per assessment High ranking (2, 2)	Good	TRB should be consistent with projection in the financial plan. Drivers – OMA Management Cost and Capital Expenditure.	The TRB of $596 is satisfactory as it is greater than the projected TRB of $590 (2016/17$) in Council's SBP. The 2017-18 tariff will be determined in accordance with Circular LWU11, 2011.
15	Typical developer charges	$10300 per ET Highest ranking (1, 1)	Good		
16	Residential revenue from usage charges	76% of residential Highest ranking (1, 2)	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 section 4.8 and Appendices G5 and H2 of the 2015-16 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).*
3. *Review and comparison of the 2016-17 **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 Appendix H2 of the NSW Performance Monitoring Report.*
   In addition, if both indicators 43 and 44 are negative, you must report your proposed 2017-18 typical residential bill to achieve full cost recovery.

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 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	30 per 1,000 props Median ranking (3, 4)	Good	Key indicator of customer service, condition of network and effectiveness of operation.	
30	Number of main breaks	7 per 100km of main High ranking (2, 2)	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	4.9% Low ranking (4, 4)	May require review		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)	2.3% Median ranking (3, 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)	0.9% Low ranking (4, 4)		See 43.	
45	Net debt to equity – water and sewerage	11% 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	$206 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)	$388 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	$148 per prop Median ranking (3, 3)	Good	Typically about 40% of the OMA. Drivers – No. of employees. No. of small discrete water schemes.	
52	Treatment cost	$68 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	$8 per prop High ranking (2, 1)	Good	Drivers – topography, development density and location of water source.	
55	Water main cost	$105 per prop Low ranking (4, 4)	May require review	Drivers – age and condition of mains. Ground conditions. Development density.	
56	Capital expenditure	$48 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.	

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 sections 2.3 and 3 of the 2015-16 NSW Water Supply and Sewerage Performance Monitoring Report (www.water.nsw.gov.au).*

C4 Coffs Harbour City Council sewerage action plan template

Coffs Harbour City Council Sewerage – Action Plan Page 1

Summary
In 2015-16, Coffs Harbour City Council implemented all the sewerage outcomes required by the *NSW Best-Practice Management Framework* and its performance has been [to be completed by Council].

Key actions from Council's Strategic Business Plan:
- *Insert achievements for Key Action 1 here for Coffs Harbour City Council*
- *Insert achievements for Key Action 2 here for Coffs Harbour City Council*

INDICATOR		RESULT[2]		COMMENT/DRIVERS	ACTION
	Best-Practice Management Framework	*Implemented all the Best Practice Required Outcomes[1]*	*Very good*	*Implementation demonstrates effectiveness and sustainability of water supply and sewerage 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).*
CHARACTERISTICS					
5	*Connected property density*	*37 per km of main*	*Similar to the statewide median of 38*	*A connected property density below about 30 can significantly increase the cost per property of providing services.*	
7	*Renewals expenditure*	*0.1%* *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.*	***FOR INDICATORS 7 to 57*** *Where ranking is low, investigate reasons including past performance and trends, develop remedial action plan and summarise in this column.*
8	*Employees*	*1.7 per 1,000 props* *Median ranking (3, 3)*	*Satisfactory*		
SOCIAL – CHARGES					
12	*Typical residential bill[3] (TRB)*	*$806 per assessment* *Low ranking (4, 5)*		*TRB should be consistent with projection in the financial plan. Drivers – OMA Management Cost and Capital Expenditure.*	
13	*Typical Developer Charges*	*$9840 per ET* *Highest ranking (1, 1)*	*Good*		
14	*Non-residential sewer usage charge*	*212c/kL* *Median ranking (3, 2)*	*Satisfactory*	*Similar to OMA cost of 242c/kL.*	
SOCIAL - HEALTH					
16	*Sewerage coverage*	*97.9%* *High ranking (2, 1)*	*Good*		
17	*Percent sewage treated to tertiary level*	*100%* *High ranking (2, 3)*	*Good*		
18	*Percent of sewage volume that complied*	*100%* *Highest ranking (1, 1)*	*Very good*	*Key indicator of compliance with regulator.*	
19	*Sewage treatment works compliant at all times*	*4 of 4*		*Key indicator of compliance with regulator.*	
SOCIAL – LEVELS OF SERVICE					
21	*Odour Complaints*	*0 per 1,000 props* *Highest ranking (1, 1)*	*Very good*	*Critical indicator of customer service and operation of treatment works.*	
22	*Service complaints*	*0 per 1,000 props* *Highest ranking (1, 1)*	*Very good*	*Key indicator of customer service.*	
23a	*Average Duration of Interruption*	*115 minutes* *Median ranking (3, 3)*	*Satisfactory*	*Key indicator of customer service, condition of network and effectiveness of operation.*	
25	*Total Days Lost*	*5.1%* *Lowest ranking (5, 5)*	*May require review*		

*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 section 61 Reports from DPI Water. Refer to pages 21, 98 and 102 of the 2015-16 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 Sewerage – Action Plan Page 2

INDICATOR		RESULT		COMMENT/DRIVERS	ACTION
ENVIRONMENTAL					
26	Volume of sewage collected per property	241 kL Median ranking (3, 4)		Compare sewage collected to water supplied.	
27	Percentage effluent recycled	19% High ranking (2, 2)	Good	Key environmental indicator. Drivers – availability of potable water, demand, proximity to customers, environment.	
28	Biosolids reuse	100% Highest ranking (1, 1)	Very good	Key environmental indicator.	
32	Net Greenhouse gas emissions (WS & Sge)	460 t CO2/1000 props Low ranking (4, 4)	May require review	Drivers – gravity vs pumped networks, topography, extent of treatment.	
34	Compliance with BOD in licence	100% Highest ranking (1, 1)	Very good	Key indicator of compliance with regulator requirements.	
35	Compliance with SS in licence	100% Highest ranking (1, 1)	Very good	Drivers – algae in maturation ponds, impact of drought.	
36	Sewer main breaks and chokes	97 per 100km of main Lowest ranking (5, 5)	May require review	Drivers – condition and age of assets, ground conditions.	
37a	Sewer overflows to the environment	10 per 100km of main High ranking (2, 4)	Good	Drivers – condition of assets, wet weather and flooding.	
39	Non-residential percentage of sewage collected			For non-residential, compare % of sewage collected to indicator 43 (% of revenue).	
ECONOMIC					
43	Non-residential revenue	21% Median ranking (3, 3)	Satisfactory	See 39 above.	
46	Economic Real Rate of Return (ERRR)	0.8% Lowest ranking (5, 4)	May require review	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.	
46a	Return on assets	-0.1% Lowest ranking (5, 5)		See 46.	
47	Net debt to equity	11% Highest ranking (1, 1)	Very good	LWUs facing significant capital investment are encouraged to make greater use of borrowings – page 14 of the 2014-15 NSW Performance Monitoring Report.	
48	Interest cover	1 Median ranking (3, 3)	May require review	Drivers – in general, an interest cover of > 2 is satisfactory.	
48a	Loan payment	$259 per prop Highest ranking (1, 1)	Good	The component of TRB required to meet debt payments. Drivers – expenditure on capital works, short term loans.	
50	Operating cost (OMA)	$583 per prop Lowest ranking (5, 5)	May require review	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.	Review carefully to ensure efficient operating cost.
52	Management cost	$191 per prop Low ranking (4, 4)	May require review	Drivers –number of discrete schemes, number of employees. Typically about 40% of OMA.	
53	Treatment cost	$192 per prop Low ranking (4, 4)	May require review	Drivers – type and level of treatment, economies of scale.	
54	Pumping cost	$108 per prop Low ranking (4, 5)	May require review	Drivers – topography, development density, effluent recycling.	
56	Sewer main cost	$77 per prop Lowest ranking (5, 4)	May require review	Drivers – topography, development density, effluent recycling.	
57	Capital expenditure	$180 per prop Median ranking (3, 3)	Satisfactory	An indicator of the level of investment in the business. Drivers – age and condition of assets, asset life cycle.	

*3. Review and comparison of the 2016-17 **Typical Residential Bill (Indicator 12)** with the projection in your Strategic Business Plan is **mandatory**. In addition, if both indicators 46 and 46a are negative, you must report your proposed 2017-18 typical residential bill to achieve full cost recovery.*

APPENDIX D1: 2015-16 WATER TREATMENT PERFORMANCE

Water Utility	Source /type (Bulk Supplier)[9]	Water Treatment Works[1]	Total Potable Water Produced W11.3	Year built or Augmented	Capacity	Type of Treatment Works[2]	Volume Treated to Potable	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines[3,7]														Water Quality Complaints C9		No. of Samples ÷ Allocation[6]		Drinking Water Mgmt System (DWMS)?	No. WTW Operators[11]	Chlorination System Failure	Major Malfunction of Treatment Processes
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		*E. coli*		*E. coli* % Pop'n Compliance				Chemical	*E. coli*				
		37a	*ML 37c*		*ML/d 37b*	*38a*	*ML 38b*	*Max 39a*	*Avg 39b*	*Max 39c*	*Avg 39d*	*Max 40a*	*Avg 40b*	*Max 40c*	*Avg 40d*	*Samples 42a*	*% 42b*	*Samples 42c*	*% 42d*	*Samples 42e*	*% 42f*	*Samples 42g*	*% 42h*	*Samples 42i*	*% 42j*	*Samples 42k*	*% 42l*	*42n*	*No. 43*	*/ 1,000 Props*	*% 44a*	*% 44b*	*Yes/No 44c*	*No. 44d*	*days 45*	*days 46*
Albury City Council	*RA*	Albury	8462	1992	140	DF	8205	18	2	13		52	5	1.0	0.4	202	100	202	98	438	100	200	100	200	100	190	100	100	56	2	100	96	Yes	6	0	0
		Guyra	539	2003	6	C	517	107	44	13	4	35	7	2.1	0.6	338	99	340	98	51	98	2	100	10	100	51	100		28		100	100		3		
		Armidale	2944	2009	23	C,OZ	2825	224	95	1		15	6	0.4	0.2	365	100	365	100	365	100	12	100	12	100	89	100				100	80		4		
Armidale Regional Council		Total/Weighted Average	3483		29		3342	224	87	13	1	35	6	2.1	0.3	703	100	705	99	416	100	14	100	22	100	140	100	100	28	-	100	100	Yes	9	0	0
	B-RW	Wollongbar (Bulk From Rous)		-		DAF,OZ	-													197	100	12	100	12	100	80	100		-		100	100				
	B-RW	Ballina (Bulk From Rous)		-		DAF,OZ	-															12	100	12	100	171	100		-		100	100				
		Marom Creek	143	1997	3	DF	125	80	22	2	2	124	8	3.2	0.4	216	100	365	99	632	98	2	100	13	100	53	100				100	100		1		
Ballina Shire Council		Total/Weighted Average	143		3		125	80	22	2	2	124	8	3.2	0.4	216	100	365	99	829	98	26	100	37	100	304	100	100	0	0	100	100	Yes	5	0	3
	DS	Euston	48	2006	0.4	MF	44	550	266	1		98	31	1.0	0.1	365	100	365	100	24	100	3	100	3	100	22	95				100	88		2		
	UF	Balranald	252	1988	1	C	229													64	100	3	100	9	100	64	100				100	100		2		
Balranald Shire Council		Total/Weighted Average	300		2		273	550	43	1		98	5	1.0	0.0	365	100	365	100	88	100	6	100	12	100	86	99	73	0	0	100	98	Yes	5	3	3
Bathurst Regional Council		Bathurst	7631	2015	60	C	6757	296	45	4	1	137	12	1.0	0.1	15	100	15	100	15	100	13	100	13	100	184	100	100	137	9	100	100	Yes	4	0	0
	UF	Tantawangalo	116	2011	0.5	CH	107	88	28	6	4	10	2	0.7	0.6	2	100	2	100	2	100	2	100	2	100	28	100				100	100		6		
	UF	Yellow Pinch	1252	1988	25	CH	1156	64	17	9	3	23	3	3.9	1.0	12	100	12	100	12	100	12	100	12	100	150	100		13		100	100		5		
	GW	Bega	1021	1987	16	CH	942	22	5	2	1	8	1	2.1	0.7	12	100	12	100	12	100	12	100	12	100	124	100		38		100	100		6		
	UF	Brogo	359	2008	6	CH	331	63	29	7	6	15	4	3.0	1.2	3	100	3	100	3	100	40	100	4	100	172	100		2		100	100		4		
	GW	Kiah	491	1972	6	CH	453	26	15	4	2	4	2	1.7	1.0	12	100	12	100	12	100	12	100	12	100	113	100		7		100	100		5		
	UF	Bemboka	33	1988	1	CH	30	74	39	14	12	23	1	1.9	1.2	2	100	2	100	2	100	2	100	2	100	28	100		1		100	100		6		
Bega Valley Shire Council		Total/Weighted Average	3271		55		3019	88	15	14	3	23	2	3.9	0.9	43	100	43	100	43	100	80	100	44	100	615	100	100	61	4	100	100	Yes	20	0	0
	GW	Bellingen / Seaboard	1097	1993	12	CH	1096			1	1			2.7	0.4	12	100	96	99	12	100	12	100	12	100	96	100		6		100	100		1		
		Dorrigo	137	1993	3	LS	137	138	60	23	5	8	3	0.3	0.2	365	100	365	100	14	100	2	100	14	100	49	100				100	96		1		
Bellingen Shire Council		Total/Weighted Average	1234		15		1233	138	7	23	1	8	0	2.7	0.3	377	100	461	100	26	100	14	100	26	100	145	100	100	6	1	100	100	Yes	3	0	0
		Tocumwal	731	2002	7	DAF	555	100	30	3	1	100	20	1.5	0.1	2	100	2	100	2	100	3	100	12	100	49	100		-		100	96		2		
		Finley	265	2004	2	C	201	100	50	5	1	200	50	5.0	1.0	2	100	364	98	364	100	3	100	12	100	50	100		10		100	98		2		
		Berrigan	132	1990	1	C	100	65	35	4	2	150	50	10.0	1.0	2	100	364	100	364	100	3	100	12	100	50	100		6		100	98		2		
		Barooga	241	2000	1	DAF	183	120	50	5	1	90	20	2.0	0.2	2	100	2	100	2	100	3	100	12	100	50	100		5		100	98		2		
Berrigan Shire Council	*DS*	Total/Weighted Average	1369		11		1039	120	38	5	1	200	29	10.0	0.4	8	100	732	99	732	100	12	100	48	100	199	100	100	21	6	100	98	Yes	4	2	0
Bogan Shire Council	*RA*	Nyngan	727	1984	9	C	737	500	70			285	22	1.1	0.5	365	100	365	100	44	100	3	100	4	100	44	100	100	0	0	100	86	Yes	5	0	0
Bourke Shire Council	*DS*	Bourke	373	2003	3	C	300	400	80	3	2	1,500	100	2.0	0.5	12	100	12	100	12	100	2	100	11	100	70	100	100	0	0	100	100	Yes	4	0	0
	DS	Brewarrina	221	2013	1	C	184					2,000	1,500	0.5	0.1			765	100	365	100	2	100	2	100	365	100				100	100		2		
	DS	Goodooga	108	1996	1	CH	90					1	0	0.5	0.1			2	100	2	90	2	100	2	100	365	100				100	100		1		
Brewarrina Shire Council		Total/Weighted Average	329		2		274					2,000	1,007	0.5	0.1			767	100	367	100	4	100	4	100	730	100	100	0	0	100	100	Yes	5	0	0
	B-RW	Byron (Bulk From Rous)		-		DAF,OZ	-															11	100	11	100	166	100		-		100	99				
		Mullumbimby	387	2011	4	DF	387	58	22	2	0	63	4	0.4	0.1	50	100	346	100	52	100	2	100	2	100	51	100		4		100	100		5		
Byron Shire Council		Total/Weighted Average	387		4		387	58	22	2	0	63	4	0.4	0.1	50	100	346	100	52	100	13	100	13	100	217	100	100	4	0	100	100	Yes	6	0	0
	NP	Yeoval Nonpotable		1964	1																								1							
	NP	Delgany Nonpotable		1977	0.3																															
	NP	Cumnock Nonpotable		1971	1																															
		Molong		2015	2	C	231	230	12	90	2	39	5	80.0	1.9	52	99	48	99	49	100	2	100	2	100	64	100				100	100		4		
Cabonne Council		Total/Weighted Average	241		2	C	231	230	12	90	2	39	5	80.0	1.9	52	99	48	99	49	100	2	100	2	100	64	100	100	0	0	100	100	Yes	5	0	0
	NP	Rankins Springs Nonpotable		2010	2																															
	NP	Melbergen Nonpotable		-	2																								-							
	GW	Carrathool	33	2010	1	CH	35			1	1			1.2	0.6	3	100	3	100	3	100	3	100	3	100	13	100				100	100		2		
	GW	Goolgowi/Merriwagga	160	1995	2	CH	169			1	1			0.1	0.2	2	100	2	100	22	100	2	100	2	100	24	100				100	96		2		
	GW	Hillston	407	2010	10	CH	431			1	1			0.4	0.3	2	100	2	100	15	100	2	100	2	100	56	100		2		100	100		2		
Carrathool Shire Council		Total/Weighted Average	600		12		635			1	1			1.2	0.3	7	100	7	100	40	100	7	100	7	100	93	100	100	2	2	100	100	Yes	6	0	0

APPENDIX D1: 2015-16 WATER TREATMENT PERFORMANCE

Water Utility	Source /type (Bulk Supplier)[9]	Water Treatment Works[1]	Total Potable Water Produced W11.3	Year built or Augmented	Capacity	Type of Treatment Works[2]	Volume Treated to Potable	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines[3,7]														Water Quality Complaints C9		No. of Samples ÷ Allocation[6]		Drinking Water Mgmt System (DWMS)?	No. WTW Operators[11]	Chlorination System Failure	Major Malfunction of Treatment Processes
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		*E. coli*		*E. coli* % Pop'n Compliance				Chemical	*E. coli*				
		37a	*37c*		*37b*	*38a*	*38b*	*Max 39a*	*Avg 39b*	*Max 39c*	*Avg 39d*	*Max 40a*	*Avg 40b*	*Max 40c*	*Avg 40d*	*Samples 42a*	*% 42b*	*Samples 42c*	*% 42d*	*Samples 42e*	*% 42f*	*Samples 42g*	*% 42h*	*Samples 42i*	*% 42j*	*Samples 42k*	*% 42l*	*42n*	*No. 43*	*/ 1,000 Props*	*% 44a*	*% 44b*	*Yes/No 44c*	*No. 44d*	*days 45*	*days 46*
		Mardi	16644	1994	160	DF	17261	93	56	7	2	17	4	0.8	0.4	351	100	351	100	408	100	12	100	12	100	416	100		1,380		100	98		3		
		Somersby	11442	1986	140	C	11867	745	133	6	0	61	9	0.6	0.2	12	100	12	100	12	100	16	100	12	100	398	100		922		100	100		5		
		Woy Woy		2007	5	MF																	100	12	100					100						
Central Coast Council		Total/Weighted Average	28086		305		29128	745	87	7	1	61	6	0.8	0.3	363	100	363	100	420	100	28	100	36	100	814	100	100	2,302	17	100	97	Yes	8	0	0
	NP	White Cliffs		1992	0.2																								-							
		Ivanhoe	34	1985	1	C	75	500	400			50	5	1.0	0.5	26	99	26	95	26	95	26	90	2	100	28	100		20		100	100		3		
		Wilcannia	83	1985	1	C	180	1,000	500			50	20	1.0	0.5	26	100	26	100	26	100	26	100	2	100	26	100		20		100	35		2		
Central Darling Shire Council	*RA*	Total/Weighted Average	117		1		255	1,000	471			50	16	1.0	0.5	52	100	52	98	52	98	52	95	4	100	54	100	100	40	55	100	54	Yes	3	0	5
	NP	Quandialla		2002	1																															
		Carcoar	1349	2002	9	DAF	1287	295	118	2	0	26	7	0.8	0.1	365	100	365	100	365	100	15	100	15	100	187	100		13		100	100		4		
		Blayney	602	1966	6	C	574	396	155	3		39	13	1.0	0.3	365	100	365	100	365	100	12	100	2	100	76	100		12		100	100		4		
Central Tablelands Water		Total/Weighted Average	1951		15		1861	396	129	3	0	39	9	1.0	0.1	730	100	730	100	730	100	27	100	17	100	263	100	100	25	5	100	100	Yes	5	0	0
	UF	Rushforth Road (North Coast Wate	5163	2012	70	CH	5688			8	3			3.5	1.1	24	100	24	100	24	100	24	100	24	100	509	100		209		100	100		1		
	UF	Wooli	94	2006	2	CH	104			3	2			0.7	0.6	2	100	2	100	2	100	2	100	2	100	50	100		9		100	98		1		
	UF	Coutts Crossing	36	2006	1	CH	40			3	3			0.8	0.6	2	100	2	100	2	100	2	100	2	100	50	100		3		100	98		1		
	UF	Glenreagh (North Coast Water)	65	2006	1	CH	72			4	4			1.0	0.7	2	100	2	100	2	100	2	100	2	100	51	100		1		100	100		1		
	UF	Minnie Water	39	2006	1	CH	43			6	5			0.5	0.5	2	100	2	100	2	100	2	100	2	100	49	100		1		100	100		1		
Clarence Valley Council		Total/Weighted Average	5398		75		5947			8	3			3.5	1.1	32	100	32	100	32	100	32	100	32	100	709	100	100	223	10	100	100	Yes	6	0	0
	NP	Euabalong Village (Non-Potable)		1975	1																								-							
	NP	Euabalong West (Non-Potable)		1975	1																								-							
	NP	Mt Hope (Non-Potable)		1975	0.2																								-							
Cobar Shire Council		Cobar	917	1983	7	C	1400	1,000	75	10	3	400	20	4.0	0.8	365	100	365	100			18	100	18	100	53	100	100	-	-	100	100	Yes	2	0	0
		Karangi	5750	2009	42	DAF	5799	28	8	2	1	5	1	1.1	0.2	12	100	12	100	12	100	12	100	12	100	558	100				100	100		3		
		Nana Glen	19	1996	1	C	19	57	36	1	1	3	2	0.4	0.4	2	100	2	100	2	100	2	100	2	100	27	100				100	100		3		
	UF	Coramba	31	1960	1	CH	31	41	27	7	5	2	1	1.1	0.8	2	100	2	100	2	100	2	100	2	100	27	100				100	100				
Coffs Harbour City Council		Total/Weighted Average	5800		43		5849	57	8	7	1	5	1	1.1	0.2	16	100	16	100	16	100	16	100	16	100	612	100	100	0	0	100	100	Yes	3	1	0
	GW	Coonamble	1009	2014	6	LS	1162					15	3	1.3	0.0			30	87	2	100	6	100	2	100	50	100				100	98		3		
	GW	Gulargambone	149	-	2	CH	172							7.0	2.0			56	81	56	85	2	100	2	100	61	100				100	97		2		
	GW	Quambone	30	-	2	CH	34													26	66	2	100	2	100	25	100				100	100		1		
Coonamble Shire Council		Total/Weighted Average	1188		9		1368					15	3	7.0	0.3			86	83	84	79	10	100	6	100	136	100	100	0	0	100	99	Yes	3	0	0
	B-GF	Cootamundra (Bulk From Gwcc)		-		C	-															8	100	17	100	55	100		-		100	87				
		Gundagai	41	1988	5	C	500	500	120	30	5	500	25	8.0	0.3	365	100	365	100	52	100	4	100	12	100	51	100		6		100	100		2		
Cootamundra-Gundagai Regional Council		Total/Weighted Average	41		5		500	500	120	30	5	500	25	8.0	0.3	365	100	365	100	52	100	12	100	29	100	106	100	100	6	1	100	93	Yes	2	0	0
Cowra Shire Council	*ML*	Cowra	3199	2015	29	C	3283	181	23	4		401	18.4	1.1	0.5	12	100	12	100	12	100	12	100	12	100	143	100	100	8	2	100	97	Yes	8	0	0
	RA, GW	Dubbo	8944	2007	80	C	8223	272	23	6	0	100	7	8.8	0.2	242	100	360	100	120	98	12	100	12	100	163	100		6		100	100		6		
	RA	Wellington	1188	1993	15	LS	1092	25	6	1	1	24	6	0.7	0.1	52	100	365	100	365	100	12	100	12	100	90	100		-		100	100		2		
	RA	Geurie	131	1996	2	LS	120	25	6	2	1	208	8	1.1	0.3	365	100	365	100	365	100	2	100	2	100	29	100				100	57		2		
Dubbo Regional Council		Total/Weighted Average	10262		96		9435	272	21	6	0	208	6	8.8	0.2	659	100	1,090	100	850	100	26	100	26	100	282	100	100	6	0	100	99	Yes	10	0	0
Edward River Council		Deniliquin	2704	1986	26	C	2526	75	26	205	2	65	34	2.0	0.1	365	100	365	100	365	100	11	100	11	100	70	100	100	2	1	100	99	Yes	2	0	0
		Broken Hill (Mica St)	4155	2010	32	C	3769	19	7	2	0	111	8	1.4	0.1	366	100	366	100	38	100	12	100	12	100	156	100		3		100	100		9		
		Menindee	90	1997	1	C	82					33.6	7.2	2.1	0.6			366	100	25	100	2	100	12	100	50	100				100	98		3		
Essential Energy		Total/Weighted Average	4245		33		3851	19	7.24	2	0.1	111	8.07	2.1	0.1	366	100	732	100	63	100	14	100	24	100	206	100	100	3	0	100	100	Yes	12	0.1	0.1
		Eurobodalla Southern	128	2012	6	DF	128	23	6	10	1	5	2	0.9	0.3	53	100	56	100	12	92	13	100	13	100	120	100		5		100	96		5		
		Eurobodalla Northern	3309	2010	20	DAF	3309	33	18	3	1	4	1	0.7	0.1	365	100	365	100	11	91	23	100	23	100	390	100		3		100	100		5		
Eurobodalla Shire Council		Total/Weighted Average	3437		26		3437	33	18	10	1	5	1	0.9	0.1	418	100	421	100	23	92	36	100	36	100	510	100	100	8	0	100	100	Yes	7	0	0

APPENDIX D1: 2015-16 WATER TREATMENT PERFORMANCE

Water Utility	Source /type (Bulk Supplier)[9]	Water Treatment Works[1]	Total Potable Water Produced W11.3	Year built or Augmented	Capacity	Type of Treatment Works[2]	Volume Treated to Potable	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines[3,7]														Water Quality Complaints C9		No. of Samples ÷ Allocation[6]		Drinking Water Mgmt System (DWMS)?	No. WTW Operators[11]	Chlorination System Failure	Major Malfunction of Treatment Processes
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		*E. coli*		*E. coli* % Pop'n				Chemical	*E. coli*				
		37a	*ML* *37c*		*ML/d* *37b*	*38a*	*ML* *38b*	*Max* *39a*	*Avg* *39b*	*Max* *39c*	*Avg* *39d*	*Max* *40a*	*Avg* *40b*	*Max* *40c*	*Avg* *40d*	*Samples* *42a*	*%* *42b*	*Samples* *42c*	*%* *42d*	*Samples* *42e*	*%* *42f*	*Samples* *42g*	*%* *42h*	*Samples* *42i*	*%* *42j*	*Samples* *42k*	*%* *42l*	Compliance *42n*	*No.* *43*	*/ 1,000 Props*	*%* *44a*	*%* *44b*	*Yes/No* *44c*	*No.* *44d*	*days* *45*	*days* *46*
		Corowa	1558	2002	15	DAF	1551	381	59	1	0	69	15	0.7	0.2	375	100	375	100	47	90	11	100	11	100	51	100		6		100	100		4		
		Mulwala	1194	1944	13	C	1189	41	15	1	0	38	16	0.9	0.1	148	100	366	100	41	100	2	100	7	100	51	100				100	100		3		
		Howlong	329	1989	5	LS	328	74	19			76	12	0.6	0.2	368	100	366	100	48	77	2	90	12	100	51	100		1		100	100		3		
Federation Council		Total/Weighted Average	3081		33		3068	381	38	1	0	76	15	0.9	0.2	891	100	1,107	100	136	88	15	99	30	100	153	100	100	7	1	100	100	Yes	7	0	0
Fish River Water Supply		Duckmaloi	2235	2003	11	MF	884															13	100	13	100	141	100	100	-	-	100	100	Yes	2	0	0
Forbes Shire Council		Forbes	2838	1966	26	C	2475	190	78	5	2	440	29	0.9	0.3	366	100	122	100	12	100	9	100	9	100	66	100	100	2	1	82	100	Yes	3	0	0
Gilgandra Shire Council	*GW*	Gilgandra	880	1973	5	C	861	3	2	1	0	10	1	2.6	0.5	2	100	2	100	52	100	52	100	11	100	51	100	100	9	7	100	100	Yes	5	0	0
		Martins Lookout	527	1982	12	C	527	1,342	116	16	3	154	11	1.5	0.1	365	100	361	100	12	100	12	100	12	100	51	100				100	100		4		
		Deepwater	25	2011	7	DAF	25	400	147	27	6	27	7	1.2	0.2	220	95	222	100	2	100	2	100	2	100	26	100				100	100		4		
Glen Innes Severn Council		Total/Weighted Average	552		19		552	1,342	117	27	3	154	11	1.5	0.1	585	98	583	100	14	100	14	100	14	100	77	100	100	0	0	100	100	Yes	4	0	0
Goldenfields WCC (Reticulator)	*GW*	Oura	114	1975	26	CH	4067			2		1	0	2.0	0.4	40	100	40	100	43	81	40	100	43	100	260	100	100	117	11	100	96	Yes	9	0	0
		Jugiong	7630	1991	40	C	4243	22	16	2	1	2	2	0.8	0.5	11	100	11	100	11	100	11	100	11	100	57	100		3		100	74		2		
	GW	Mount Arthur	854	-	4	CH	475			2	1			0.1	0.1	5	100	5	100	7	100	5	100	7	100	64	100		63		100	100				
	GW	Mount Daylight	495	-	1	C	275									2	100	2	100	2	100	2	100	2	100	26	100				100	100				
Goldenfields WCC (Bulk Supplier)		Total/Weighted Average	8979		46		4993	22	13	2	1	2	2	0.8	0.4	18	100	18	100	20	100	18	100	20	100	147	100	100	66	3	100	89	Yes	9	0	0
		Goulburn	2972	2016	35	C	2873	880	52	5	2	122	7	1.4	0.7	21	100	21	100	17	100	21	100	13	100	105	100		215		100	95		3		
		Marulan	109	1997	2	MF	105	41	20	31	8	8	2	4.4	0.8	17	88	17	100	17	100	17	92	3	100	49	100		7		100	96		1		
Goulburn Mulwaree Council		Total/Weighted Average	3081		37		2978	880	51	31	3	122	7	4.4	0.7	38	95	38	100	34	100	38	96	16	100	154	100	100	222	20	100	95	Yes	4	0	0
	UF	Villages	161	2005	5	DF	414			2	1			1.0	0.4	2	100	178	100	2	100	2	100	2	100	51	100				100	100		2		
	UF	Culcairn	74	2007	3	CH	190	1	1	1	1	3	1	2.5	0.6	2	100	365	100	2	100	2	100	2	100	50	100				100	98		3		
Greater Hume Shire Council		Total/Weighted Average	235		7		604	1	0	2	1	3	0	2.5	0.5	4	100	543	100	4	100	4	100	4	100	101	100	100	0	0	100	99	Yes	3	0	0
		Griffith	6581	1987	60	DAF	6653	76	33	5	0	28	13	1.1	0.2	362	100	363	100	12	100	12	100	12	100	169	100		6		100	98		2		
		Yenda	26	2001	2	MF	26	80	39	2	0	44	18	0.3	0.1	77	100	78	100	3	100	3	100	14	100	49	100				100	96		2		
Griffith City Council		Total/Weighted Average	6607		62		6679	80	33	5	0	44	13	1.1	0.2	439	100	441	100	15	100	15	100	26	100	218	100	100	6	1	100	97	Yes	2	0	0
	GW	Gunnedah	2736	2009	20	CH	2547			5	0			0.3	0.1	12	100	12	100	22	98	22	98	12	100	61	100		3		100	97		3		
	GQGW	Curlewis	106	2004	1	CH	99			1	1			0.1	0.1	2	100	2	100	21	100	2	100	2	100	50	100		2		100	98		3		
	GQGW	Tambar Springs	21	2006	1	CH	20			1	1			0.3	0.2	2	100	2	100	5	100	2	100	2	100	12	100				100	100		3		
	GQGW	Mullaley	23	2006	1	CH	21													3	100	3	100	3	92	12	100				100	100		3		
Gunnedah Shire Council		Total/Weighted Average	2886		22		2687			5	0			0.3	0.1	16	100	16	100	51	99	29	98	19	99	135	100	100	5	1	100	99	Yes	2	0	0
	NP	Gravesend Non Potable		2003	1																															
		Bingara	432	2011	3	DAF	397			4	2			3.0	0.7	11	100	11	100	11	100	11	100	11	100	55	100		4		100	100		1		
	GW	Warialda	319	2003	3	CH	293															2	100	2	100	55	100				100	100		2		
	GQGW	North Star	51	2007	0.2	RO	47			1	0			7.6	2.5	3	100	3	67	3	100	3	100	3	100	12	100				100	100				
Gwydir Shire Council		Total/Weighted Average	802		6		737			4	1			7.6	0.5	14	100	14	93	14	100	16	100	16	100	122	100	100	4	3	100	100	Yes	8	0	0
Hay Shire Council	*DS*	Hay	303	1988	2	C	304	250	50			80	20	0.4	0.2	365	100	365	100	12	100	12	100	12	100	50	100	100	5	4	100	98	Yes	3	0	0
		Boorowa		1993	3	LS	160	135	36	1	1	42	14	0.4	0.2	2	100	2	100	52	100	2	100	2	100	50	100		2		100	98		3		
	B-GF	Harden (Bulk From Gwcc)		1940	0	C		8	9	1	1	12	13	14.0	15.0	52	100	12	100	211	100	211	100	211	100	211	100		8		100	100		2		
	B-GF	Young (Bulk From Gwcc)		-		C	-															16	100	16	100	92	100		-		100	98				
Hilltops Council		Total/Weighted Average			3		160	135	36	1	1	42	14	14.0	0.2	54	100	14	100	263	100	229	100	229	100	353	100	100	10	1			Yes	9	0	0
		Copeton	1797	1982	18	C	2305	200	120	3	2	6	2	1.0	0.2	360	100	360	100	360	100	15	100	15	100	90	100		2		100	100		2		
		Ashford	109	2016	1	DAF	140	250	150			75	15	2.0	0.1	360	100	360	100	360	100	1	100	14	100	23	100				100	61		1		
	GW	Yetman	19	1980	1	CH	25							0.2	0.2			1	100			2	100	2	100	25	100				100	100		1		
Inverell Shire Council	*RA*	Total/Weighted Average	1926		20		2470	250	120	3	2	75	3	2.0	0.2	720	100	721	100	720	100	18	100	31	100	138	100	100	2	0	100	92	Yes	4	0	0

APPENDIX D1: 2015-16 WATER TREATMENT PERFORMANCE

Water Utility	Source /type (Bulk Supplier)[9]	Water Treatment Works[1]	Total Potable Water Produced W11.3	Year built or Augmented	Capacity	Type of Treatment Works[2]	Volume Treated to Potable	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines[3,7]													Water Quality Complaints C9		No. of Samples ÷ Allocation[6]		Drinking Water Mgmt System (DWMS)?	No. WTW Operators[11]	Chlorination System Failure	Major Malfunction of Treatment Processes
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		*E. coli*		*E. coli* % Pop'n				Chemical	*E. coli*				
		37a	*ML* *37c*		*ML/d* *37b*	*38a*	*ML* *38b*	*Max* *39a*	*Avg* *39b*	*Max* *39c*	*Avg* *39d*	*Max* *40a*	*Avg* *40b*	*Max* *40c*	*Avg* *40d*	*Samples* *42a*	*%* *42b*	*Samples* *42c*	*%* *42d*	*Samples* *42e*	*%* *42f*	*Samples* *42g*	*%* *42h*	*Samples* *42i*	*%* *42j*	*Samples* *42k*	*%* *42l*	Compliance *42n*	*No.* *43*	*/ 1,000 Props*	*%* *44a*	*%* *44b*	*Yes/No* *44c*	*No.* *44d*	*days* *45*	*days* *46*
	GW	Sherwood	2554	2000	38	CH	2464			2	1			12.6	2.0	13	100	157	92	159	87	26	100	13	100	158	100		3		100	93		1		
	GW	South West Rocks	633	2006	6	MF	611			1	1			0.5	0.3	1	100	60	100	66	98	24	100	12	100	65	100		4		100	100		2		
	GW	Stuarts Point	238	2010	3	DF	230			3	1			1.3	0.3	12	100	50	100	50	100	24	100	12	100	49	100		1		100	96		1		
	GW	Crescent Head	133	2012	3	CH	128			14	11			5.1	2.4	3	100	58	98	62	95	6	100	3	100	61	100		2		100	97		1		
	GW	Hat Head	49	2000	1	CH	47			5	5			1.8	0.6	2	100	26	100	25	100	4	100	2	100	25	100		1		100	100		1		
	GW	Willawarrin	9	1972	0.2	CH	9			2	1			1.1	0.4	12	100	22	100	24	92	24	100	11	100	25	100				100	100		1		
	GW	Bellbrook	9	2010	0.9	DF	9			8	2			0.4	0.2	11	100	20	100	24	100	11	100	11	100	25	100				100	100		1		
Kempsey Shire Council		**Total/Weighted Average**	3626		52		3498			14	1			12.6	1.6	54	100	393	96	410	94	119	100	64	100	408	100	100	11	1	100	97	Yes	9	0	0
		Bonalbo	38	2010	0.3	DAF	37	480	89	48	10	7	2	2.2	0.2	260	100	50	100	50	100	2	100	12	100	50	100				100	98		6		
		Woodenbong		-		DAF	-													51	99	2	100	2	100	50	100									
		Kyogle	291	1988	3	C	282	550	233	365	54	691	20	80.0	1.1	2	100	101	100	101	98	2	100	12	100	101	100		1		100	100		4		
Kyogle Council		**Total/Weighted Average**	329		3		319	550	216	365	49	691	18	80.0	1.0	262	100	151	100	202	99	6	100	26	100	201	100	100	1	1			Yes	7	0	0
		Condobolin	1433	2000	8	C	940	2,370	380	5	1	365	34	0.8	0.2	2	100	72	100	77	100	2	100	11	100	74	100				100	99		9		
		Lake Cargelligo	967	2004	5	DAF,MF	634	350	75			80	10	0.8	0.2	2	100	51	100	2	100	2	100	2	100	50	100				100	98		3		
		Tottenham	15	1994	1	C,LS	10	67	22			10	6	1.0	0.6	2	100	26	100	26	100	2	100	2	100	41	100				100	100		2		
Lachlan Shire Council		**Total/Weighted Average**	2415		13		1584	2,370	256	5	0	365	24	1.0	0.2	6	100	149	100	105	100	6	100	15	100	165	100	100	0	0	100	100	Yes	7	1	0
		Leeton	2552	1993	25	C	2265	287	58	3	0	118	27	1.1	0.0	365	100	365	100	365	100	12	100	12	100	61	100				100	97		4		
		Whitton	91	2003	0.9	C	81	175	74	0	0	87	42	0.6	0.1	365	100	365	100	365	100	2	100	2	100	23	100				100	92		4		
		Murrami	21	1993	0.3	LS	19	182	44	0	0	86	23	5.3	0.8	365	100	365	100	365	100	2	100	2	100	23	100				100	92		4		
Leeton Shire Council		**Total/Weighted Average**	2665		26		2365	287	58	3	0	118	27	5.3	0.0	1,095	100	1,095	100	1,095	100	16	100	16	100	107	100	100	0	0	100	95	Yes	4	0	0
	B-RW	Lismore (Bulk From Rous)		-		DAF,OZ	-															12	100	12	100	182	100		-		100	93				
	UF	Nimbin	11	1949	0.3	CH	211	59	33	14	10	28	6	3.0	1.4	12	92	49	90	51	100	2	100	2	100	24	100				100	96				
Lismore City Council		**Total/Weighted Average**	11		0.3		211	59	33	14	10	28	6	3.0	1.4	12	92	49	90	51	100	14	100	14	100	206	100	100	0	0	100	94	Yes		0	0
Lithgow City Council		Oakey Park	915	1985	15	C	1453													24	100	12	100	12	100	219	100	100	96	12	100	100	Yes	2	0	0
		Werris Creek	262	1991	3	C	250	150	65	15	2	13	4	1.1	0.3	365	99	365	99	365	100	2	100	2	100	51	100		15		100	100		1		
	GW	Quirindi	677	1987	6	CH	647	2	1	1	1	0	0	0.2	0.2	2	100	2	100	2	100	2	100	2	100	51	100		5		100	100				
	GW	Willow Tree		-		CH	-															2	100	2	100	26	100		-		100	100				
Liverpool Plains Shire Council		**Total/Weighted Average**	939		9		897	150	19	15	1	13	1	1.1	0.2	367	99	367	99	367	100	6	100	6	100	128	100	100	20	8	100	100	Yes	4	0	1
		Gloucester	332	1981	5	C	332	58	25	4	0	17	3	0.8	0.3	67	100	80	98	80	100	80	98	67	100	79	100		18		100	100		3		
		Bootawa Dam	7817	2010	60	MF,OZ	7817	60	16	3	0	13	3	0.3	0.1	380	100	458	100	458	98	458	97	383	100	456	100		133		100	100		4		
	GW	Tea Gardens	552	2013	8	MF	552	34	17	4	0	1	0	0.4	0.1	45	100	54	100	54	96	54	96	45	89	52	100		5		100	100		3		
		Bulahdelah	119	2009	2	C	119	240	112	3	0	34	12	0.4	0.1	54	100	54	100	54	100	54	100	45	100	52	100		1		100	100		2		
		Stroud	115	1997	2	C	115	170	58	3	1	95	15	0.8	0.4	45	100	54	100	54	76	54	76	45	100	52	100				100	100		2		
MidCoast Water		**Total/Weighted Average**	8935		77		8935	240	18	4	0	95	3	0.8	0.1	591	100	700	100	700	97	700	96	585	99	691	100	100	157	4	100	100	Yes	21	0	0
		Mudgee	1537	2005	15	C	1648	30	25			274	25	0.8	0.2	12	100	441	100	76	100	12	100	12	100	64	100		9		100	100		4		
		Rylstone	334	1998	4	C	358	87	41	8	3	6	2	0.9	0.4	2	100	445	100	80	100	2	100	12	100	78	100		4		100	100		3		
		Gulgong	294	2005	4	C	315	70	27			80	10	0.6	0.1	2	100	392	100	57	100	2	100	12	100	55	100		35		100	100		5		
Mid-Western Regional Council		**Total/Weighted Average**	2165		23		2321	87	28	8	0	274	19	0.9	0.2	16	100	1,278	100	213	100	16	100	36	100	197	100	100	48	6	100	100	Yes	11	0	2
	UF	Mash	346	1988	5	CH	314													2	100	4	100	2	100	52	100									
	UF	Industrial Drive	508	1988	1	CH	461													2	100	4	100	2	100	52	100		-							
	GW	Broadwater Creek	2319	1986	18	CH	2106													4	100	12	100	13	100	83	100		5		100	95				
	DS	Boggabilla	87	1986	0.4	C	79													52	100	4	100	12	100	52	100		10		100	100		2		
		Mungindi	255	1974	1	C	232													4	100	4	100	11	100	48	100		3		100	94				
	GW	Pallamallawa	96	1986	1	CH	87													2	100	2	100	11	100	24	100		-		100	96				
Moree Plains Shire Council		**Total/Weighted Average**	3611		27		3279													66	100	30	100	51	100	311	100	100	18	4			Yes	3	0	0

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Water Utility	Source /type (Bulk Supplier)[9]	Water Treatment Works[1]	Total Potable Water Produced W11.3	Year built or Augmented	Capacity	Type of Treatment Works[2]	Volume Treated to Potable	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines[3,7]														Water Quality Complaints C9		No. of Samples ÷ Allocation[6]		Drinking Water Mgmt System (DWMS)?	No. WTW Operators[11]	Chlorination System Failure	Major Malfunction of Treatment Processes
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		*E. coli*		*E. coli* % Pop'n Compliance				Chemical	*E. coli*				
		37a	*ML* *37c*		*ML/d* *37b*	*38a*	*ML* *38b*	*Max* *39a*	*Avg* *39b*	*Max* *39c*	*Avg* *39d*	*Max* *40a*	*Avg* *40b*	*Max* *40c*	*Avg* *40d*	*Samples* *42a*	*%* *42b*	*Samples* *42c*	*%* *42d*	*Samples* *42e*	*%* *42f*	*Samples* *42g*	*%* *42h*	*Samples* *42i*	*%* *42j*	*Samples* *42k*	*%* *42l*	*42n*	*No.* *43*	*/ 1,000 Props*	*%* *44a*	*%* *44b*	*Yes/No* *44c*	*No.* *44d*	*days* *45*	*days* *46*
		Wakool Rural/Town	102	2003	1	MF	144	550	400			200	70			26	100	26	26	26	100	26	100	26	100	26	100				100	100		1		
	DS	Barham	83	1994	2	LS	118	550	200	1		250	70	1.0		26	100	26	100	26	100	3	100	3	100	44	100		1		100	86				
		Moulamein	32	2002	1	MF	45	550	180			180	45			26	100	26	100	26	100	2	100	2	100	26	100				100	100		1		
		Koraleigh (Raw Water)	6	2004	0.1	MF	8	500	60			100	28			26	100	26	100	26	100	1	100	1	100	26	100				100	100		1		
		Tooleybuc	35	2016	0.5	MF	50	550	140	2		225	75	1.0		26	100	26	100	26	100	2	100	2	100	22	100				100	88		1		
		Moama	502	1991	6	DAF	711	125	78	5	5	81	25	22.3	0.6	2	100	2	100	2	100	10	100	10	100	45	100				91	88		6		
	DS	Mathoura	125	1989	2	C	177	300	172	5	5	78	26	0.6	0.2	2	100	2	100	2	100	2	100	13	100	44	100				100	86		6		
Murray River Council		**Total/Weighted Average**	884		13		1253	550	146	5	4	250	37	22.3	0.4	134	100	134	86	134	100	46	100	57	100	233	100	100	1	0	100	95	Yes	12	0	0
	DS	Jerilderie	845	1980	1	C	110	250	238			211	76	1.6	0.6	365	100	365	100	365	100		100		100	52	100		1			100			2		
	GW	Coleambally		2010	5	CH	-													51	100	1	100	1	100	51	100		-		100	100				
	GW	Darlington Point		-	5	CH	-													51	100	1	100	1	100	50	100		-		100	98				
Murrumbidgee Council		**Total/Weighted Average**	845		11		110	250	238			211	76	1.6	0.6	365	100	365	100	467	100	2	100	2	100	153	100	100	1	1	67	100	Yes	5	1	0
		Muswellbrook	1815	1988	15	C	1818	17	9	4	1	96	12	2.0	0.4	17	100	38	89	96	98	13	100	13	100	65	100		75		100	100		5		
		Denman	305	2008	3	MF	305	45	14	9	2	155	46	0.9	0.4	17	100	39	100	88	99	10	100	19	100	180	100		2		100	100		5		
		Sandy Hollow	29	2005	1	C	29	5	2	1	1	22	10	1.3	5.5	10	100	23	59	87	100	9	100	9	100	28	100				100	100		5		
Muswellbrook Shire Council		**Total/Weighted Average**	2149		18		2152	45	9	9	1	155	17	2.0	0.4	44	100	100	86	271	99	32	100	41	100	273	100	100	77	13	100	100	Yes	6	0	0
Nambucca Shire Council	*GW*	Nambucca	1485	2011	23	CH,U	1558			2	1			0.8	0.4	12	100	12	100	160	100	12	100	12	100	163	100	100	16	2	100	100	Yes	3	0	0
	GW	Narrabri	1959	2005	18	CH	1719	19	3	15	2	2	0	5.0	0.3	24	100	24	100	24	100	12	100	12	100	52	100		47		100	100		6		
	GW	Wee Waa	683	2006	10	CH	599	1	1	1	1	1	1	0.4	0.4	52	100	52	100	52	100	2	100	2	100	51	100		4		100	100		2		
	GW	Boggabri	275	2005	4	CH	241	52	1	1	1	52	1	1.0	1.0	12	100	12	100	52	100	1	100	1	100	51	100		1		100	100		1		
	GW	Gwabegar	15	2006	0.4	CH	13	1	1	1		0	0	0.1	0.1	1	100	24	100	24	100	2	100	2	100	26	100		1		100	100		1		
	GW	Bellata	31	2005	0.4	CH	27	1	1	1	1	0	0	0.2	0.1	2	100	2	100	2	100	2	100	2	100	24	100		1		100	96		1		
	GW	Pilliga	36	2006	1	CH	32	3	3	3	3	2	1	0.1	0.1	2	100	2	100	24	100	2	100	2	100	25	100		1		100	100		1		
Narrabri Shire Council		**Total/Weighted Average**	2999		34		2631	52	2	15	2	52	1	5.0	0.4	93	100	116	100	178	100	21	100	21	100	229	100	100	55	12	100	100	Yes	4	0	0
Narrandera Shire Council	*GW*	Narrandera	2185	-	23	CH	1600													12	100	12	100	12	100	72	100	100	-	-	100	100	Yes	3	0	0
Narromine Shire Council	*GW*	Narromine	1141	1989	8.1	CH	1039			1	1			0.8	0.2	3	100	3	100	49	100	3	100	3	100	48	100	100	1	0	100	94	Yes	4	0	0
Oberon Council		Oberon	698	2002	7	MF	616	33	29			3	1	0.1	0.1	365	100	365	100	365	100	12	100	12	100	46	100	100	0	0	100	90	Yes	4	0	0
		Icely Road	4501	201	38	C,OZ	4237	18	10	1	1	23	2	0.1	0.2	12	100	12	100	12	100	12	100	12	100	134	100		32		100	99		4		
	GW	Spring Hill/Lucknow	58	-	1	CH	55							0.2	0.1	2	100	2	100	2	100	2	100	2	100	49	100				100	96		4		
Orange City Council		**Total/Weighted Average**	4559		39		4292	18	10	1	0	23	2	0.2	0.2	14	100	14	100	14	100	14	100	14	100	183	100	100	32	2	100	98	Yes	4	0	0
Parkes Shire Council		Parkes	2341	1994	9	C	2141	55	18	2	1	50	10	0.9	0.3	12	100	12	100	12	100	12	100	12	100	124	100	100	10	2	100	100	Yes	9	0	0
	UF	Hastings	5423	2005	151	CH	5166	6	6	3	2	4	1	4.2	0.9	12	100	762	100	762	91	12	100	12	100	589	100		160		100	100		2		
		Wauchope	902	2006	9	MF	859			2	1	42	6	0.9	0.3	12	100	217	100	217	98	12	100	12	100	135	100				100	42		4		
		Telegraph Point	37	2005	1	MF	35	78	22	2	2	39	8	0.8	0.3	2	100	36	100	34	100	2	100	2	100	35	100				100	69		2		
		Comboyne	21	2004	1	MF	20	36	19	1	1	96	9	0.9	0.4	2	100	36	100	36	97	2	100	2	100	32	100				100	100		1		
		Long Flat	8	2005	0.3	MF	8	35	9	1	1	23	5	1.3	0.3	2	100	36	100	34	100	2	100	2	100	31	100				100	100		2		
Port Macquarie-Hastings Council		**Total/Weighted Average**	6391		162		6088	78	5	3	2	96	2	4.2	0.8	30	100	1,087	100	1,083	93	30	100	30	100	822	100	100	160	5	100	89	Yes	12	0	0
	B-ACT	Queanbeyan (Bulk From Icon)		-		C	-															12	100	12	100	250	100		-		100	93				
		Braidwood	185	2013	2	DAF	193	17	14	2	1	2	1	1.0	0.6	4	100	4	100	2	100	6	100	16	100	45	100				100	88		2		
	GW	Currandooley	68	2013	2	C	71	264	214	2	1	369	237	0.3	0.1	3	100	3	100	4	100	4	100	4	100	4	100							3		
	GW	Bungendore	217	2005	4	CH	226	1	1	1	1	1	1	1.4	0.8	4	100	4	100	46	100	6	100	16	100	46	100				100	90		3		
		Captains Flat	46	2002	1	MF	48	62	47	10	3	11	7	2.2	1.1	4	100	4	100	26	81	6	100	16	100	26	100		1		100	100		1		
Queanbeyan-Palerang Regional Council		**Total/Weighted Average**	516		8		538	264	38	10	1	369	33	2.2	0.6	15	100	15	100	78	94	34	100	64	100	371	100	100	1	0			Yes	12	0	0
Richmond Valley Council		Casino	2232	1985	23	C	2479	2,464	133	5	2	999	36	0.7	0.2	25	88	128	100	128	100	12	100	24	100	61	100	100	0	0	100	97	Yes	3	0	0

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Water Utility	Source /type (Bulk Supplier)[9]	Water Treatment Works[1]	Total Potable Water Produced W11.3	Year built or Augmented	Capacity	Type of Treatment Works[2]	Volume Treated to Potable	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines[3,7]														Water Quality Complaints C9		No. of Samples ÷ Allocation[6]		Drinking Water Mgmt System (DWMS)?	No. WTW Operators[11]	Chlorination System Failure	Major Malfunction of Treatment Processes
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		*E. coli*		*E. coli* % Pop'n				Chemical	*E. coli*				
		37a	*ML* *37c*		*ML/d* *37b*	*38a*	*ML* *38b*	*Max* *39a*	*Avg* *39b*	*Max* *39c*	*Avg* *39d*	*Max* *40a*	*Avg* *40b*	*Max* *40c*	*Avg* *40d*	*Samples* *42a*	*%* *42b*	*Samples* *42c*	*%* *42d*	*Samples* *42e*	*%* *42f*	*Samples* *42g*	*%* *42h*	*Samples* *42i*	*%* *42j*	*Samples* *42k*	*%* *42l*	Compliance *42n*	*No.* *43*	*/ 1,000 Props*	*%* *44a*	*%* *44b*	*Yes/No* *44c*	*No.* *44d*	*days* *45*	*days* *46*
	GW	Waterworks	7562	1961	80	C	6807	261	76	10	3	66	28	6.0	0.7	14	100	399	100	399	98	14	100	14	93	403	100		37		100	100		5		
	GW	West Wagga	5151	1979	32	C	4637	24	3	10	6	8	2	1.4	0.6	7	100	13	100	13	100	7	100	18	100	13	100		25					5		
		North Wagga	2765	1977	25	C	2489	4	0	3	1	0	0	1.8	0.4	12	100	132	100	132	98	12	100	12	100	132	100		13		100	100		5		
	GW	Ralvona	289	1989	4	C	260	13	3	1	1	7	1	0.5	0.3	2	100	51	100	51	98	2	100	2	100	51	100				100	100		3		
	GW	Bulgary	569	1983	3	C	512	4	1	4	3	1	1	3.2	0.4	3	100	51	100	51	80	3	100	12	100	51	100		4		100	100		3		
	GW	Gardiners Crossing	180	1983	2	C	162	11	2	1	1	0	0	0.5	0.4	2	100	48	100	48	73	2	100	5	100	42	100		1		100	82		3		
		Urana	42	1964	1	C	38	433	191	1	1	58	37	3.2	0.4	2	100	50	100	50	100	2	100	4	100	44	100				100	86		3		
	GW	Walbundrie	42	2005	1	C	38	44	4	1	1	6	1	0.5	0.3	2	100	24	100	24	100	2	100	2	100	24	100				100	96		3		
	GW	Humula	10	2003	0.3	C	9	10	3	1	1	109	5	0.5	0.2	2	100	25	100	25	100	2	100	2	100	25	100		1		100	100		5		
	GW	Woomargama	21	1960	0.2	C	19	24	8	1	1	2	1	0.5	0.4	2	100	25	100	24	92	2	100	2	100	25	100				100	100		3		
	GW	Collingullie	70	2006	0.1	C	63	252	3	1	1	0	0	0.4	0.3	2	100	11	100	11	100	2	100	2	100	11	100				100	100		3		
	GW	Tarcutta	47	2009	1	C	42	376	197	1	1	55	18	0.4	0.4	2	100	25	100	25	100	2	100	3	100	25	100				100	100		5		
	GW	Oura	46	1982	1	C	41	2	0	1	1	1	0	1.0	0.6	2	100	13	100	13	100	2	100	2	100	13	100		1		100	100		5		
		Morundah	12	1992	0.2	C	11	282	159	1	1	44	20	0.9	0.4	2	100	25	100	25	100	2	100	2	100	25	100				100	100		3		
Riverina Water County Council		Total/Weighted Average	16806		150		15128	433	36	10	3	109	13	6.0	0.6	56	100	892	100	891	96	56	100	82	99	884	100	100	82	3	100	100	Yes	9	0	0
		Emigrant Creek Dam	270	2008	8	MF	262	88	27			44	7	0.1		5	100	5	100	5	100	5	100	5	100	5	100							1		
		Rous Villages		-		DAF,OZ	-															12	100	12	100	104	100		-		100	100				
		Nightcap	10411	2007	70	DAF,OZ	10117	38	24	3		9	2	0.2	0.1	52	100	52	100	52	100	52	100	50	100	52	100		5					5		
Rous County Council		Total/Weighted Average	10681		78		10379	88	24	3		44	2	0.2	0.1	57	100	57	100	57	100	69	100	67	100	161	100	100	5	0			Yes	6	0	0
		Bamarang	9009	1999	75	C	8965	40	27	5	1	3	1	1.3	0.4	12	100	25	100	585	98	112	100	112	100	592	100		6		100	100		2		
		Flatrock	2293	1998	28	C	2282	40	27	5	0	3	1	1.7	0.4	7	100	28	96	75	100	32	100	32	100	69	100		2		100	92		2		
		Milton	1037	2000	11	DF	1032	275	72	3	2	10	3	0.4	0.2	12	100	12	100	166	96	52	100	52	100	159	100		1		100	98		2		
		Kangaroo Valley	86	1993	2	MF	86	175	62	8	0	47	11	0.2	0.1	3	100	14	100	53	97	14	100	22	100	51	100				100	100		2		
Shoalhaven City Council		Total/Weighted Average	12426		115		12365	275	31	8	1	47	2	1.7	0.4	34	100	79	99	879	97	210	100	218	100	871	100	100	9	0	100	100	Yes	21	0	0
Singleton Council		Obanvale	2748	1993	30	DF	2581	5	5	1	1	3	1	0.5	0.1	158	100	653	100	1,380	100	14	100	14	100	244	100	100	12	2	100	100	Yes	5	1	40
		Bombala	240	1983	3	C	229													52	100	1	100	9	100	49	100	100	10		100	96				
	UF	Delegate	79	-	1	CH	75													26	100	1	100	1	100	25	100		2		100	100				
		Cooma	1204	1997	15	C	1148	2,485	163	3	2	3,381	24	1.3	0.4	12	100	12	100	12	100	12	100	12	100	65	100		14		100	100		2		
	UF	Nimmitabel	35	2004	1	CH,U	33	43	20	9	5	26	5	1.9	1.7	2	100	2	100	2	100	2	100	2	100	28	100				100	100		1		
	UF	Bredbo	28	2006	1	CH	27	2	1	2	1	60	3	1.3	1.1	2	100	2	100	2	100	2	100	2	100	24	100				100	96		2		
	UF	East Jindabyne	133	2012	9	CH,U	127			4	2			1.6	1.3	2	100	2	100	2	100	2	100	11	100	54	100				100	100		1		
	UF	Jindabyne	493	2007	8	CH,U	470			4	3			1.5	1.1	4	100	4	100	4	100	4	100	12	100	110	100		5		100	100		1		
	UF	Adaminaby	63	2005	2	CH	60			1	1			1.6	1.1	2	100	2	100	2	100	2	100	12	100	25	100				100	100		1		
	UF	Kalkite	18	2007	2	CH	17			7	6			0.8	0.7	2	100	2	100	2	100	2	100	2	100	19	100				100	66		1		
	GW	Dalgety	16	2014	0.2	CH	15			1	1			0.3	0.1	2	100	2	100	2	100	2	100	2	100	27	100				100	100		1		
Snowy Monaro Regional Council		Total/Weighted Average	2308		42		2201	2,485	85	9	2	3,381	12	1.9	0.6	28	100	28	100	106	100	30	100	65	100	426	100	100	31	3	100	100	Yes	15	0	0
		Tumbarumba	319	2012	3	DAF	300					7	2	0.6	0.2			366	100	366	100	3	100	14	100	50	100		2		100	98		2		
		Khancoban	100	1960	2	CH	94															2	100	2	100	22	100				100	88		2		
		Tumut	1064	1978	16	C	1001	250	23	5	5	150	6	1.7	0.2	365	100	365	100	15	100	17	100	17	100	100	100		18		100	100				
		Batlow	207	2001	3	MF	195	225	67	10	6	11	3	0.2	0.1	365	100	365	100	2	100	2	100	13	100	56	100		2		100	100		2		
		Talbingo	52	1995	2	DF	49	45	18	3	3	3	1	0.2	0.1	366	100	366	100	2	100	2	100	2	100	28	100				100	100				
		Brungle	12	2003	0.3	MF	11	125	30	8	4	38	10	1.7	0.2	79	100	79	100	2	100	2	100	2	100	43	100		2		100	100		2		
Snowy Valleys Council		Total/Weighted Average	1754		25		1650	250	22	10	4	150	4	1.7	0.2	1,175	100	1,541	100	387	100	28	100	50	100	299	100	100	24	4	100	100	Yes	12	5	0

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Water Utility	Source /type (Bulk Supplier)[9]	Water Treatment Works[1]	Total Potable Water Produced W11.3	Year built or Augmented	Capacity	Type of Treatment Works[2]	Volume Treated to Potable	Colour Units				Turbidity Units				Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines[3,7]														Water Quality Complaints C9		No. of Samples ÷ Allocation[6]		Drinking Water Mgmt System (DWMS)?	No. WTW Operators[11]	Chlorination System Failure	Major Malfunction of Treatment Processes
								Raw Water		Treated Water		Raw Water		Treated Water		Colour		Turbidity		pH		Physical		Chemical		*E. coli*		*E. coli* % Pop'n Compliance				Chemical	*E. coli*				
		37a	*ML* 37c		*ML/d* 37b	*38a*	*ML* 38b	*Max* 39a	*Avg* 39b	*Max* 39c	*Avg* 39d	*Max* 40a	*Avg* 40b	*Max* 40c	*Avg* 40d	*Samples* 42a	*%* 42b	*Samples* 42c	*%* 42d	*Samples* 42e	*%* 42f	*Samples* 42g	*%* 42h	*Samples* 42i	*%* 42j	*Samples* 42k	*%* 42l	*42n*	*No.* 43	*/ 1,000 Props*	*%* 44a	*%* 44b	*Yes/No* 44c	*No.* 44d	*days* 45	*days* 46
		Calala	8811	2014	80	C	8033	135	9	3	0	115	9	2.8	0.2	66	100	66	100	103	100	12	100	12	100	712	100				100	100		6		
		Manilla	370	1990	5	C	337	69	25	6	3	24	8	1.8	0.5	9	100	84	100	9	100	2	100	3	100	93	100				100	100		4		
		Barraba	245	2015	4	DAF	223	11	9	2	2	6	3	1.2	0.2	5	100	31	100	9	100	2	100	2	100	94	100				100	100		3		
	GW	Attunga	75	1991	3	CH	68	3	2	3	2	1	0	1.4	0.2	43	100	43	95	17	100	2	100	2	100	42	100				100	100		6		
	GW	Nundle	44	1995	1	LS	40	30	7	2	2	12	4	1.4	0.5	8	100	59	100	9	100	2	100	2	100	65	100				100	100		3		
		Bendemeer	25	2007	1	C	23	71	27	4	2	14	5	0.5	0.2	6	100	75	100	7	100	2	100	2	100	83	100				100	100		3		
	GW	Kootingal/Moonbi	363	1991		CH	331	10	3	7	2	3	0	3.8	0.3	57	100	148	98	37	100	2	100	2	100	141	100				100	100		3		
Tamworth Regional Council		Total/Weighted Average	9932		93		9055	135	9	7	0	115	8	3.8	0.2	194	100	506	99	191	100	24	100	25	100	1,230	100	100	0	0	100	100	Yes	21	0	0
		Tenterfield	320	2004	6	C	356	272	58	80	8	22	3	3.0	0.1	365	100	365	100	12	100	3	100	13	100	58	100				100	100		5		
		Urbenville	80	2010	1	DAF	89	1,393	155	44	8	172	15	2.7	0.7	365		365		12	100	2	100	12	100	150	100				100	100		2		
		Jennings		-		C	-													12	100	12	100	12	100	12	100				100	48				
Tenterfield Shire Council		Total/Weighted Average	400		6		445	1,393	77	80	8	172	5	3.0	0.2	730	50	730	50	36	100	17	100	37	100	220	100	100	0	0	100	100	Yes	8	0	0
		Bray Park	8357	2010	100	MF	8358	60	21	2	0	87	9	0.5	0.2	104	100	104	100	1,640	86	12	100	12	100	798	100		154		100	100		3		
		Uki	45	1998	1	C	45	77	29	3	0	97	10	0.8	0.3	104	100	104	100	156	71	2	100	2	100	42	100		2		100	100		1		
		Tyalgum	29	2012	0.3	MF	29	50	16	5	1	38	7	0.3	0.2	104	100	104	100	104	100	2	100	2	100	46	100				100	100		1		
Tweed Shire Council		Total/Weighted Average	8431		101		8432	77	21	5	0	97	9	0.8	0.2	312	100	312	100	1,900	86	16	100	16	100	886	100	100	156	5	100	100	Yes	5	0	0
	UF	Murrurundi	146	1983	2	CH	128			3	3	4	2	16.1	3.8	2	100	366	99	366	51	366	99	2	100	50	100				100	98		2		
	GW	Merriwa	279	1980	2	C	245			1	1			0.4	0.2	2	100	2	100	2	100	2	100	2	100	47	100				100	92		1		
	GW	Cassilis	15	2001	1	CH	13			1	1			0.4	0.2	2	100	2	100	2	100	2	100	2	100	22	100		1		100	88		1		
		Scone And Aberdeen	2107	1982	20	CH	1850			2	1			2.2	0.4	14	100	14	100	14	100	14	100	14	100	136	100		2		100	100				
Upper Hunter Shire Council		Total/Weighted Average	2547		25		2236			3	1	4	0	16.1	0.6	20	100	384	99	384	53	384	99	20	100	255	100	100	3	1	100	100	Yes	3	0	0
		Crookwell	274	1990	3	C	297	60	20	5	3	4	3	0.4	0.3	2	100	2	100	2	100	2	100	11	100	49	100				100	96		3		
	GW	Gunning	69	2014	1	DAF	75	200	50	1	1	20	5	0.3	0.2	4	100	4	100	4	100	3	100	13	100	60	100				100	100		3		
	UF	Taralga	44	2014	0.3	MF	48	10	9	1	1	2	2	0.2	0.1	2	100	2	100	2	100	2	100	2	100	26	100				100	100		3		
Upper Lachlan Shire Council		Total/Weighted Average	388		4		420	200	24	5	2	20	3	0.4	0.3	8	100	8	100	8	100	7	100	26	100	135	100	100	0	0	100	100	Yes	7	0	0
		Kentucky Creek	284	1985	5	C	283	164	52	5	3	117	16	0.9	0.7	2	100	2	100	51	100	2	100	12	100	51	100		6		100	100		3		
		Bundarra	57	1994	1	LS	57	200	68	5	2	26	7	0.6	0.2	1	100	1	100	23	96	2	100	12	100	23	100				100	92		1		
Uralla Shire Council		Total/Weighted Average	341		6		340	200	55	5	3	117	14	0.9	0.6	3	100	3	100	74	99	4	100	24	100	74	100	100	6	4	100	97	Yes	4	0	0
Walcha Council		Walcha	199	1985	5	C	154	200	48	3	3	31	6	0.2	0.1	170	100	170	100	400	100	2	100	12	100	52	100	100	0	0	100	100	Yes	4	0	0
	NP	Carinda		2007	0.1																								-							
	NP	Rowena		2005	1																								-							
	GW	Lightning Ridge	420	1999	3	U	500													1	100	3	100	3	100	45	96		3		100	88		2		
	DS	Walgett	218	2015	2	C	260					1,000										2	100	2	100	53	100		1		100	84		2		
	DS	Collarenebri	80	2015	1	MF	95													2	2	3	100	3	100	53	100		1		100	84				
Walgett Shire Council		Total/Weighted Average	718		5		855					1,000								3	35	8	100	8	100	151	99	42	5	3	100	85	Yes	6	0	0
	NP	Collie		2014	0.1																								5							
	GW	Nevertire	47	1983	0.1	CH	35	1	1	1	1	1	0	0.8	0.4	2	100	2	100	2	100	2	100	2	100	24	100		2		100	96		2		
	DS	Warren Chlorinator	372	2000	3.5	CH	279	1	1	1	1	0	0	0.3	0.1	2	100	2	100	55	100	365	100	2	100	55	100		2		100	100		2		
Warren Shire Council		Total/Weighted Average	419		4		314	1	1	1	1	1	0	0.8	0.2	4	100	4	100	57	100	367	100	4	100	79	100	100	4	4	100	100	Yes	5	0	0
		Coonabarabran	463	1993	8	LS	473	80	5			25	3	1.2	0.5	366	100	366	99	366	100	1	100	7	100	48	100		3		100	76		2		
		Binnaway	97	1993	1	LS	99	30	22			88	4	0.9	0.5	360	100	360	100	365	100	1	100	9	100	24	100				100	96		2		
	GW	Dunedoo	195	1984	1	CH	199							0.7	0.4			38	100	288	100	1	100	1	100	48	100				100	94				
	GW	Coolah	148	1996	1	CH	151							0.8	0.4			38	100	286	100	1	100	1	100	48	100				100	94		2		
	GW	Baradine	232	2002	1	C	237							0.7	0.1			364	100	365	100	1	100	7	100	48	100		1		100	94		1		
		Mendooran	60	2009	1	LS	61							0.6	0.2			265	100	352	100	1	100	1	100	26	96				100	100		2		
	GW	Bugaldie	3	1960		CH	3							0.5	0.4			38	100	49	100	1	100	1	100	12	100				100	100		1		
	GW	Kenebri	4	1950		CH	4							0.6	0.4			38	100	49	100	1	100	1	100	12	100				100	100		1		
Warrumbungle Shire Council		Total/Weighted Average	1200		13		1227	80	4			88	2	1.2	0.4	726	100	1,507	100	2,120	100	8	100	28	100	266	100	95	4	1	100	92	Yes	11	0	0

APPENDIX D1: 2015-16 WATER TREATMENT PERFORMANCE

Water Utility	Source /type (Bulk Supplier)[9]	Water Treatment Works[1] 37a	Total Potable Water Produced W11.3 ML 37c	Year built or Augmented	Capacity ML/d 37b	Type of Treatment Works[2] 38a	Volume Treated to Potable ML 38b	Colour Units Raw Water Max 39a	Colour Units Raw Water Avg 39b	Colour Units Treated Water Max 39c	Colour Units Treated Water Avg 39d	Turbidity Units Raw Water Max 40a	Turbidity Units Raw Water Avg 40b	Turbidity Units Treated Water Max 40c	Turbidity Units Treated Water Avg 40d	Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines[3, 7]: Colour Samples 42a	Colour % 42b	Turbidity Samples 42c	Turbidity % 42d	pH Samples 42e	pH % 42f	Physical Samples 42g	Physical % 42h	Chemical Samples 42i	Chemical % 42j	*E. coli* Samples 42k	*E. coli* % 42l	*E. coli* % Pop'n Compliance 42n	Water Quality Complaints C9 No. 43	Water Quality Complaints C9 / 1,000 Props	No. of Samples ÷ Allocation[6] Chemical % 44a	No. of Samples ÷ Allocation[6] *E. coli* % 44b	Drinking Water Mgmt System (DWMS)? Yes/No 44c	No. WTW Operators[11] No. 44d	Chlorination System Failure days 45	Major Malfunction of Treatment Processes days 46
	RA	Buronga/Gol-Gol/Dareton	490	1994	4	LS	527			1	1			0.5	0.2	4	100	4	100	4	100	4	100	4	100	90	100		-		100	100				
	RA	Wentworth	186	1991	1	C	200			1	1			0.3	0.2	2	100	2	100	2	100	4	100	4	100	51	100		-		100	100				
	RA	Pooncarie	7	1996	0.2	LS	7			2	1			2.0	0.2	2	100	2	100	2	100	28	100	6	100	28	100		-		100	100				
Wentworth Shire Council	*DS*	Total/Weighted Average	683		5		734			2	1			2.0	0.2	8	100	8	100	8	100	36	100	14	100	169	100	100	-	-	100	100	Yes	4	0	0
		Wingecarribee	4592	2001	40	DAF	4593	85	62	3	3	22	12	0.6	0.3	13	100	13	100	13	92	13	100	13	100	355	100		164		100	100		3		
		Bundanoon	494	1988	10	DAF	494	250	65	3	3	42	6	0.6	0.2	12	100	12	99	12	100	12	100	12	100	99	100		8		100	100		2		
Wingecarribee Shire Council		Total/Weighted Average	5086		50		5087	250	62	3	3	42	11	0.6	0.3	25	100	25	100	25	96	25	100	25	100	454	100	100	172	9	100	100	Yes	5	0	1
Yass Valley Council		Yass	950	1989	13	DAF	915	1,425	159	10	5	729	21	1.9	0.3	366	100	366	100	101	100	12	100	12	100	102	100	100	2	1	100	100	Yes	4	0	0

		Physical	Chemical	*E. coli*
Total Capacity of 2,730 ML/d	164 WTWs (Note 1)	Total No. of Samples: 3,700	3,100	21,600
Total Potable Water Produced of 262,000 ML	78 Chlorinators/aerators (Note 1)	% of Samples Complying: 99%	99.8%	99.9%
	242 Total	LWUs Complying: 100%	100%	100%

4,610 water quality complaints
3 per 1,000 properties

Notes:

1. The total number of water treatment works (WTW) involving at least filtration and disinfection is 164. These include C, DF, DAF, LS, MF and D (Note 2 below). The total number of chlorinators/aerators is 78. These include CH, A, OZ and UV (Note 2 below). Where a LWU has more than one treatment works/chlorinator, the compliance values have been pro-rated on the basis of the number of samples tested at each treatment works/chlorinator and are shown in bold in the final line for that LWU.

   The capacity (37b), potable water produced (37c), number of samples (eg. 42a) and number of water quality complaints (43) shown above are the totals for all treatment works with potable supply for that LWU. The number of days of chlorination system failure (45), and the number of days of major malfunction of treatment processes (46) shown above are the weighted average based on treatment works capacity. Non-potable supplies are not included in totals or compliance. Potable water produced (W11.3) for each WTW has been determined from the total potable water produced by the LWU pro-rated by the volume treated to potable for the WTW divided by the total volume treated to potable for that utility.
2. For **"Type of Treatment Works"** (38a); A = Aerated & Disinfected, C = Conventional Water Treatment, CH = Chlorination Only, DF = Direct Filtration, DAF = Dissolved Air Flotation, LS = Lagoon Sedimentation, MF = Microfiltration, D = Desalination, OZ = Ozonation, UV = Ultra-Violet Disinfection, NIL = No Treatment. As indicated in Note 1 above, water treatment works involving at least filtration and disinfection is limited to C, DF, DAF, LS, MF and D.
3. Physical, Chemical and *E. coli* results are from the NSW Health Drinking Water Monitoring Program and/or from the NSW Performance Monitoring Database.
4. A recent review has found that some LWUs had overstated physical and chemical compliance by reporting the number of analytes rather than the number of samples. Compliance is calculated as a percentage of samples so columns 42g and 42j above have been corrected by using the results provided by the NSW Health Drinking Water Monitoring Program. However, the reporting of additional samples has been accepted for those LWUs that have confirmed that they have undertaken additional sampling to that required by the Drinking Water Program (eg. MidCoast Water and Goldenfields Water). Note that commencing in the 2012-13 financial year, such additional sampling reported by LWUs is only included in Appendix D1 if the testing has been undertaken by a NATA accredited laboratory.
5. The additional Physical, Chemical and E. coli results from the NSW Health Drinking Water Monitoring Program have also been included in Tables 5 and 12 and Figures 15 to 17. As shown above and in Table 9, the number of LWU water treatment works is 164 and the number of chlorinator/aerators is 78 (ie. a total of 242).
6. NSW Health provides Chemical and Microbiological monitoring allocations for each LWU. The sampling reported to NSW Health has been augmented to include sampling reported by LWUs for the NSW Performance Monitoring Database but not included in the Drinking Water Program (44a) and (44b). Columns 44a and 44b show that almost all LWUs have tested 100% of their allocated samples by NSW Health for chemical and *E. coli* water quality.
7. The basis for assessing drinking water quality compliance is set out in Appendix H4.6. In summary, a LWU has complied with the guidelines for microbiological water quality (ie. it is shown as "Yes" in Tables 5 and 12) if the required number of samples has been tested and at least 98% of samples had no *E. coli* .

   Similarly, chemical water quality (health related) is satisfactory (shown as compliant - 'Yes' in Tables 5 and 12)) if the 95th percentile of results meets the guidelines, and physical (aesthetic) water quality is satisfactory if the mean value of results meets the guideline values (shown as compliant - 'Yes' in Table 12).
8. The total water treatment capacity in regional NSW is 2,730 ML/d (column 37b) and the total potable water produced is 262 GL (column 37c). The total number of water quality complaints is 4,610 and the Statewide median is 3 complaints per 1,000 properties (columns 43).
9. All LWUs have met the physical, chemical and E. coli water quality requirements of ADWG (columns 42h, 42j and 42k).
10. All LWUs have a Drinking Water Management System (DWMS - column 44c).
11. The number of operators shown in column 44d include both fully qualified operators and operators in training. The total number of fully qualified water treatment operators is 429, while 98 operators are in training. Refer also to Appendix I and to section 6. Information on the DPI Water section 61 Reports for each treatment works is available in the NSW Performance Monitoring Database (refer to Appendix H4.6).
12. For "**Source/type (Bulk Supplier)**"; DS = dual supply, GW = groundwater, GQGW = good quality groundwater, ML = Menindee Lakes (Water NSW), NP = non-potable, RA = river abstraction (Water NSW), UF = unfiltered, B-ACT = bulk purchase (ICON), B-Alb = bulk purchase (Albury), B-FR = bulk purchase (Fish River), B-GF = bulk purchase (Goldenfields Water), B-Mrm = bulk purchase (Murrumbidgee Irrigation), B-Mry = bulk purchase (Murray Irrigation), B-RW = bulk purchase (Rous Water), B-NSW = bulk purchase (Water NSW).

APPENDIX D2: 2015-16 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits[5]	Sewage Treatment Works[1,6]	Year built or Augmented	Design Capacity	Standard of Treatment[3]	Type of Treatment Works[4]	Nitrogen Removal	Phosphorus Removal	Effluent Discharge[3]	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits[5] and EPA Licence Compliance																Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan?[7]	No. of STW Operators[8]	Sampling Days	Major Malfunction (Treatment Processes)
												BOD		SS		Total N		NH_3N		Oil & Grease		Total P		E.coli		pH		Overall Result								
										W18.5	W26																									
				EP						ML	ML	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu /100mL	% Samples	range	% Samples	% Samples	No.	No./ 1000 props	E4 %			days	days
			1	10	3	2	5	6		15	16	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72	68	69	63	64a	64b	65	67
		Albury (Kremur St)	1987	40,000	T	BNR	Y	Y	L	2,549	1,093	15	100	20	46	15	100	5	100	10	100	1	54	NL	100	8.5	100	46	13			Yes	1	13	0
		Albury (Waterview)	1999	26,500	T	BNR	Y	Y	L	2,024	1,400	12	100	15	100	15	100	5	100	2	85	1	100	300	15	8.5	100	15	11			Yes	3	13	0
	100%	Hume Weir	1980	500	T	IEA				12	9	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0				0	4	0
	No	Lara Lakes	1990	200	S	A			L	12		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				0	12	0
Albury City Council		Total/Weighted Average		67,200					L	4,597	2,503	15	100	20	70	15	100	5	100	10	93	1	74	NL	63	8.5	100	33	24	1.0	33		4	42	0
		Armidale	1989	22,000	T	TF			R	2,344	827	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	11			Yes	4	12	0
		Guyra	2001	3,300	S	CEA	Y	Y	R	172		15	100	20	100	15	100	5	100	10	100	1	100	NL	100	8.5	83	83	1			Yes	2	12	0
	No	Tingha	2006	963	S	CED,A			R	27		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
Armidale Regional Council		Total/Weighted Average		26,263					R	2,543	827	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	99	99	12	1.2	99		6	24	0
	100%	Ballina	2014	37,000	T	MBR	Y	Y	O	2,337	136	10	100	15	100	10	100	2	100	5	100	0.5	100	200	100	NL	100	100	5			Yes	3	26	0
	100%	Lennox Head	2011	28,000	S	IEA	Y	Y	O	1,474	63	10	100	15	100	NL	100	NL	100	5	100	NL	100	200	100	NL	100	100	1			Yes	3	26	0
	100%	Alstonville	1986	8,000	S	IEA	Y	Y	R	564	289	10	100	15	100	10	100	NL	100	5	100	0.5	100	200	100	NL	100	100	6			Yes	2	13	0
	100%	Wardell	1997	1,750	S	IEA	Y		R	159	11	15	100	20	100	NL	100	NL	100	10	100	NL	100	200	100	NL	100	100	0			Yes	3	26	0
Ballina Shire Council		Total/Weighted Average		74,750					R O	4,534	500	10	100	15	100	10	100	2	100	5	100	0.5	100	200	100	NL	100	100	12	0.8	100		9	91	0
	No	Balranald	1999	2,000	S	AN			L	102		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	2	0
	No	Euston	1995	1,100	S	AN			L	116		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	-	0
Balranald Shire Council		Total/Weighted Average		3,100					L	218	0	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0	100		4	2	0
Bathurst Regional Council		Bathurst	1998	55,000	T	IEA	Y	Y	R	3,876	0	20	100	25	100	15	100	NL	100	10	100	1	100	200	87	6.5 - 8.5	100	87	0	0.0	87	Yes	4	53	0
	No	Wolumla	2007	800	T	MBR	Y			22	22	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Cobargo	2006	800	T	MBR	Y		R	26	12	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Candelo	2007	800	T	MBR	Y		R	18	4	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	1
	No	Kalaru	2008	800	T	MBR	Y		R	13	3	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
		Tura Beach	2015	4,500	T	CEA	Y		L	201	28	10	100	20	100	10	100	2	100	2	100	NL	100	NL	100	6.5 - 8.5	100	100	4			Yes	1	12	0
		Eden	2015	8,000	T	IEA	Y		O	355	37	10	100	20	100	10	100	2	100	2	100	NL	100	NL	100	6.5 - 8.5	100	100	2			Yes	1	12	0
		Tathra	2004	6,200	T	CEA	Y	Y		167	154	10	100	15	100	10	100	2	100	2	100	1	100	100	100	6.5 - 8.5	100	100	0			Yes	1	12	0
		Bega	2008	8,000	T	IEA	Y	Y	R	495		10	100	10	100	10	100	2	100	2	100	0.5	100	200	75	6.5 - 8.5	100	75	3			Yes	1	12	0
		Bermagui	2008	6,000	S	CEA	Y		O	238	48	10	100	15	100	10	100	2	100	2	100	8	100	200	100	6.5 - 8.5	100	100	1			Yes	1	12	0
		Merimbula	2008	15,500	S	IEA	Y		L O	859	93	10	83	20	100	10	100	2	83	2	100	13	100	200	100	6.5 - 8.5	100	83	0			Yes	1	12	0
Bega Valley Shire Council		Total/Weighted Average		51,400					L R O	2,394	401	10	94	20	100	10	100	2	94	2	100	13	100	200	95	6.5 - 8.5	100	89	10	0.8	89		6	72	1
		Urunga	1989	6,650	T	IEA	Y	Y	R	245		10	100	15	100	10	100	2	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	0				1	26	0
		Bellingen	1994	5,000	T	IEA	Y	Y	R	245		10	100	15	100	10	100	2	86	2	100	0.5	100	200	100	6.5 - 8.5	100	86	0				1	26	1
	100%	Dorrigo	2015	2,000	T	IEA	Y	Y	R	70		10	100	15	100	10	100	2	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	0				1	26	0
Bellingen Shire Council		Total/Weighted Average		13,650					R	560	0	10	100	15	100	10	100	2	94	2	100	0.5	100	200	100	6.5 - 8.5	100	94	0	0.0	94		4	78	1
	No	Tocumwal	1944	4,000	T	TF			L	300	290	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	4				2	2	0
	No	Finley	1967	3,200	T	TF			L	300	245	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	6				2	2	4
	No	Barooga	1989	3,000	S	A			L	130		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	2	0
	No	Berrigan	1968	1,500	T	TF			L	95	94	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	2				2	2	0
Berrigan Shire Council		Total/Weighted Average		11,700					L	825	629	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	12	3.3	100		4	8	4
	100%	West Wyalong	1986	4,000	S	C				270	270	20	100	30	100	NL	100	NL	100	NL	100	NL	100	600	100	6.0 - 9.0	100	100	0			Yes	2	4	0
	No	Ungarie	1961	600	S	C				0		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	0	0
	No	Barmedman	1940	400	T	A			L	24		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	0	0
Bland Shire Council		Total/Weighted Average		5,000					L	294	270	20	100	30	100	NL	100	NL	100	NL	100	NL	100	600	100	6.0 - 9.0	100	100	0	0.0	100		2	4	0
Blayney Shire Council	*100%*	Blayney	2003	7,000	S	IEA	Y	Y	R	489	301	30	100	30	100	15	100	2	100	10	100	1	100	600	100	6.5 - 8.5	100	100	1	0.5	100	Yes	4	13	0
Bogan Shire Council	*100%*	Nyngan	1991	3,735	S	A			L	161	60	30	75	30	50	15	100	5	100	10	100	10	100	200	50	6.5 - 8.5	25	25	0	0.0	25	Yes	4	4	0
Bourke Shire Council	*100%*	Bourke	1982	5,000	S	A			L	179	0	15	100	20	100	15	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	100	100	0	0.0	100		5	12	0
	100%	Brewarrina	1971	1,600	S	TF	Y	Y		135		20	80	30	80	15	80	NL	100	10	80	10	80	NL	100	NL	100	80	0				2	1	0
	No	Goodooga	1985	1,600	S	A				20		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
	No	Barwon Four	1991	1,000	S	A				18		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
Brewarrina Shire Council		Total/Weighted Average		4,200						173	0	20	84	30	84	15	84	NL	100	10	84	10	84	NL	100	NL	100	84	0	0.0	84		6	1	0

APPENDIX D2: 2015-16 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits[5]	Sewage Treatment Works[1,6]	Year built or Augmented	Design Capacity	Standard of Treatment[3]	Type of Treatment Works[4]	Nitrogen Removal	Phosphorus Removal	Effluent Discharge[3]	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits[5] and EPA Licence Compliance																Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan?[7]	No. of STW Operators[8]	Sampling Days	Major Malfunction (Treatment Processes)
												BOD		SS		Total N		NH_3N		Oil & Grease		Total P		E.coli		pH		Overall Result								
										W18.5	W26	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu /100mL	% Samples	range	% Samples	% Samples	No.	No./ 1000 props	E4 %				
				EP						ML	ML																								
			1	10	3	2	5	6		15	16	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72	68	69	63	64a	64b	65	67
		Byron Bay West	2005	29,000	T	BNR	Y	Y	L R	1,886	338	10	100	15	100	10	100	2	100	5	100	0.5	100	200	100	6.5 - 8.5	100	100	6			Yes	0	26	0
		Ocean Shores	1997	8,000	S	IEA	Y	Y	R	563		15	100	20	86	15	100	5	100	10	100	1	100	200	100	6.5 - 8.5	100	86	0			Yes	0	26	0
		Brunswick Valley	2011	16,500	T	BNR	Y	Y	L R	677	24	10	100	15	100	10	100	2	100	5	100	0.3	100	200	88	6.5 - 8.5	100	88	5			Yes	0	26	0
		Bangalow	2007	3,500	T	MBR	Y	Y	L R	128	5	10	100	15	100	10	100	2	100	5	100	0.3	70	200	100	6.5 - 8.5	100	70	0			Yes	0	26	0
Byron Shire Council		Total/Weighted Average		57,000					L R	3,254	367	10	100	15	98	10	100	2	100	5	100	0.5	99	200	98	6.5 - 8.5	100	94	11	1.0	94		7	104	0
	100%	Canowindra	2000	2,500	S	TF			R	147	62	30	100	50	83	15	75	NL	100	10	100	10	100	600	83	6.5 - 8.5	50	50	0			Yes	2	4	0
	100%	Molong	2010	2,000	S	AL	Y		R	104		30	75	50	100	15	58	NL	100	10	100	10	100	600	100	6.5 - 8.5	100	58	0			Yes	2	12	0
	No	Manildra	2012	800	P	A			L	0	5	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Cumnock	2015	365	P	A				-		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Yeoval	2015	428	P	A				-		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Cudal	2010	500	P	A	Y		L	19	2	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Eugowra	1999	550	S	A			L	33	10	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
Cabonne Council		Total/Weighted Average		7,143					L R	303	79	30	91	50	92	15	73	NL	100	10	100	10	100	600	92	6.5 - 8.5	76	61	0	0.0	61		6	16	0
	No	Hillston	1978	1,000	S	IEA		Y	L	99		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	3				2	-	0
	No	Goolgowi	2010	400	S	A			L	21		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	4				2	-	0
	No	Rankins Springs	1986	150	S	A				-		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	-	0
Carrathool Shire Council		Total/Weighted Average		1,550					L	120	0	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	7	8.9	100		2	0	0
		Kincumber	1983	180,000	S	C			O	13,697	3	30	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	100	139			Yes	9	61	0
	No	Woy Woy	1989	50,000	S	CEA			O	4,886		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	19				2	61	0
		Bateau Bay	1989	76,800	S	TF			O	3,277	471	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	19			Yes		30	0
		Wyong South	1988	48,000	S	IEA			O	4,153	26	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	11					30	0
		Charmhaven	1989	40,000	S	IEA			O	3,137	10	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	25					30	0
		Toukley	1973	41,500	S	TF			L O	2,982	381	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	18			Yes		30	0
		Gwandalan	1989	12,000	S	IEA	Y		O	768	1	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	9					30	0
		Mannering Park	1987	12,000	S	IEA	Y		O	923	3	NL	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	12					30	0
Central Coast Council		Total/Weighted Average		460,300					L O	33,823	895	30	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	100	252	1.9	100		23	302	0
Central Darling Shire Cou	*No*	Wilcannia	1992	1,510	S	A			L	53	0	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0.0	100		4	4	0
	100%	Grafton North	2010	14,700	T	TF			R	698	5	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	1			Yes	2	26	0
		Yamba	2016	17,200	T	IEA	Y	Y	R	800	40	15	100	20	100	15	100	5	100	10	100	1	100	200	100	6.5 - 8.5	100	100	0			Yes	3	26	0
		Clarenza	2010	12,800	T	IEA	Y	Y	R	641		10	100	15	100	10	72	NL	100	5	100	0.5	100	200	100	NL	100	72	3			Yes	2	26	0
	100%	Coutts Crossing	1988	1,000	S	IEA			R	32	13	20	100	30	55	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	55	0			Yes	1	12	0
		Woodford Island	2010	8,000	T	IEA	Y	Y	R	376	209	10	100	15	100	10	78	2	88	5	100	0.5	100	200	100	6.5 - 8.5	100	78	0			Yes	3	26	0
		Iluka	2013	5,800	T	IEA	Y	Y	R	120	117	10	100	10	100	10	100	2	100	2	56	0.3	100	200	100	6.5 - 8.5	100	56	0			Yes	2	25	0
Clarence Valley Council		Total/Weighted Average		59,500					R	2,667	385	15	100	20	99	15	90	5	98	10	98	1	100	200	100	6.5 - 8.5	100	88	4	0.3	88		12	141	0
Cobar Shire Council	*No*	Cobar	1982	10,000	S	CEA				435	0	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	2	1.1	100	Yes	2	12	-
		Coffs Harbour	2009	70,000	T	CEA	Y	Y	O	4,422	574	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	2	52	0
		Moonee/Emerald	2000	7,000	T	BNR	Y	Y	O	218	103	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	1	12	0
		Woolgoolga	2005	18,000	S	IEA	Y	Y	O	933	413	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	2	12	0
		Corindi Beach	2000	1,500	T	IEA	Y	Y	L	111	23	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	1	11	1
		Deep Sea Release							O	0		10	100	15	100	10	100	NL	100	2	100	2	100	NL	100	NL	100	100	0			Yes		26	
Coffs Harbour City Council		Total/Weighted Average		96,500					L O	5,684	1,113	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0.0	100		5	87	1
	100%	Coolamon	1999	1,200	T	TF			L	75	75	30	100	20	100	NL	100	NL	100	NL	100	NL	100	10	100	5.5 - 9.5	100	100	0			Yes	2	4	0
	No	Ganmain	1998	1,000	S	A			L	30		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	0	0
Coolamon Shire Council		Total/Weighted Average		2,200					L	105	75	30	100	20	100	NL	100	NL	100	NL	100	NL	100	10	100	5.5 - 9.5	100	100	0	0.0	100		2	4	0
	100%	Coonamble	1956	4,000	T	TF				260	54	20	100	50	50	20	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	75	50	0			Yes	4	12	0
	100%	Gulargambone	1975	750	S	IEA				0		20	100	25	25	15	100	NL	100	10	100	15	-	600	87	6.5 - 8.5	75	25	0			Yes	2	12	0
Coonamble Shire Council		Total/Weighted Average		4,750						260	54	20	100	50	50	20	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	75	50	0	0.0	50		7	24	0
	100%	Cootamundra	1992	14,000	T	AL	Y	Y		583	508	30	100	40	100	20	100	NL	100	10	100	1	100	200	100	5.5 - 9.5	100	100	1			Yes	1	4	0
	No	Gundagai	1932	3,500	S	TF				234	234	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	4	10	0
Cootamundra-Gundagai Regional		Total/Weighted Average		17,500						817	742	30	100	40	100	20	100	NL	100	10	100	1	100	200	100	5.5 - 9.5	100	100	1	0.3	100		6	14	0
Cowra Shire Council	*100%*	Cowra	2011	14,800	S	IEA	Y	Y	R	584	0	10	100	15	100	10	100	NL	100	2	100	0.3	100	200	100	6.5 - 8.5	100	100	0	0.0	100	Yes	4	12	0

APPENDIX D2: 2015-16 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits[5]	Sewage Treatment Works[1,6]	Year built or Augmented	Design Capacity	Standard of Treatment[3]	Type of Treatment Works[4]	Nitrogen Removal	Phosphorus Removal	Effluent Discharge[3]	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits[5] and EPA Licence Compliance																Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan?[7]	No. of STW Operators[8]	Sampling Days	Major Malfunction (Treatment Processes)
												BOD		SS		Total N		NH_3N		Oil & Grease		Total P		E.coli		pH		Overall Result								
										W18.5	W26	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu /100mL	% Samples	range	% Samples	% Samples	No.	No./ 1000 props	E4 %				
				EP						ML	ML																								
			1	10	3	2	5	6		15	16	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72	68	69	63	64a	64b	65	67
	No	Wongarbon	2010	526	nil	A				0		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				6	-	0
	100%	Dubbo (Troy Junction)	2015	55,000	S	BNR	Y	Y	R	3,237	2,599	30	100	30	100	15	75	5	-	10	100	10	100	200	100	6.5 - 8.5	100	75	7			Yes	6	12	0
	100%	Wellington	2006	8,000	T	IEA	Y	Y	R	444		15	100	30	100	15	100	2	100	10	100	1	100	600	100	6.5 - 8.5	100	100	0			Yes	2	12	0
	No	Geurie	2012	650	T	IEA	Y	Y		48		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	12	0
Dubbo Regional Council		Total/Weighted Average		64,176					R	3,729	2,599	30	100	30	100	15	78	5	13	10	100	10	100	200	100	6.5 - 8.5	100	78	7	0	78		8	36	0
Edward River Council	*100%*	Deniliquin	2014	11,500	S	TF	Y	Y	L	482	54	20	100	30	100	40	100	NL	100	10	100	10	100	200	100	NL	100	100	0	0	100	Yes	3	12	0
	100%	Broken Hill (Wills St)	1998	-	T	TF			L	1,020	443	50	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	-	100	1			Yes		12	0
	100%	Broken Hill South	1968	-	T	TF				263	226	50	100	50	100	NL	100	NL	100	10	-	NL	100	600	-	6.5 - 8.5	-	100	1			Yes		4	0
Essential Energy		Total/Weighted Average		0					L	1,283	669	50	100	50	100	NL	100	NL	100	10	80	NL	100	NL	80	6.5 - 8.5		100	2	0.2	100		7	16	0
	100%	Batemans Bay	2012	21,000	T	CEA	Y		O	1,827	105	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	16			Yes	2	12	0
	100%	Narooma	1984	8,000	T	CEA	Y		O	684	4	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	4			Yes	2	12	0
	100%	Moruya	2014	8,000	T	CEA	Y	Y	R	394	65	20	100	30	100	15	100	NL	100	10	100	1	100	NL	100	NL	100	100	0			Yes	1	12	0
	100%	Tomakin	2015	10,000	T	CEA	Y		O	585		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	1	12	0
	100%	Tuross Heads	1984	4,000	T	IEA			L	194	21	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	1	12	0
Eurobodalla Shire Council		Total/Weighted Average		51,000					L R O	3,684	195	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	20	1.1	100		7	60	0
	No	Corowa	1988	12,200	S	TF				496		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	2				3	12	0
	100%	Mulwala	2008	5,316	T	IEA	Y	Y	R	287	26	10	100	15	100	10	100	2	100	2	77	0.3	100	200	100	6.5 - 8.5	100	77	1				2	12	0
	No	Howlong	1990	2,500	S	A			L	186		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	-	0
	No	Urana	1995	754	S	A	Y	Y		55		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	51	0
	No	Oaklands	1996	520	S	A	Y	Y		35		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	51	0
Federation Council		Total/Weighted Average		21,290					L R	1,059	26	NL	100	NL	100	NL	100	NL	100	NL	94	NL	100	NL	100	NL	100	94	3	0.5	94		9	126	0
Forbes Shire Council		Forbes	2005	1,200	T	IEA	Y	Y	L R	714	253	10	100	15	100	10	100	2	100	5	100	0.5	100	200	100	6.8 - 8.5	100	100	5	1.6	100	Yes	4	12	0
Gilgandra Shire Council	*No*	Gilgandra	2009	3,000	S	TF				259	221	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0	100	Yes	4	4	0
	No	Deepwater	1987	500	S	CED,AN			R	20		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				4	-	0
		Glen Innes	2007	8,000	T	IEA	Y	Y	R	509		10	100	15	100	10	-	2	100	2	100	0.3	100	200	100	6.5 - 8.5	100	100	0			Yes	4	26	0
Glen Innes Severn Council		Total/Weighted Average		8,500					R	529	0	10	100	15	100	10	4	2	100	2	100	0.3	100	200	100	6.5 - 8.5	100	100	0	0.0	100		4	26	0
	100%	Goulburn	2007	30,000	T	TF		Y	R	2,054	1,730	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	5			Yes	4	12	0
	No	Marulan	1990	1,100	S	A				0		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				3	0	0
Goulburn Mulwaree Council		Total/Weighted Average		31,100					R	2,054	1,730	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	5	0.5	100		7	12	0
	100%	Holbrook	1969	1,600	T	TF			R	143	13	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	5	4	0
	No	Jindera	2005	1,200	T	A			L	96		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				5	-	0
	100%	Henty	1971	1,000	T	IEA	Y		L	66	23	20	100	30	100	20	100	NL	100	10	100	10	100	NL	100	NL	100	100	0			Yes	5	4	0
	100%	Culcairn	1996	1,200	T	IEA	Y		L	85	15	20	100	30	100	20	100	NL	100	10	100	10	100	NL	100	NL	100	100	0			Yes	5	4	0
	100%	Walla Walla	1981	1,000	T	IEA	Y		R	47	7	20	100	30	100	20	100	NL	100	10	100	10	100	NL	100	NL	100	100	0			Yes	5	4	0
	No	Burrumbuttock	1990	100	T	CED,A			L	3		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				5	-	0
Greater Hume Shire Council		Total/Weighted Average		6,100					L R	440	57	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0	0.0	100		5	16	0
	100%	Griffith	2012	37,500	T	MBR	Y	Y	L R	2,325	247	10	100	15	100	NL	100	NL	100	2	100	NL	100	200	100	NL	100	100	0			Yes	3	12	0
	100%	Yenda	1981	34,000	S	AL			R	79		50	100	50	83	NL	100	NL	100	NL	100	NL	100	600	50	5.5 - 9.5	100	50	0			Yes	3	6	0
	No	Bilbul	1190	310	P	A				11		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				3	-	0
Griffith City Council		Total/Weighted Average		71,810					L R	2,415	247	10	100	15	99	NL	100	NL	100	2	100	NL	100	200	98	NL	100	98	0	0.0	98		3	18	0
		Gunnedah	1969	11,000	S	TF				642	542	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	2			Yes	3	12	0
	No	Curlewis	1990	1,650	nil	A			L	27		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				3	0	0
Gunnedah Shire Council		Total/Weighted Average		12,650					L	669	542	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	2	0.5	100		3	12	0
		Bingara	1970	2,000	T	TF			L	114		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	12	0
		Warialda	1969	1,500	T	TF			L R	160	9	20	75	30	67	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	67	0				3	12	0
Gwydir Shire Council		Total/Weighted Average		3,500					L R	274	9	20	85	30	81	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	81	0	0.0	81		7	24	0
		Mcgraths Hill	1969	9,500	T	TF		Y	R	719	135	30	100	75	100	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	100	0			Yes	1	26	0
		South Windsor	2003	27,000	T	CEA	Y	Y	R	1,419	7	10	100	15	100	10	100	2	100	NL	100	0.3	100	200	100	6.5 - 8.5	100	100	0			Yes	1	26	0
Hawkesbury City Council		Total/Weighted Average		36,500					R	2,138	142	10	100	15	100	10	100	2	100	NL	100	0.3	100	200	100	6.5 - 8.5	100	100	0	0.0	100		5	52	0
Hay Shire Council	*No*	Hay	1952	3,000	S	TF			L	237	0	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0.0	100	Yes	3	1	0

APPENDIX D2: 2015-16 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits[5]	Sewage Treatment Works[1,6]	Year built or Augmented	Design Capacity	Standard of Treatment[3]	Type of Treatment Works[4]	Nitrogen Removal	Phosphorus Removal	Effluent Discharge[3]	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits[5] and EPA Licence Compliance																Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan?[7]	No. of STW Operators[8]	Sampling Days	Major Malfunction (Treatment Processes)
												BOD		SS		Total N		NH_3N		Oil & Grease		Total P		E.coli		pH		Overall Result							
										W18.5	W26	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu /100mL	% Samples	range	% Samples	% Samples	No.	No./ 1000 props	E4 %				
				EP						ML	ML																								
			1	10	3	2	5	6		15	16	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72	68	69	63	64a	64b	65	67
		Young (New)	2013	12,000	T	IEA	Y	Y	R	710	154	10	100	15	100	10	100	2	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	7			Yes	4	12	0
	100%	Harden Murrumburrah	1978	4,000	T	TF			R	249	36	20	100	30	100	NL	100	NL	100	NL	100	NL	100	NL	100	6.5 - 8.5	100	100	0			Yes	2	12	0
	100%	Boorowa	1950	4,000	S	TF			R	116		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	1			Yes	5	12	0
Hilltops Council		Total/Weighted Average		20,000					R	1,075	190	10	100	15	100	10	100	2	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	8	1.5	100		10	36	0
		Inverell	1986	12,000	S	IEA			R	765		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	1	14	0
		Ashford	1970	1,000	S	IEA			R	35		20	100	30	80	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	80	80	0			Yes	1	14	0
		Delungra	1970	500	S	IEA			R	20		20	100	30	80	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	80	0			Yes	1	14	0
	No	Gilgai	1980	500	S	A			R	30		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
Inverell Shire Council		Total/Weighted Average		14,000					R	850	0	20	100	30	99	NL	100	NL	100	10	100	NL	100	NL	100	NL	99	99	0	0.0	99		5	42	0
Junee Shire Council	100%	Junee	1992	7,000	T	TF			R	420	104	30	100	30	100	NL	100	NL	100	10	100	NL	100	600	67	5.5 - 9.5	100	67	0	0.0	67		2	4	0
		Kempsey West	2011	12,000	T	TF		Y	R	768	9	15	100	20	100	15	69	5	88	10	100	1	100	600	69	6.5 - 8.5	100	69	4			Yes	2	26	0
		South West Rocks	2010	12,000	T	IEA	Y	Y	L	432	22	10	100	15	100	10	100	3	100	2	100	3	100	200	100	6.5 - 8.5	100	100	2			Yes	2	12	0
	100%	Kempsey South	2014	5,400	T	TF			R	302	50	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	4			Yes	1	26	0
		Crescent Head	2012	4,000	T	IEA	Y	Y	O	120	8	15	100	20	100	15	100	5	100	10	100	1	100	200	100	6.5 - 8.5	100	100	1			Yes	1	26	0
	100%	Smithtown\Gladstone	1983	2,000	T	IEA			R	136		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	1	12	0
	100%	Frederickton	1980	1,000	T	IEA			R	59	8	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	1	12	0
		Hat Head	2011	2,500	T	IEA	Y	Y	L	40	0	10	100	15	100	10	100	2	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	1			Yes	1	26	0
	No	Aldavilla	2015	67	S	CED			L	0		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
Kempsey Shire Council		Total/Weighted Average		38,967					L R O	1,858	96	15	100	20	100	15	87	5	95	10	100	1	100	600	87	6.5 - 8.5	100	87	12	1.3	87		9	140	0
	Reuse	Kyogle	2010	3,200	S	TF	Y	Y	R	330		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				4	12	0
	100%	Bonalbo	2002	500	S	IEA	Y			19	18	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0				2	12	0
	100%	Woodenbong	2007	665	S	IEA	Y		R	39	20	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0					12	0
Kyogle Council		Total/Weighted Average		4,365					R	388	38	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0.0	100		7	36	0
	100%	Condobolin	1982	4,000	S	TF			L R	336	116	20	100	30	42	40	100	NL	100	10	100	10	100	1500	100	6.5 - 8.5	75	42	2			Yes	3	12	0
	No	Tottenham	1979	1,000	S	IEA	Y		L	52		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	0	0
	No	Lake Cargelligo	1981	2,000	S	IEA	Y		L	142		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				3	0	0
Lachlan Shire Council		Total/Weighted Average		7,000					L R	530	116	20	100	30	63	40	100	NL	100	10	100	10	100	1500	100	6.5 - 8.5	84	63	2	0.9	63		2	12	0
		Leeton	1999	27,000	T	TF		Y	L	889		70	100	70	100	NL	100	NL	100	NL	100	NL	100	NL	100	5.5 - 9.5	100	100	0			Yes	2	6	0
	100%	Yanco	1980	1,000	T	IEA			L R	67		30	100	40	100	NL	100	NL	100	15	100	NL	100	600	100	5.5 - 9.5	100	100	0				1	4	0
	No	Whitton	2000	500	S	A				19		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
Leeton Shire Council		Total/Weighted Average		28,500					L R	975	0	70	100	70	100	NL	100	NL	100	NL	100	NL	100	NL	100	5.5 - 9.5	100	100	0	0.0	100		5	10	0
		Lismore East	2004	30,500	T	IEA	Y	Y	R	1,459	5	15	100	20	100	15	100	5	100	10	100	1	100	NL	100	6.5 - 8.5	100	100	0			Yes	3	52	0
		Lismore South	2004	22,000	T	TF	Y	Y	R	1,314		15	100	20	100	15	100	5	100	10	100	1	100	NL	100	NL	100	100	0			Yes	2	52	0
	100%	Nimbin	1993	600	T	IEA	Y	Y	R	107		20	100	30	100	15	100	5	100	10	100	1	100	NL	100	NL	100	100	0			Yes	2	12	0
Lismore City Council		Total/Weighted Average		53,100					R	2,880	5	15	100	20	100	15	100	5	100	10	100	1	100	NL	100	6.5 - 8.5	100	100	0	0.0	100		3	116	0
	100%	Lithgow	2012	23,000	T	IEA	Y	Y	R	1,378		10	100	15	100	10	100	2	100	10	100	0.5	100	200	100	6.5 - 8.5	100	100	8			Yes	2	12	0
	100%	Portland	1990	2,300	S	TF			R	225		30	100	50	100	35	100	NL	100	10	100	10	100	600	100	6.5 - 8.5	100	100	0			Yes	2	12	0
	100%	Wallerawang	2012	3,300	T	IEA	Y	Y	R	152		10	100	15	100	10	83	2	100	10	100	0.5	100	200	100	6.5 - 8.5	100	83	0			Yes	2	12	0
Lithgow City Council		Total/Weighted Average		28,600					R	1,755	0	10	100	15	100	10	99	2	100	10	100	0.5	100	200	100	6.5 - 8.5	100	99	8	1.1	99		7	36	0
		Quirindi	1984	7,000	S	TF			R	205		20	100	30	27	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	27	2			Yes	1	27	0
		Werris Creek	1969	3,200	S	TF			R	99		20	65	30	0	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	0	1			Yes	1	26	0
Liverpool Plains Shire Council		Total/Weighted Average		10,200					R	304	0	20	89	30	18	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	18	3	1.6	18		3	53	0
	100%	Lockhart	1967	3,000	T	TF			L	78	2	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	1	4	0
	100%	The Rock	1979	2,000	S	C			R	57		20	75	30	0	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	0	0			Yes		4	0
	No	Yerong Creek	2004	250	S	A			L	-		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	0
Lockhart Shire Council		Total/Weighted Average		5,250					L R	135	2	20	89	30	58	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	58	0	0.0	58		3	8	0

APPENDIX D2: 2015-16 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits[5]	Sewage Treatment Works[1,6]	Year built or Augmented	Design Capacity	Standard of Treatment[3]	Type of Treatment Works[4]	Nitrogen Removal	Phosphorus Removal	Effluent Discharge[3]	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits[5] and EPA Licence Compliance																Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan?[7]	No. of STW Operators[8]	Sampling Days	Major Malfunction (Treatment Processes)
												BOD		SS		Total N		NH_3N		Oil & Grease		Total P		E.coli		pH		Overall Result								
										W18.5	W26	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu /100mL	% Samples	range	% Samples	% Samples	No.	No./ 1000 props	E4 %				
				EP						ML	ML																								
			1	10	3	2	5	6		15	16	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72	68	69	63	64a	64b	65	67
	100%	Gloucester	1985	4,600	S	TF	Y		R	370		20	100	30	75	35	100	10	75	NL	100	NL	100	NL	100	6.5 - 8.5	100	75	1			Yes	3	12	0
		Dawson River	1999	30,000	T	CEA	Y		R	1,746	144	30	100	30	100	NL	100	5	100	NL	100	NL	100	NL	100	6.5 - 8.5	100	100	13			Yes	4	12	0
		Tea Gardens	1997	14,000	T	IEA	Y	Y	L	364	104	10	100	15	100	10	100	2	100	5	100	1	100	10	100	6.5 - 8.5	100	100	4			Yes	4	26	0
		Forster	2004	42,500	T	IEA	Y	Y	O	1,727	49	20	100	35	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	13			Yes	4	52	1
	100%	Harrington	1994	8,000	S	CEA	Y		L	446	18	20	100	30	100	NL	100	NL	100	NL	100	NL	100	NL	100	6.5 - 8.5	100	100	3			Yes	4	12	0
		Wingham	2008	7,500	S	CEA	Y		R	385	142	30	100	30	100	NL	100	10	100	NL	100	NL	100	NL	100	6.5 - 8.5	100	100	2			Yes	4	26	0
	100%	Old Bar	2004	7,000	T	CEA	Y	Y	L	344		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	8			Yes	3	12	4
	100%	Hallidays Point	2007	25,000	T	CEA	Y	Y	L	1,227	370	30	100	20	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	5			Yes	4	12	0
		Bulahdelah	1996	3,000	T	IEA	Y	Y	R	147	14	10	100	15	100	10	100	1	100	10	100	0.5	100	200	100	6.5 - 8.5	100	100	0			Yes	3	12	0
	100%	Stroud	2010	1,500	T	CEA	Y	Y	R	69	61	10	100	15	100	10	100	2	100	7	100	4	100	200	100	6.5 - 8.5	100	100	0			Yes	3	12	0
	No	Manning Point	2009	2,000	T	IEA	Y	Y	L	25		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				3	0	0
	100%	Lansdowne	2002	600	S	IEA	Y		R	26	18	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	4	2	0
		Coopernook	2002	600	S	IEA	Y		R	26	24	30	100	30	100	NL	100	NL	100	10	100	NL	100	200	30	6.5 - 8.5	100	30	0			Yes	4	3	1
MidCoast Water		Total/Weighted Average		146,300					L R O	6,902	944	30	100	30	99	NL	100	5	99	NL	100	NL	100	NL	100	6.5 - 8.5	100	98	48	1.4	98		23	193	6
		Mudgee (New)	2014	16,000	T	IEA	Y	Y	R	1,015	29	10	100	10	100	10	100	NL	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	3				4	12	1
	100%	Gulgong	1997	3,500	S	IEA	Y			121	25	20	100	50	75	40	100	NL	100	10	100	10	100	600	75	6.5 - 8.5	0	0	2			Yes	3	4	0
	100%	Kandos	1972	2,800	S	TF			R	76		30	100	50	75	35	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	25	25	2			Yes	3	12	0
	100%	Rylstone	1972	1,300	T	TF			R	50		30	100	50	100	35	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	83	83	2			Yes	2	12	0
Mid-Western Regional Council		Total/Weighted Average		23,600					R	1,262	54	10	100	10	96	10	100	NL	100	2	100	0.5	100	200	98	6.5 - 8.5	85	85	9	1.2	85		11	40	1
	No	Ashley	2005	400	P	A			L	-		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	0
	No	Boggabilla	2008	1,106	P	A			L	20		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	0
		Moree	2006	15,000	S	IEA			L	1,336	655	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	100	0					4	0
	No	Mungindi	1998	1,400	S	IEA			L	60		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	0
Moree Plains Shire Council		Total/Weighted Average		17,906					L	1,416	655	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	100	0	0.0	100		6	4	0
	No	Moama	1997	10,000	T	A				547	133	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	6	12	0
	No	Mathoura	1997	1,600	T	A			L	44		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				6	2	0
	No	Barham	1967	1,600	T	TF			L	95		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Moulamein	1967	700	S	IEA	Y	Y	L	20		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Wakool	2013	-	P	A				-		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Murray Downs	2005	260	T	BNR		Y	L	85		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Tooleybuc	1987	500	P	CED,A	Y	Y	L	146		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
Murray River Council		Total/Weighted Average		14,660					L	937	133	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0.0	100		11	14	0
	100%	Jerilderie	1996	2,000	S	A				68		20	75	30	0	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	0	0			Yes	2	4	0
	100%	Darlington Point	2009	1,500	T	CEA	Y			-		10	75	15	0	10	100	NL	100	NL	100	10	100	200	50	6.5 - 8.5	50	0	-			Yes		4	0
	No	Coleambally	2010	600	P	A				-		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0					-	0
Murrumbidgee Council		Total/Weighted Average		4,100						68	0	20	75	30		NL	100	NL	100	10	100	NL	100	NL	100	NL	100	0	0	0.0	0		4	8	0
	100%	Muswellbrook	2013	14,000	T	TF				826	815	20	50	30	40	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	80	40	24				3	20	0
	100%	Denman		1,500	T	IEA				129	48	20	82	30	33	NL	100	NL	100	10	88	NL	100	NL	100	6.5 - 8.5	60	33	0				3	12	0
Muswellbrook Shire Council		Total/Weighted Average		15,500						955	863	20	54	30	39	NL	100	NL	100	10	98	NL	100	NL	100	6.5 - 8.5	77	39	24	4.2	39		4	32	0
		Nambucca Heads	2012	15,000	T	IEA		Y	R	531		10	100	15	100	10	100	NL	100	5	100	0.5	89	200	100	NL	100	89	7			Yes	1	27	0
		Macksville	1998	5,500	T	IEA		Y	O	442		10	88	20	62	10	100	2	100	5	100	0.5	100	200	88	6.5 - 8.5	100	62	1			Yes	1	26	0
	100%	Scotts Head	1985	2,000	S	IEA			L	102		20	100	30	77	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	77	1			Yes	1	13	0
	Reuse	Bowraville	2001	1,200	S	TF			O	88	49	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	1			Yes	1	16	0
Nambucca Shire Council		Total/Weighted Average		23,700					L R O	1,163	49	10	95	15	84	10	100	NL	100	5	100	0.5	95	200	95	NL	100	79	10	1.8	79		4	82	0
		Narrabri	2001	8,300	S	TF				570	398	20	100	NL	100	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	100	2			Yes	1	12	0
	No	Wee Waa	1972	1,500	S	TF			L	145		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	1				1	0	0
	No	Boggabri	1956	1,000	S	TF			L	62		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
Narrabri Shire Council		Total/Weighted Average		10,800					L	777	398	20	100	NL	100	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	100	3	0.8	100		7	12	0
Narrandera Shire Council	*100%*	Narrandera	2015	6,000	S	RC	Y	Y		-		20	100	30	100	NL	100	NL	100	10	100	1	29	200	29	6.5 - 8.5	100	29	-	-	29		4	7	-
	No	Narromine	2005	5,000	S	A			L	396		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	1	6	0
	No	Trangie	1997	1,000	S	A			L	110		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
Narromine Shire Council		Total/Weighted Average		6,000					L	506	0	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0	0.0	100		4	6	0
Oberon Council		Oberon	1989	7,000	T	TF		Y	R	389	0	20	100	25	100	15	100	NL	100	10	100	1	100	600	100	6.5 - 8.5	100	100	0	0.0	100	Yes	3	12	0

APPENDIX D2: 2015-16 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits[5]	Sewage Treatment Works[1,6]	Year built or Augmented	Design Capacity	Standard of Treatment[3]	Type of Treatment Works[4]	Nitrogen Removal	Phosphorus Removal	Effluent Discharge[3]	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits[5] and EPA Licence Compliance																Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan?[7]	No. of STW Operators[8]	Sampling Days	Major Malfunction (Treatment Processes)
												BOD		SS		Total N		NH_3N		Oil & Grease		Total P		E.coli		pH		Overall Result								
										W18.5	W26	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu /100mL	% Samples	range	% Samples	% Samples	No.	No./ 1000 props	E4 %				
				EP						ML	ML																							
			1	10	3	2	5	6		15	16	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72	68	69	63	64a	64b	65	67
	100%	Orange	1988	60,000	S	CEA	Y	Y	R	4,898	2,051	30	100	30	100	15	100	NL	100	10	100	1	83	400	67	6.5 - 8.5	100	67	8			Yes	4	12	1
	100%	Spring Hill	1990	1,000	S	CEA				38		20	100	50	100	NL	100	NL	100	NL	100	NL	100	NL	100	6.5 - 8.5	100	100	1			Yes	4	12	0
Orange City Council		Total/Weighted Average		61,000					R	4,936	2,051	30	100	30	100	15	100	NL	100	10	100	1	83	400	67	6.5 - 8.5	100	67	9	0.5	67		7	24	1
	100%	Parkes	1996	14,500	S	TF			R	781	153	30	100	50	66	40	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	75	66	0			Yes	2	12	0
	No	Tullamore	2009	370	S	A			L	13	2	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
	No	Trundle	2011	670	S	A			L	47		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
	No	Peak Hill	1983	2,000	S	TF			L	30		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
Parkes Shire Council		Total/Weighted Average		17,540					L R	871	155	30	100	50	70	40	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	78	70	0	0.0	70		8	12	0
		Port Macquarie	1993	52,000	T	IEA	Y	Y	R	6,126	181	10	100	15	100	20	100	5	100	2	100	1	100	200	100	NL	100	100	37				6	12	0
	100%	Camden Haven (Dunboga	2011	15,000	T	BNR	Y	Y	O	1,163	5	10	100	15	100	10	100	NL	100	2	100	1	100	NL	100	6.5 - 8.5	100	100	11				4	12	0
		Wauchope	1991	8,000	S	IEA	Y		R	930	43	20	100	30	100	NL	100	10	100	NL	100	NL	100	NL	100	6.5 - 8.5	100	100	9				2	12	0
	100%	Lake Cathie\Bonny Hills	2009	12,000	T	CEA	Y	Y	L	567	2	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	100	6				2	12	0
	100%	Kew/Kendall	2001	3,000	S	IEA	Y			109	109	20	100	30	100	NL	100	NL	100	NL	100	NL	100	500	89	6.5 - 8.5	100	89	1				4	12	0
Port Macquarie-Hastings Council		Total/Weighted Average		90,000					L R O	8,895	340	10	100	15	100	20	100	5	100	2	100	1	100	200	100	NL	100	100	64	2.3	100		14	60	0
	No	Queanbeyan	1986	34,500	S	CEA	Y	Y	L R	3,750		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	2	365	0
		Googong	2015	4,700	T	MBR	Y	Y	R	73		10	100	10	100	10	100	2	100	2	100	0.5	100	150	100	6.5 - 8.0	100	100	0				2	365	0
		Braidwood	2010	2,000	T	IEA	Y	Y	R	138	30	10	100	15	100	10	100	2	100	2	100	0.5	85	200	100	6.5 - 8.5	100	85	2			Yes	2	13	0
	100%	Bungendore	2012	5,000	T	IEA	Y	Y	R	227	70	10	100	15	85	10	100	10	100	10	100	0.5	100	200	100	6.5 - 8.5	100	85	0			Yes	3	13	0
	100%	Captains Flat	1984	500	T	IEA	Y	Y	R	41		20	100	30	75	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	75	0			Yes	1	4	0
Queanbeyan-Palerang Regional C		Total/Weighted Average		46,700					L R	4,229	100	NL	100	NL	99	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	98	2	0.1	98		11	760	0
	100%	Casino	1986	13,300	T	TF	Y		R	1,755	376	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	2	26	0
		Evans Head	2013	5,500	T	IEA	Y	Y	R	534		10	100	15	100	10	100	2	100	2	100	0.3	100	200	100	6.5 - 8.5	100	100	0			Yes	2	26	0
	100%	Coraki	2011	1,200	T	TF			R	112	1	20	100	30	50	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	50	0			Yes		13	0
		Rileys Hill	1999	200	T	CEA	Y	Y	R	7		15	100	20	100	15	100	5	100	10	100	1	100	200	100	6.5 - 8.5	100	100	0			Yes		13	0
Richmond Valley Council		Total/Weighted Average		20,200					R	2,408	377	20	100	30	98	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	98	0	0.0	98		5	78	0
		Bendalong	2008	4,600	S	IEA	Y	Y	L	111		10	100	20	100	10	100	2	100	2	100	10	100	200	100	6.5 - 8.5	100	100	0				1	12	0
	100%	Nowra	1989	21,000	S	TF	Y		R	2,211	36	40	100	40	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	2			Yes	1	12	0
		St Georges Basin	1990	8,000	S	IEA	Y		O	1,435	569	10	100	15	100	10	100	2	100	2	100	NL	100	200	-	6.5 - 8.5	100	100	1			Yes	1	12	0
		Vincentia	2010	14,000	S	IEA	Y	Y	O	558	280	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	0			Yes	1	12	0
	100%	Bomaderry	1990	12,500	S	TF	Y		R	819		20	100	40	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	2			Yes	1	12	0
		Milton Ulladulla	2006	28,000	S	IEA	Y		O	1,295		15	100	20	100	NL	100	NL	100	2	100	NL	100	200	100	NL	100	100	0			Yes	1	12	0
		Culburra	2005	10,500	S	IEA	Y		O	618	280	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	0			Yes	1	12	0
	100%	Sussex Inlet	1990	8,000	S	IEA	Y		L	511	3	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	2			Yes	1	12	0
		Callala	2000	6,000	S	IEA	Y	Y	O	304	183	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	0			Yes	1	12	0
		Conjola	2008	2,700	S	IEA	Y	Y	L	109	14	10	100	20	100	10	100	2	100	2	100	10	100	200	100	6.5 - 8.5	100	100	0			Yes	1	12	0
		Shoalhaven Heads	2012	8,000	S	IEA	Y	Y	L	269	122	10	100	15	100	10	100	2	100	2	100	NL	100	200	100	6.5 - 8.5	100	100	1			Yes	1	12	0
	100%	Berry	2006	3,000	S	IEA	Y	Y	R	251		10	100	10	100	10	100	2	100	2	100	0.5	100	200	100	6.5 - 8.5	100	100	0			Yes	1	12	0
		Kangaroo Valley	2013	1,410	S	MBR	Y	Y	R	38	64	10	100	15	100	10	100	2	100	2	100	1	100	200	100	NL	100	100	0			Yes	1	12	0
Shoalhaven City Council		Total/Weighted Average		127,710					L R O	8,529	1,551	40	100	40	100	NL	100	NL	100	10	100	NL	100	NL	83	NL	100	100	8	0.2	100		39	156	0
Singleton Council		Singleton	1988	20,000	S	IEA	Y	Y	R	1,064	0	30	100	30	100	25	100	NL	100	15	100	15	100	NL	100	6.5 - 8.5	100	100	4	0.7	100	Yes	2	96	0
		Jindabyne	2012	8,000	T	IEA	Y	Y	R	316		10	100	15	100	10	100	2	100	2	100	0.3	100	200	100	6.5 - 8.5	65	65	1			Yes		17	0
		Berridale	2011	2,000	S	IEA				131	31	10	100	15	100	10	100	1	100	2	100	9	100	100	73	6.5 - 8.5	100	73	0			Yes	1	12	0
	100%	Adaminaby	1961	750	T	TF	Y		R	39		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	1	12	0
	No	Interlaken	1981	1,200	S	IEA	Y			16		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	-	0
		Cooma (The Glen)	1998	15,000	T	IEA	Y	Y	R	842	13	10	100	15	100	10	100	2	62	2	100	0.3	100	200	100	6.5 - 8.5	100	62	0			Yes	2	13	93
		Nimmitabel	2008	500	S	IEA		Y	R	27	0	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	1			Yes	1	13	0
	100%	Bombala		3,000	S	TF				170		20	75	30	33	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	33	3			Yes	2	8	0
	No	Delegate	1990	680	S	AL				35	20	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
Snowy Monaro Regional Council		Total/Weighted Average		31,130					R	1,576	64	10	97	15	93	10	100	2	80	2	100	0.3	100	200	98	6.5 - 8.5	93	63	5	0.6	63		16	75	93

APPENDIX D2: 2015-16 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits[5]	Sewage Treatment Works[1,6]	Year built or Augmented	Design Capacity	Standard of Treatment[3]	Type of Treatment Works[4]	Nitrogen Removal	Phosphorus Removal	Effluent Discharge[3]	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits[5] and EPA Licence Compliance																Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan?[7]	No. of STW Operators[8]	Sampling Days	Major Malfunction (Treatment Processes)
												BOD		SS		Total N		NH_3N		Oil & Grease		Total P		E.coli		pH		Overall Result							
										W18.5	W26	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	mg/L	% Samples	cfu /100mL	% Samples	range	% Samples	% Samples	No.	No./ 1000 props	E4 %				
			1	EP 10	3	2	5	6		ML 15	ML 16	49	50	51	52	53	54	55	56	57	58	59	60	61	62	70	71	72	68	69	63	64a	64b	65	67
	No	Khancoban	1990	2,500	S	TF			L	33		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	2	4	0
	100%	Tumbarumba	2015	2,500	T	IEA			R	142		20	75	30	75	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	100	75	0			Yes	2	4	0
		Tumut	2007	12,000	S	IEA	Y	Y	L R	745	82	10	100	15	100	10	100	2	100	2	100	0.3	100	200	100	6.5 - 8.5	100	100	0			Yes		12	0
		Brungle	2007	150	S	IEA	Y	Y	R	5		15	100	20	75	15	100	NL	100	NL	100	1	100	200	100	6.5 - 8.5	100	75	0			Yes		4	0
	100%	Batlow	2012	1,400	S	BNR	Y	Y	L R	113	33	10	100	15	100	10	100	2	100	2	100	0.5	100	200	75	6.5 - 8.5	100	75	0			Yes		4	0
	100%	Talbingo	1995	1,100	S	IEA	Y	Y	L R	46	98	25	100	35	100	25	100	10	100	10	100	2	100	NL	100	6.5 - 8.5	100	100	0			Yes		4	0
		Adelong	2002	1,300	T	IEA	Y	Y	L R	76		10	100	15	100	10	100	2	100	2	100	0.5	100	NL	100	6.5 - 8.5	100	100	0			Yes		4	0
Snowy Valleys Council		Total/Weighted Average		20,950					L R	1,160	213	10	97	15	97	10	100	2	100	2	100	0.3	100	200	98	6.5 - 8.5	100	94	0	0.0	94		13	36	0
		Tamworth (Westdale)	2011	61,000	S	TF	Y	Y	R	5,126	3,687	20	100	20	100	25	100	12	100	10	100	12	100	NL	100	6.5 - 8.5	83	83	0			Yes	6	52	0
	No	Manilla	2000	2,850	S	TF				151	151	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes		4	0
	No	Kootingal	1992	2,000	S	A				103	103	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				3	0	0
		Barraba	1956	1,500	S	TF				130	130	20	100	30	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	3	12	0
Tamworth Regional Council		Total/Weighted Average		67,350					R	5,511	4,071	20	100	20	100	25	100	12	100	10	100	12	100	NL	100	6.5 - 8.5	84	84	0	0.0	84		21	68	0
Temora Shire Council	*100%*	Temora	2005	8,000	T	AL			L R	329	61	30	100	40	100	NL	100	NL	100	10	100	NL	100	600	83	5.5 - 9.5	100	83	0	0.0	83	Yes	2	12	0
		Tenterfield	2009	3,700	T	IEA	Y	Y	R	313	51	40	100	45	100	NL	100	NL	100	NL	100	NL	100	NL	100	6.5 - 8.5	58	58	6			Yes	6	12	0
		Urbenville	1988	500	T	IEA			R	16		20	100	30	33	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	33	0			Yes	2	12	0
Tenterfield Shire Council		Total/Weighted Average		4,200					R	329	51	40	100	45	97	NL	100	NL	100	NL	100	NL	100	NL	100	6.5 - 8.5	60	57	6	3.2	57		8	24	0
		Banora Point	2012	75,000	T	BNR	Y	Y	R	3,884	172	10	100	15	100	10	100	2	100	10	100	0.5	100	200	79	6.5 - 8.5	100	79	22			Yes	3	52	0
		Murwillumbah	2007	16,000	T	IEA	Y	Y	R	1,193	450	10	100	15	100	10	100	2	100	5	100	0.5	100	200	100	6.5 - 8.5	100	100	3			Yes	1	26	0
		Kingscliff	2008	25,000	T	BNR	Y	Y	R	1,064	39	10	100	15	100	5	100	2	100	5	100	0.5	100	100	100	6.5 - 8.5	100	100	2			Yes	1	26	0
		Hastings Point	2005	16,000	T	IEA	Y	Y	L	1,089	8	10	100	15	100	10	100	NL	100	5	100	1	100	NL	100	6.5 - 8.5	100	100	19			Yes	1	26	0
		Tumbulgum	2000	700	T	IEA	Y	Y	R	38	0	15	100	20	100	15	88	5	100	NL	100	1	100	200	100	6.5 - 8.5	100	88	0			Yes	1	26	0
		Tyalgum	1990	500	S	IEA	Y		L	30	0	25	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	1	12	0
		Uki	2004	600	T	CEA	Y	Y		26	26	15	100	25	100	30	100	5	100	10	100	6	100	NL	100	6.5 - 8.5	100	100	0			Yes	1	12	0
		Burringbar/Mooball	2013	750	T	IEA	Y	Y	R	26	0	10	100	15	100	10	85	2	100	5	88	0.5	100	200	100	6.8 - 8.5	100	85	2			Yes	1	26	0
Tweed Shire Council		Total/Weighted Average		134,550					L R	7,351	696	10	100	15	100	10	100	2	100	10	100	0.5	100	200	89	6.5 - 8.5	100	89	48	1.5	89		9	206	0
	100%	Scone	1988	7,000	S	TF			L R	619	292	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	2			Yes	1	12	0
		Aberdeen	1983	4,000	S	IEA			L R	162	2	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	1	12	0
	100%	Merriwa	1970	1,600	S	TF			R	58		20	100	30	0	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	0	0			Yes	1	4	0
	No	Murrurundi	1979	1,000	S	IEA			R	95		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
Upper Hunter Shire Council		Total/Weighted Average		13,600					L R	934	294	20	100	30	94	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	94	2	0.5	94		3	28	0
	100%	Crookwell	1996	4,200	T	TF	Y	Y	R	433		20	100	30	100	15	100	5	100	10	100	1	100	200	100	6.5 - 8.5	100	100	0			Yes	3	12	0
	No	Taralga	2011	400	T	IEA	Y	Y	L	50	50	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				2	12	0
		Gunning	1976	1,000	T	IEA	Y		R	60		20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	2	12	0
Upper Lachlan Shire Council		Total/Weighted Average		5,600					L R	543	50	20	100	30	100	15	100	5	100	10	100	1	100	200	100	6.5 - 8.5	100	100	0	0.0	100		5	36	0
Uralla Shire Council		Uralla	1994	3,960	S	CEA	Y	Y	R	139	0	15	100	20	100	15	100	5	75	10	100	1	100	200	100	6.5 - 8.5	100	75	3	2.6	75	Yes	2	12	0
		Wagga (Narrung St)	2010	72,917	T	IEA	Y	Y		3,998	3,998	10	100	15	100	10	100	2	100	2	100	0.3	100	NL	100	NL	100	100	14			Yes	4	12	0
		Wagga (Kooringal)	2010	18,750	T	IEA	Y	Y		1,414	1,414	10	100	15	100	10	100	2	100	2	100	0.3	100	NL	100	NL	100	100	15			Yes	2	12	0
	No	Collingullie	2007	250	S	A			L	9		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
	100%	Forest Hill	1974	6,000	T	IEA				267	267	20	100	30	100	NL	100	NL	100	10	100	NL	100	NL	100	NL	100	100	0			Yes	3	4	0
	No	Uranquinty	1984	1,000	S	A			L	138		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
	No	Tarcutta	1988	500	S	A			L	55		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
Wagga Wagga City Council		Total/Weighted Average		99,417					L	5,881	5,679	10	100	15	100	10	100	2	100	2	100	0.3	100	NL	100	NL	100	100	29	1.0	100		9	28	0
Walcha Council		Walcha	1971	2,400	S	TF			R	148	0	20	75	30	25	NL	100	NL	100	10	100	NL	100	NL	100	6.5 - 8.5	33	25	0	0	25	Yes	5	12	0
	100%	Walgett	1958	3,200	S	TF,A			L	230		20	75	50	100	20	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	100	75	-			Yes	1	4	0
	No	Lightning Ridge	1979	1,000	S	CED,A				-		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-					-	-
	No	Collarenebri	1970	600	S	CED,A				-		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-					-	0
Walgett Shire Council		Total/Weighted Average		4,800					L	230	0	20	75	50	100	20	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	100	75	0	0.0	75		3	4	0
	100%	Warren	1958	2,500	S	TF			L	172		45	100	65	75	30	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	100	75	0				1	4	0
	No	Nevertire	1983	200	P	A				11		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0				1	0	0
Warren Shire Council		Total/Weighted Average		2,700					L	183	0	45	100	65	77	30	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	100	77	0	0.0	77		2	4	0

APPENDIX D2: 2015-16 SEWAGE TREATMENT PERFORMANCE

Water Utility	Licence Limits[5]	Sewage Treatment Works[1,6]	Year built or Augmented	Design Capacity	Standard of Treatment[3]	Type of Treatment Works[4]	Nitrogen Removal	Phosphorus Removal	Effluent Discharge[3]	Volume of Sewage Receiving Treatment	Volume of Effluent Recycled	90 Percentile Licence Limits[5] and EPA Licence Compliance																Odour Complaints		% Sge Treated that was compliant	Pollution Incident Response Management Plan?[7]	No. of STW Operators[8]	Sampling Days	Major Malfunction (Treatment Processes)
												BOD		SS		Total N		NH_3N		Oil & Grease		Total P		E.coli		pH		Overall Result								
												mg/L	*% Samples*	*mg/L*	*% Samples*	*mg/L*	*% Samples*	*mg/L*	*% Samples*	*mg/L*	*% Samples*	*mg/L*	*% Samples*	*/100mL*	*% Samples*	*range*	*% Samples*	*%*	*No.*	*/1000 props*	*E4 %*			*days*	*days*
			1	*EP 10*	*3*	*2*	*Yes/No 5*	*Yes/No 6*		W18.5 *ML 15*	W26 *ML 16*	*49*	*50*	*51*	*52*	*53*	*54*	*55*	*56*	*57*	*58*	*59*	*60*	*61*	*62*	*70*	*71*	*72*	*68*	*69*	*63*	*64a*	*64b*	*65*	*67*
	Reuse	Coonabarabran	1964	3,500	T	TF		Y	L R	182		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	2	4	0
	100%	Coolah	1970	1,000	S	C				67	67	40	50	150	67	15	100	NL	100	3	67	3	83	NL	100	6.5 - 8.5	0	0	0			Yes	2	2	0
	No	Baradine	1997	1,000	S	A				50	16	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	2			Yes	2	1	0
	100%	Dunedoo	1970	800	S	IEA			R	36		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	0			Yes	2	2	0
Warrumbungle Shire Council		Total/Weighted Average		6,300					L R	335	83	NL	90	NL	93	NL	100	NL	100	NL	93	NL	97	NL	100	NL	80	80	2	0.8	80		7	9	0
Weddin Shire Council	*100%*	Grenfell	1943	2,500	S	TF			L R	170	0	20	100	30	100	40	100	NL	100	10	100	10	100	NL	100	6.5 - 8.5	100	100	0	0.0	100	Yes	2	3	1
	100%	Buronga Gol Gol	1994	5,000	T	A			L	180		50	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	5.5 - 9.5	100	100	2			Yes		4	0
	100%	Wentworth	1964	2,000	T	TF			R	80		30	100	45	100	NL	100	NL	100	10	100	NL	100	200	100	5.5 - 9.5	100	100	2			Yes		4	0
	100%	Dareton	1969	2,000	T	TF			L	36		30	100	45	100	NL	100	NL	100	10	100	NL	100	600	100	5.5 - 9.5	100	100	-			Yes		4	0
	No	Namatjira	1988	1,200	T	A			L	25		NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	NL	100	100	-					-	0
	100%	Wentworth (East)	1988	1,200	T	A			L	7		50	100	50	100	NL	100	NL	100	10	100	NL	100	200	100	5.5 - 9.5	100	100	-			Yes		4	0
Wentworth Shire Council		Total/Weighted Average		11,400					L R	328	0	50	100	50	100	NL	100	NL	100	10	100	NL	100	NL	100	5.5 - 9.5	100	100	4	2.4	100		2	16	0
		Mittagong	2002	14,000	T	IEA	Y	Y	R	1,218	42	10	100	15	100	10	100	2	100	10	100	0.3	100	NL	100	6.5 - 8.5	100	100	3			Yes	2	26	0
		Bowral	2006	14,600	T	IEA	Y	Y	R	1,619	18	10	100	15	100	10	100	2	100	5	100	0.3	100	200	100	6.5 - 8.5	100	100	6			Yes	2	26	0
	100%	Moss Vale	1995	9,000	T	IEA	Y	Y	R	1,098		20	100	30	100	15	100	2	100	NL	100	1	100	200	100	6.5 - 8.5	100	100	6			Yes	2	26	0
		Bundanoon	2010	5,400	T	IEA	Y	Y	R	355	70	10	100	15	100	10	100	2	100	10	100	0.3	100	200	100	6.5 - 8.5	100	100	0			Yes	2	26	0
	100%	Berrima	1990	2,000	T	IEA	Y	Y	R	117		20	100	30	100	15	100	2	100	NL	100	1	100	NL	100	6.5 - 8.5	100	100	0			Yes	1	13	0
		Robertson	2013	2,000	T	MBR	Y	Y	R	116	102	10	100	10	100	10	100	1	100	2	100	0.3	100	NL	100	6.5 - 8.5	100	100	2			Yes	1	0	0
Wingecarribee Shire Council		Total/Weighted Average		47,000					R	4,523	232	10	100	15	100	10	100	2	100	5	100	0.3	100	200	100	6.5 - 8.5	100	100	17	1.0	100		9	117	0
Yass Valley Council		Yass	2010	6,800	S	IEA		Y	R	479	0	10	100	15	100	10	100	2	100	2	100	0.3	100	200	100	6.5 - 8.5	100	100	0	0.0	100	Yes	3	12	0
										Total Volume		No. of Samples Complying and % of Samples Complying																	Total No. of Sampling Days						
										173,000	35,500	4,245		4,097		4,303		4,333		4,343		4,330		4,276		4,274		4,003	722	Odour Complaints (0.9 per 1,000 props)				
												99%		96%		99%		99%		99%		99%		98%		98%		92%						

Total Capacity 2,700,000

Notes:

1. Where a LWU has more than one treatment works, the reported Licence Compliance values have been pro-rated on the basis of the number of sampling days at each treatment works and are shown in **bold** in the final line for that LWU. Totals are also shown in **bold** for capacity (10), sewage volume treated (15), volume of effluent recycled (16), sampling days (65) and odour complaints (68). The days of major malfunction of treatment processes (67) are shown in bold and are the weighted average based on treatment works capacity.
2. For each licence limit, the value shown in the final line for each water utility is that required to be met for at least 50% of the utility's total licenced treatment works capacity.
3. For **"Standard of Treatment"** (3); P = Primary; S = Secondary; T = Tertiary; nil = No Treatment. For **"Effluent Discharge"**; L = Land, O = Ocean, R = River.
4. For **"Type of Treatment Works"** (2); A= Oxidation Pond, AL = Aerated Lagoons, AN = Anaerobic Pond, BNR = Biological Nutrient Removal, C = Conventional Activated Sludge, CEA = Continuous Extended Aeration (Activated Sludge), CED = Common Effluent Disposal, IEA = Intermittent Extended Aeration (Activated Sludge), MBR = Membrane Bioreactor, RC = Dedicated Recycling, TF = Trickling Filter.
5. 90 Percentile Licence Limits have been reported at columns 49, 51, 53, 55, 57, 59, 61 and 70 unless noted as 100 percentile limits (100%) or no limits (NL).
6. The total sewage treatment capacity in regional NSW is 2,700,000 EP (column 10), the volume of sewage treated is 173 GL (column 15) and the volume of effluent recycled is 35.5 GL (column 16). The total volume of sewage collected is 177,000 ML (column 32 of Table 15). The Statewide medians for % of sewage treated that was compliant (E4) and odour complaints per 1,000 properties are 100% and 0.9 respectively. Refer also to Tables 15 and 17.
7. Pollution Incident Response Management Plan - PIRMP - the sewage treatment works with a PIRMP available on the utility's website is shown in column 64a.
8. The number of operators shown in column 64b include both fully qualified operators and operators in training. The total number of fully qualified sewage treatment works operators is 445, while 120 operators are in training. Refer also to Appendix I and to section 6. Information on the DPI Water section 61 Reports for each treatment works is available in the NSW Performance Monitoring Database (refer to Appendix H4.6).

APPENDIX D3: 2015-16 ABORIGINAL COMMUNITIES DRINKING WATER QUALITY RESULTS

Community [DOH Town reference shown in square brackets]	Population	Supply System	Water Utility	Compliance with 2011 NHMRC/NRMMC Australian Drinking Water Guidelines									Drinking Water Quality Plan Prepared? (Yes/No)
				Physical			Chemical			Microbiological			
				Compliance Achieved?	% of Samples Compliant	No. of Samples	Compliance Achieved?	% of Samples Compliant	No. of Samples	Compliance Achieved?	% of Samples Compliant	No. of Samples	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Communities which provide their own drinking water supply													
Baryulgil Square	50	Baryulgil Community	Baryulgil	Yes	80	2	Yes	100	2	Yes	100	11	Yes
Malabugilmah	50	Malabugilmah Community	Malabugilmah	Yes	100	2	Yes	100	2	Yes	100	12	Yes
Thungutti	150	Thungutti (Bellbrook Community)	Thungutti	Yes	100	2	Yes	100	2	Yes	100	23	Yes
Clara Hart (Enngonia Reserve)	60	Enngonia	Clara Hart - **NON-POTABLE**	Yes	93	3	Yes	100	3	Yes	100	7	Yes
Jubullum Village	200	Jubullum	Jubullum Community	Yes	100	2	Yes	100	2	No	93	14	Yes
Toomelah	125	Toomelah	Toomelah	Yes	80	2	Yes	100	2	Yes	100	26	Yes
Weilmoringle/Wytalbar	60	Weilmoringle Community	Weilmoringle - **NON-POTABLE**	Yes	100	2	Yes	100	2	Yes	100	13	Yes
Percent of communities tested which achieved compliance				**100% 5/5**			**100% 5/5**			**80% 4/5**			**100% (7/7)**
Communities provided with a bulk drinking water supply by the local water utility													
Cummeragunja	80	Cummeragunja	Goulburn Valley Water (Vic)	Yes	100	2	Yes	100	2	Yes	100	12	Yes
Gundurimba	60	Rocky Creek LM	Lismore City Council	#			#			Yes	100	15	Yes
Wamba Wamba	20	Murray Downs	Wakool Shire Council	Yes	100	6	Yes	100	6	Yes	100	16	Yes
Brungle Reserve	90	Brungle	Tumut Shire Council	Yes	100	1	Yes	100	1	Yes	100	31	Yes
Nanima Reserve	110	Wellington	Wellington Council	#			#			Yes	100	11	Yes
Alice Edwards Village	100	Bourke	Bourke Shire Council	#			#			Yes	100	18	Yes
Balranald Reserve (Endeavour Drive)	20	Balranald	Balranald Shire Council	#			#			Yes	100	5	Yes
Barwon 4	200	Brewarrina	Brewarrina Shire Council	Yes	100	2	Yes	100	2	Yes	100	13	Yes
Box Ridge	100	Rocky Creek RM	Richmond Valley Shire Council	#			#			Yes	100	9	Yes
Brewarrina West (Dodge City)	100	Brewarrina	Brewarrina Shire Council	#			#			Yes	100	13	Yes
Collarenebri Reserve (The Walli)	50	Collarenebri	Walgett Shire Council	#			#			Yes	100	8	Yes
Erambie	100	Cowra	Cowra Shire Council	#			#			Yes	100	11	Yes
Warrali	40	Wilcannia	Central Darling Shire Council	#			#			Yes	100	11	Yes
Gingie Community	40	Gingie	Walgett Shire Council - **NON-POTABLE**	Yes	80	2	Yes	100	2	Yes	100	10	Yes
Gulargambone Mission	6	Gulargambone	Coonamble Shire Council	#			#			#			Yes
Karuah	200		Hunter Water	#			#			#			Yes
The Farm	20		Hunter Water	#			#			#			No
Moonahcullah	50			#			#			#			No
Goodooga Reserve	45	Goodooga	Brewarrina Shire Council	Yes	90	2	Yes	100	2	Yes	100	13	Yes
Mallee	140	Wilcannia	Central Darling Shire Council	#			#			Yes	100	12	Yes
Mehi Crescent	300	Moree	Moree Plains Shire Council	#			#			#			Yes
Murrin Bridge	200	Murrin Bridge	Murrin Bridge Community	Yes	100	4	Yes	100	4	Yes	100	27	Yes
Namatijira Avenue	150	Gol Gol	Wentworth Shire Council	#			#			Yes	100	12	Yes
Namoi Reserve	60	Walgett	Walgett Shire Council	#			#			Yes	100	8	Yes
New Merinee [Dareton]	600	Gol Gol	Wentworth Shire Council	#			#			Yes	100	26	Yes
Stanley Village	175	Moree	Moree Plains Shire Council	#			#			#			Yes
Summervale	30	Walcha	Walcha Council	#			#			Yes	100	12	Yes
Wallaga Lake Community	150	Couria Creek	Bega Valley Shire Council	#			#			Yes	100	20	Yes
Willow Bend	75	Condobolin	Lachlan Shire Council	#			#			Yes	100	15	Yes
Narwon	100	Armidale	Armidale Dumaresq Council	#			#			Yes	100	3	Yes
Cabbage Tree Island	253	Marom Creek	Ballina Shire Council	#			#			Yes	100	12	Yes
Corindi Beach	25	Coffs Harbour	Coffs Harbour City Council	#			#			Yes	100	11	Yes
Quambone	15	Quambone	Coonamble Shire Council	Yes	100	2	Yes	100	2	Yes	100	13	Yes
Walhollow Reserve	178	Walhallow	Liverpool Plains Shire Council	Yes	80	2	Yes	100	2	Yes	100	27	Yes
Wongala	70	Coffs Harbour	Coffs Harbour City Council	#			#			Yes	100	12	Yes
Percent of communities tested which achieved compliance				**100% 9/9**			**100% 9/9**			**100% 29/29**			**94% (33/35)**
Communities provided with a full reticulated water supply service by the local water utility													
Bellwood	50	Bowraville	Nambucca Shire Council	#			#			Yes	100	12	Yes
Boona Road Condobolin	20	Condobolin	Lachlan Shire Council	#			#			Yes	100	11	Yes
Browns Flat [Nowra (Flat Rock)]	30	Flat Rock	Shoalhaven City Council	Yes	100	29	Yes	100	29	Yes	100	57	Yes
Cabarita [Tobwabba (Cabarita Community)]	250	Manning District WSS	MidCoast Water	#			#			Yes	100	13	Yes
Bowraville Village	275	Bowraville	Nambucca Shire Council	#			#			Yes	100	12	Yes
Coomaditchie	117		Sydney Water	#			#			#			Yes
Loftus Road Community	56	Maguires Crossing	Kempsey Shire Council	#			#			Yes	100	11	Yes
Figtree	50	South West Rocks	Kempsey Shire Council	#			#			Yes	100	10	No
Green Hill	248	Kempsey and Lower Macleay	Kempsey Shire Council	#			#			Yes	100	15	Yes
Gunnedah Hill	10	Coonabarabran	Warrumbungle Shire Council	Yes	100	1	Yes	100	1	Yes	100	8	Yes
Gulargambone Top	120	Gulargambone	Coonamble Shire Council	#			#			#			Yes
La Perouse			Sydney Water	#			#			#			No
Maclean [Maclean Lookout]	160	Lower Clarence	Clarence Valley Council	Yes	100	1	Yes	100	1	Yes	100	14	Yes
Muli Muli	150	Urbenville	Tenterfield Shire Council	#			#			Yes	98	50	Yes
New Burnt Bridge	72	Kempsey and Lower Macleay	Kempsey Shire Council	#			#			Yes	100	12	Yes
Orient Point	200	Northern Shoalhaven (Bamarang)	Shoalhaven City Council	#			#			#			Yes
Peak Hill [Peak Hill Village]	50	Parkes	Parkes Shire Council	#			#			Yes	100	3	Yes
Pippi Beach (Nyguru Village)	60	Lower Clarence	Clarence Valley Council	#			#			#			Yes
Purfleet	500	Manning District WSS	MidCoast Water	#			#			Yes	100	13	Yes
Three Ways	75	Griffith	Griffith City Council	#			#			Yes	100	4	Yes
Percent of communities tested which achieved compliance				**100% 3/3**			**100% 3/3**			**100% 15/15**			**90% (18/20)**
ALL COMMUNITIES - Percent of communities tested which achieved compliance				**100% 17/17**			**100% 17/17**			**98% 48/49**			**94% (58/62)**

Notes: 1. Drinking water quality for a Community has complied with the 2011 NHMRC/NRMMC Australian Drinking Water Guidelines (ADWG) for microbiological water quality (health related - shown as 'Yes' in column (10) above) if the required number of samples has been tested and at least 98% of samples had no *E.coli.* The 3 non-potable water supplies (column (3)) are not included in the totals or percent of communities for compliance with ADWG (columns (5), (8) and (11)), which are for the potable water supplied.
For the 1 community where the drinking water supply did not comply for microbiological water quality, 'No' is shown in column (10) and the percentage of samples which complied is shown in column (11). 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 NSW Health protocol (http://www.health.nsw.gov.au/environment/water/Pages/nswhrp-microbiological.aspx).

2. Similarly, for chemical water quality (health related) to be satisfactory (shown as 'Yes' in column (7)), the 95th percentile of results must meet the guidelines and physical (aesthetic) water quality is satisfactory (shown as 'Yes' in column (4)) if the mean value of results meets the guideline values. Although physical and chemical samples were not tested for the 43 communities with '#' in columns (4) and (7), the water supply for the local water utility which supplies each of these communities complied with ADWG for both physical and chemical water quality in 2015-16 (Table 12).

   The physical characteristics tested (aesthetic) are true colour, turbidity, total hardness as CaCO3, total dissolved solids (TDS) and pH.

   The chemical characteristics tested (health related) are antimony, arsenic, barium, boron, cadmium, chromium, copper, fluoride, lead, manganese, mercury, molybdenum, nickel, nitrate, nitrite, selenium, silver and sulfate. Other chemical characteristics tested which are not health related are aluminium, calcium, chloride, iodine, iron, magnesium, sodium and zinc.

APPENDIX D4: 2015-16 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works	Type of Treatment Works	Sewage taken from sewer mining	Total Sewage Collected	Sewage supplied to other utilities	Sewage with no treatment	Sewage at inlet to STW	Recycled Sewage Effluent										Treated Sewage Effluent	Percent treated sewage effluent recycled	Volume Effluent Disposed W29			Flows					
								Residential	Commercial, Industrial, Municipal	Agricultural	Environmental	On-Site	Other	Managed Aquifer Recharge	Total Recycled Effluent Supplied	Bulk Recycled Water Exports	Recycled Sewage Effluent			Ocean	River - Creek	Land	Av. Dry weather - Perm Pop	Av. Dry weather - Peak Pop	Peak Dry weather - Perm Pop	Peak Dry weather - Peak Pop	Flow max 24hr	Flow max 1hr
							W18.4 = W18 - W18.1						Includes aquifer recharge	Included in W25	W26 = W20+W21+W22 +W23+W24+W25		W26 + W15 - W6	W18.4 - Evaporation	(W26 + W15- W6) / W18.5										
	W18.3			W18	W18.1		W18.4	W20	W21	W22	W23	W24	W25	W25.1	W26	W15		W18.5	W27									
	ML			ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	%	ML	ML	ML	L/s	L/s	L/s	L/s	L/s	L/s
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	19	20	21	22	23						
	Albury (Kremur St)	BNR		2,549		0	2,549	0	0	472	622	0	0	0	1,093	0	1,093	2,549	43	0	0	1,042	81	79	142	96	13	-
	Albury (Waterview)	BNR		2,024		0	2,024	0	0	604	796	0	0	0	1,400	0	1,400	2,024	69	0	0	1,035	64	57	149	75	13	-
	Hume Weir	IEA		12		0	12	0	0	0	9	0	0	0	9	0	9	12	77	0	0	0	0.4	0.7	0.3	1.2	0.1	1
	Lara Lakes	A		12		0	12	0	0	0	0	0	0	0		0	0	12	0	0	0	5	0.4	0.4	0.4	0.4	0.1	1
Albury City Council	Total/Weighted Average			4,597		0	4,597	0	0	1,076	1,427	0	0	0	2,503	0	2,503	4,597	54	0	0	2,082	145	136	292	172	26	2.4
	Armidale	TF		2,319		0	2,319	0	0	827	0	0	0	0	827	0	827	2,344	35	0	757	0	69	-	94	-	21	324
	Guyra	CEA		172		0	172	0	0	0	0	0	0	0		0	0	172	0	0	172	0	4	4	6	6	3	37
	Tingha	CED,A		27		0	27	0	0	0	0	0	0	0		0	0	27	0	0	27	0	1.0	1.0	1.0	1.0	0.4	1.0
Armidale Regional Council	Total/Weighted Average			2,518		0	2,518	0	0	827	0	0	0	0	827	0	827	2,543	33	0	956	0	74	5	101	7	24	361
	Ballina	MBR		2,337		0	2,337	-	98	-	-	38	-	-	136	-	136	2,337	6	2,201	0	0	49	-	-	-	14	-
	Lennox Head	IEA		1,474	-		1,474	0	63	0	0	0	-	-	63	-	63	1,474	4	1,411	0	0	49	-	-	-	19	-
	Alstonville	IEA		564	-		564	0	289	0	0	0	0	0	289	0	289	564	51	0	275	0	17	-	-	-	9	-
	Wardell	IEA		159		0	159	0	11	-	-	0	-	-	11	-	11	159	7	0	148	0	5	-	-	-	2	-
Ballina Shire Council	Total/Weighted Average			4,534		0	4,534	0	461	0	0	39	0	0	500	0	500	4,534	11	3,612	423	0	120	-	-	-	44	-
	Balranald	AN		101		0	101	0	0	0	0	0	0	0		0	0	102	0	0	0	105	3	4	14	14	0.4	8
	Euston	AN		116		0	116	0	0	0	0	0	0	0		0	0	116	0	0	0	116	2	2	27	27	0.6	-
Balranald Shire Council	Total/Weighted Average			217		0	217	0	0	0	0	0	0	0	0	0	0	218	0	0	0	221	6	6	41	41	1.0	8
Bathurst Regional Council	Bathurst	IEA		3,877		0	3,877	0	0	0	0	0	0	0	0	0	0	3,876	0	0	3,876	0	119	127	169	138	18	13
	Wolumla	MBR		22		0	22	0	1	21	0	-	0	0	22	0	22	22	100	0	0	0	0.6	0.7	-	-	0.1	-
	Cobargo	MBR		26		0	26	0	12	0	0	0	0	0	12	0	12	26	46	0	14	0	0.7	1.5	-	-	0.2	-
	Candelo	MBR		18		0	18	0	4	0	0	-	0	0	4	0	4	18	22	0	14	0	0.6	0.6	-	-	0.1	-
	Kalaru	MBR		13		0	13	0	3	0	0	-	0	0	3	0	3	13	23	0	8	0	0.4	0.7	-	-	0.1	-
	Tura Beach	CEA		201		0	201	0	28	0	0	-	0	0	28	0	28	201	14	0	0	154	6	7	-	-	1.9	-
	Eden	IEA		355		0	355	0	37	0	0	0	0	0	37	0	37	355	10	308	0	0	8	13	-	-	10	-
	Tathra	CEA		167		0	167	0	154	0	0	-	0	0	154	0	154	167	92	0	0	0	4	8	-	-	3	-
	Bega	IEA		495		0	495	0	0	0	0	0	0	0		0	0	495	0	0	474	0	11	11	-	-	12	-
	Bermagui	CEA		237		0	237	0	48	0	0	-	0	0	48	0	48	238	20	182	0	0	6	10	-	-	5	-
	Merimbula	IEA		859		0	859	0	90	3	0	-	0	0	93	0	93	859	11	662	0	78	21	33	-	-	14	-
Bega Valley Shire Council	Total/Weighted Average			2,393		0	2,393	0	377	24	0	0	0	0	401	0	401	2,394	17	1,152	510	232	57	86	-	-	46	-
	Urunga	IEA		245		0	245	0	0	0	0	0	0	0		0	0	245	0	0	245	0	12	-	-	-	4	-
	Bellingen	IEA		244		0	244	0	0	0	0	0	0	0		0	0	245	0	0	244	0	14	-	-	-	5	-
	Dorrigo	IEA		70		0	70	0	0	0	0	0	0	0		0	0	70	0	0	70	0	7	-	-	-	2	-
Bellingen Shire Council	Total/Weighted Average			559		0	559	0	0	0	0	0	0	0	0	0	0	560	0	0	559	0	33	-	-	-	10	-
	Tocumwal	TF		290		0	290	0	290	0	0	0	0	0	290	0	290	300	97	0	0	290	7	9	1	20	45	30
	Finley	TF		245		0	245	0	245	0	0	0	0	0	245	0	245	300	82	0	0	245	4	4	4	5	26	22
	Barooga	A		110		0	110	0	0	0	0	0	0	0		0	0	130	0	0	0	130	2	3	3	4	9	30
	Berrigan	TF		94		0	94	0	94	0	0	0	0	0	94	0	94	95	99	0	0	94	3	3	3	4	12	30
Berrigan Shire Council	Total/Weighted Average			739		0	739	0	629	0	0	0	0	0	629	0	629	825	76	0	0	759	15	18	11	32	92	112
	West Wyalong	C		289		0	289	0	270	0	0	0	0	0	270	0	270	270	100	0	0	0	8	9	10	10	1.4	9
	Ungarie	C		101		0	101	0	0	0	0	0	0	0		0	0	0		0	0	0	9	9	9	9	-	9
	Barmedman	A		25		0	25	0	0	0	0	0	0	0		0	0	24	0	0	0	24	9	9	9	9	0.5	10
Bland Shire Council	Total/Weighted Average			415		0	415	0	270	0	0	0	0	0	270	0	270	294	92	0	0	24	26	27	28	28	2	28
Blayney Shire Council	Blayney	IEA		372		0	372	0	301	0	0	0	0	0	301	0	301	489	62	0	6	0	10	11	61	61	3	103
Bogan Shire Council	Nyngan	A		161		0	161	0	0	60	0	0	0	0	60	0	60	161	37	0	0	101	5	5	7	7	2	21
Bourke Shire Council	Bourke	A		200		0	200	0	0	0	0	0	0	0	0	0	0	179	0	0	0	179	5	5	5	5	2	5
	Brewarrina	TF		155		0	155	0	0	0	0	0	0	0		0	0	135	0	0	0	0	4	6	8	5	3	10
	Goodooga	A		21		0	21	0	0	0	0	0	0	0		0	0	20	0	0	0	0	-	-	-	-	-	-
	Barwon Four	A		18		0	18	0	0	0	0	0	0	0		0	0	18	0	0	-	0	-	-	-	-	-	-
Brewarrina Shire Council	Total/Weighted Average			194		0	194	0	0	0	0	0	0	0	0	0	0	173	0	0	0	0	4	6	8	5	3	10

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Water Utility	Sewage Treatment Works	Type of Treatment Works	Sewage taken from sewer mining	Total Sewage Collected	Sewage supplied to other utilities	Sewage with no treatment	Sewage at inlet to STW	Recycled Sewage Effluent										Treated Sewage Effluent	Percent treated sewage effluent recycled	Volume Effluent Disposed W29			Flows					
								Residential	Commercial, Industrial, Municipal	Agricultural	Environmental	On-Site	Other	Managed Aquifer Recharge	Total Recycled Effluent Supplied	Bulk Recycled Water Exports	Recycled Sewage Effluent			Ocean	River - Creek	Land	Av. Dry weather - Perm Pop	Av. Dry weather - Peak Pop	Peak Dry weather - Perm Pop	Peak Dry weather - Peak Pop	Flow max 24hr	Flow max 1hr
			W18.3	W18	W18.1		W18.4 = W18 - W18.1	W20	W21	W22	W23	W24	W25 Includes aquifer recharge	W25.1 Included in W25	W26 = W20+W21+W22+W23+W24+W25	W15	W26 + W15 - W6	W18.4 - Evaporation	(W26 + W15- W6) / W18.5									
	1	2	ML 3	ML 4	ML 5	ML 6	ML 7	ML 8	ML 9	ML 10	ML 11	ML 12	ML 13	ML 14	ML 15	ML 16	ML 18	ML 19	% 20	ML 21	ML 22	ML 23	L/s	L/s	L/s	L/s	L/s	L/s
Byron Shire Council	Byron Bay West	BNR		1,886		0	1,886	0	242	96	0	0	0	0	338	0	338	1,886	18	0	1,608	338	50	55	149	-	16	227
	Ocean Shores	IEA		573		0	573	0	0	0	0	0	0	0		0	0	563	0	0	563	0	15	-	31	-	8	228
	Brunswick Valley	BNR		677		0	677	0	0	24	0	0	0	0	24	0	24	677	3	0	675	2	16	19	31	70	16	250
	Bangalow	MBR		128		0	128	0	0	5	0	0	0	0	5	0	5	128	4	0	123	5	4	4	5	5	3	45
	Total/Weighted Average			3,264		0	3,264	0	242	125	0	0	0	0	367	0	367	3,254	11	0	2,969	345	85	77	216	75	43	750
Cabonne Council	Canowindra	TF		147		0	147	0	62	0	0	0	0	0	62	0	62	147	42	0	22	0	5	5	8	8	2	23
	Molong	AL		104		0	104	0	0	0	0	0	0	0		0	0	104	0	0	104	0	6	6	9	9	3	15
	Manildra	A		29		29	29	0	0	5	0	0	0	0	5	0	5	0		0	0	29	1	1	2	2	0	1
	Cumnock	A		0		-	0	-	-	-	-	-	-	-		-	0	0		-	-	-	-	-	-	-	-	-
	Yeoval	A		0		-	0	-	-	-	-	-	-	-		-	0	0		-	-	-	-	-	-	-	-	-
	Cudal	A		19		0	19	0	0	2	0	0	0	0	2	0	2	19	11	0	0	19	0	0	1	1	0	1
	Eugowra	A		33		0	33	0	0	10	0	0	0	0	10	0	10	33	30	0	0	33	1	1	2	2	0	2
	Total/Weighted Average			332		29	332	0	62	17	0	0	0	0	79	0	79	303	26	0	126	81	13	13	21	21	5	41
Carrathool Shire Council	Hillston	IEA		99		-	99	0	0	0	0	0	0	0		0	0	99	0	0	0	99	-	-	-	-	-	-
	Goolgowi	A		21		-	21	0	0	0	0	0	0	0		0	0	21	0	-	-	21	-	-	-	-	-	-
	Rankins Springs	A		0		-	0	-	-	-	-	-	-	-		-	0	0		-	-	-	-	-	-	-	-	-
	Total/Weighted Average			120		0	120	0	0	0	0	0	0	0	0	0	0	120	0	0	0	120	-	-	-	-	-	-
Central Coast Council	Kincumber	C		13,698		-	13,698	0	3	0	0	0	0	0	3	0	3	13,697	0	13,694	-	0	400	442	570	603	140	1,617
	Woy Woy	CEA		4,887		0	4,887	0	0	0	0	0	0	0		0	0	4,886	0	4,886	0	0	156	140	252	173	32	365
	Bateau Bay	TF		3,212		0	3,212	0	214	0	0	257	0	0	471	0	471	3,277	14	2,800	0	0	94	-	-	-	43	-
	Wyong South	IEA		4,121		0	4,121	-	-	-	-	26	-	-	26	-	26	4,153	1	4,127	-	-	124	-	-	-	63	-
	Charmhaven	IEA		3,126		0	3,126	0	0	0	0	10	0	0	10	0	10	3,137	0	3,127	0	0	95	-	-	-	49	-
	Toukley	TF		2,684		0	2,684	65	304	0	0	12	0	0	381	0	381	2,982	13	2,683	0	1	79	-	-	-	43	-
	Gwandalan	IEA		767		0	767	-	1	0	0	0	0	0	1	0	1	768	0	767	0	0	11.5	-	-	-	10	-
	Mannering Park	IEA		923		0	923	0	0	0	0	3	0	0	3	0	3	923	0	920	0	0	28	-	-	-	13	-
	Total/Weighted Average			33,418		0	33,418	65	522	0	0	308	0	0	895	0	895	33,823	3	33,004	0	1	988	582	822	776	392	1,982
Central Darling Shire Council	Wilcannia	A		53		0	53	-	-	-	-	-	-	-	0	-	0	53	0	-	-	53	6	7	15	18	0	0
Clarence Valley Council	Grafton North	TF		698		0	698	0	5	0	0	0	0	0	5	0	5	698	1	0	693	0	30	30	35	35	20	-
	Yamba	IEA		800		0	800	0	30	0	0	11	0	0	40	0	40	800	5	0	800	0	23	33	30	40	7	-
	Clarenza	IEA		641		0	641	0	0	0	0	0	0	0		0	0	641	0	0	641	0	20	20	30	30	11	-
	Coutts Crossing	IEA		32		0	32	0	13	0	0	0	0	0	13	0	13	32	41	0	19	0	1.0	1.0	1.5	1.5	0.6	-
	Woodford Island	IEA		376		0	376	0	190	0	0	19	0	0	209	0	209	376	56	0	185	0	12	12	15	15	5	-
	Iluka	IEA		120		0	120	0	99	0	0	18	0	0	117	0	117	120	98	0	3	0	3	7	5	10	1	-
	Total/Weighted Average			2,667		0	2,667	0	337	0	0	48	0	0	385	0	385	2,667	14	0	2,341	0	89	103	117	132	44	-
Cobar Shire Council	Cobar	CEA		435		-	435	-	-	-	-	-	-	-	0	-	0	435	0	-	-	-	8	9	9	10	2	20
Coffs Harbour City Council	Coffs Harbour	CEA		4,444		-	4,444	-	372	-	-	202	-	-	574	-	574	4,422	13	4,047	-	-	127	127	147	147	87	-
	Moonee/Emerald	BNR		218		-	218	-	-	103	-	-	-	-	103	-	103	218	47	115	-	-	6	6	8	8	8	-
	Woolgoolga	IEA		933		-	933	-	-	413	-	-	-	-	413	-	413	933	44	520	-	-	25	25	42	42	18	-
	Corindi Beach	IEA		111		-	111	-	-	23	-	-	-	-	23	-	23	111	20	-	-	3	3	3	6	6	1	-
	Deep Sea Release						0										0	0										
	Total/Weighted Average			5,706		0	5,706	0	372	539	0	202	0	0	1,113	0	1,113	5,684	20	4,682	0	3	162	162	203	203	115	-
Coolamon Shire Council	Coolamon	TF		75		0	75	0	0	0	0	75	0	0	75	0	75	75	100	0	0	75	3	3	4	4	-	-
	Ganmain	A		30		0	30	0	0	0	0	0	0	0		0	0	30	0	0	0	30	-	-	-	-	-	-
	Total/Weighted Average			105		0	105	0	0	0	0	75	0	0	75	0	75	105	71	0	0	105	3	3	4	4	-	-
Coonamble Shire Council	Coonamble	TF		252		0	252	0	0	54	-	-	-	-	54	-	54	260	21	0	0	0	48	48	48	48	0	48
	Gulargambone	IEA		26		0	26	0	0	0	0	0	0	0		0	0	0		0	-	0	7	7	7	7	1	7
	Total/Weighted Average			278		0	278	0	0	54	0	0	0	0	54	0	54	260	21	0	0	0	55	55	55	55	1	55
Cootamundra-Gundagai Reg	Cootamundra	AL		583		0	583	0	197	0	307	0	4	0	508	0	508	583	87	0	0	0	15	20	20	1	10	200
	Gundagai	TF		234		0	234	0	234	0	0	0	0	0	234	0	234	234	100	0	0	-	2	3	7	8	1	15
	Total/Weighted Average			817		0	817	0	431	0	307	0	4	0	742	0	742	817	91	0	0	0	17	23	27	9	11	215

APPENDIX D4: 2015-16 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works	Type of Treatment Works	Sewage taken from sewer mining	Total Sewage Collected	Sewage supplied to other utilities	Sewage with no treatment	Sewage at inlet to STW	Recycled Sewage Effluent										Treated Sewage Effluent	Percent treated sewage effluent recycled	Volume Effluent Disposed W29			Flows					
								Residential	Commercial, Industrial, Municipal	Agricultural	Environmental	On-Site	Other	Managed Aquifer Recharge	Total Recycled Effluent Supplied	Bulk Recycled Water Exports	Recycled Sewage Effluent			Ocean	River - Creek	Land	Av. Dry weather - Perm Pop	Av. Dry weather - Peak Pop	Peak Dry weather - Perm Pop	Peak Dry weather - Peak Pop	Flow max 24hr	Flow max 1hr
							W18.4 = W18 - W18.1						Includes aquifer recharge	Included in W25	W26 = W20+W21+W22 +W23+W24+W25		W26 + W15 - W6	W18.4 - Evaporation	(W26 + W15- W6) / W18.5									
			W18.3	W18	W18.1		W18.4	W20	W21	W22	W23	W24	W25	W25.1	W26	W15		W18.5	W27								
			ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	%	ML	ML	ML	L/s	L/s	L/s	L/s	L/s	L/s
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	19	20	21	22	23						
Cowra Shire Council	Cowra	IEA		584		0	584	0	0	0	0	0	0	0	0	0	0	584	0	0	584	0	8	35	12	75	5	104
	Wongarbon	A		51		51	51	-	-	-	-	-	-	-		-	0	0		0	0	0	-	-	-	-	-	-
	Dubbo (Troy Junction)	BNR		3,237		0	3,237	0	0	2,319	0	280	0	0	2,599	0	2,599	3,237	80	0	114	0	97	97	183	183	33	385
	Wellington	IEA		578		0	578	0	0	0	0	0	0	0		0	0	444	0	0	444	0	18	-	-	-	2.9	65
	Geurie	IEA		21		0	21	0	0	0	0	0	0	0		0	0	48	0	0	0	0	1	-	-	-	0.2	5
Dubbo Regional Council	Total/Weighted Average			3,887		51	3,887	0	0	2,319	0	280	0	0	2,599	0	2,599	3,729	70	0	558	0	115	97	183	183	36	454
Edward River Council	Deniliquin	TF		565		0	565	0	0	54	0	0	0	0	54	0	54	482	11	0	0	428	17	19	147	156	4	-
	Broken Hill (Wills St)	TF		1,020		0	1,020	-	443	-	-	-	-	-	443	-	443	1,020	43	0	0	546	32	-	55	-	5	88
	Broken Hill South	TF		263	-		263	-	226	-	-	-	-	-	226	-	226	263	86	-	-	0	8	-	17	-	1	21
Essential Energy	Total/Weighted Average			1,283		0	1,283	0	669	0	0	0	0	0	669	0	669	1,283	52	0	0	546	41	-	72	-	6	109
	Batemans Bay	CEA		1,827		0	1,827	0	100	0	0	5	0	0	105	0	105	1,827	6	1,722	0	0	48	59	70	81	30	-
	Narooma	CEA		684		0	684	0	0	0	0	4	0	0	4	0	4	684	1	680	0	0	16	20	36	30	22	-
	Moruya	CEA		394		0	394	0	53	0	0	12	0	0	65	0	65	394	16	0	329	0	10	11	23	18	6	-
	Tomakin	CEA		585		0	585	0	0	0	0	0	0	0		0	0	585	0	585	-	-	16	23	36	32	5	-
	Tuross Heads	IEA		194		0	194	0	20	0	0	2	0	0	21	0	21	194	11	-	-	173	5	7	8	10	5	-
Eurobodalla Shire Council	Total/Weighted Average			3,684		0	3,684	0	173	0	0	22	0	0	195	0	195	3,684	5	2,987	329	173	94	119	173	171	67	-
	Corowa	TF		496		0	496	0	0	-	0	0	0	0		0	0	496	0	0	0	0	14	15	19	32	3	-
	Mulwala	IEA		287		0	287	0	0	0	0	26	0	0	26	0	26	287	9	0	258	0	8	9	16	16	1	-
	Howlong	A		186		0	186	0	0	0	0	0	0	0		0	0	186	0	0	0	60	5	6	14	14	1	-
	Urana	A		55		0	55	0	0	0	0	0	0	0		0	0	55	0	0	0	0	25	25	25	25	-	25
	Oaklands	A		35		0	35	0	0	0	0	0	0	0		0	0	35	0	0	0	0	25	25	25	25	-	25
Federation Council	Total/Weighted Average			1,059		0	1,059	0	0	0	0	26	0	0	26	0	26	1,059	2	0	258	60	78	80	99	113	4.9	50
Forbes Shire Council	Forbes	IEA		716		0	716	0	0	0	244	9	0	0	253	-	253	714	35	0	42	581	20	23	27	33	11	211
Gilgandra Shire Council	Gilgandra	TF		259		0	259	-	-	221	-	-	-	-	221	-	221	259	85	0	0	0	-	-	-	-	3	-
	Deepwater	CED,AN		20		0	20	0	0	0	0	0	0	0		0	0	20	0	0	20	0	0.6	0.6	0.6	0.6	0.1	1
	Glen Innes	IEA		509		0	509	0	0	0	0	0	0	0		0	0	509	0	0	509	0	13	15	26	30	11	150
Glen Innes Severn Council	Total/Weighted Average			529		0	529	0	0	0	0	0	0	0	0	0	0	529	0	0	529	0	14	16	27	31	11	151
	Goulburn	TF		2,054		0	2,054	0	179	1,551	0	0	0	0	1,730	0	1,730	2,054	84	0	55	0	52	52	95	95	44	600
	Marulan	A		0		0	0	0	0	-	0	0	0	0		0	0	0		0	0	0	-	-	-	-	-	-
Goulburn Mulwaree Council	Total/Weighted Average			2,054		0	2,054	0	179	1,551	0	0	0	0	1,730	0	1,730	2,054	84	0	55	0	52	52	95	95	44	600
	Holbrook	TF		143		0	143	0	13	0	0	0	0	0	13	0	13	143	9	0	130	0	5	6	5	5	1.0	19
	Jindera	A		96		0	96	0	0	0	0	0	0	0		0	0	96	0	0	0	96	3	3	3	3	6.0	23
	Henty	IEA		66		0	66	0	23	0	0	0	0	0	23	0	23	66	34	0	0	43	2	2	4	4	0.7	30
	Culcairn	IEA		85		0	85	0	15	0	0	0	0	0	15	0	15	85	18	0	0	70	3	4	4	4	0.5	20
	Walla Walla	IEA		47		0	47	0	7	0	0	0	0	0	7	0	7	47	14	0	40	0	1.3	1.5	1.9	2.0	-	24
	Burrumbuttock	CED,A		3		0	3	0	0	0	0	0	0	0		0	0	3	0	0	0	3	0.1	0.1	0.4	0.4	0.1	1
Greater Hume Shire Council	Total/Weighted Average			440		0	440	0	57	0	0	0	0	0	57	0	57	440	13	0	170	212	14	16	18	19	8	117
	Griffith	MBR		2,325		0	2,325	0	0	0	0	247	0	0	247	0	247	2,325	11	0	1,553	247	72	72	120	120	13,720	159
	Yenda	AL		79		0	79	0	0	0	0	0	0	0		0	0	79	0	0	58	0	2	2	6	5	0.3	6
	Bilbul	A		11		0	11	0	0	0	0	0	0	0		0	0	11	0	0	0	0	0.4	0.4	0.9	0.9	1	0.7
Griffith City Council	Total/Weighted Average			2,415		0	2,415	0	0	0	0	247	0	0	247	0	247	2,415	10	0	1,611	247	75	75	127	126	13,721	166
	Gunnedah	TF		822		0	822	0	0	542	0	0	0	0	542	0	542	642	84	0	0	0	15	19	32	39	5	52
	Curlewis	A		27		0	27	0	0	-	0	0	0	0		0	0	27	0	0	0	27	-	-	-	-	-	-
Gunnedah Shire Council	Total/Weighted Average			849		0	849	0	0	542	0	0	0	0	542	0	542	669	81	0	0	27	15	19	32	39	5	52
	Bingara	TF		114		0	114	-	-	-	-	-	-	-		-	0	114	0	-	-	114	3	4	8	10	0.5	20
	Warialda	TF		160	-		160	-	9	-	-	-	-	-	9	-	9	160	6	-	20	131	6	10	15	15	-	25
Gwydir Shire Council	Total/Weighted Average			274		0	274	0	9	0	0	0	0	0	9	0	9	274	3	0	20	245	9	14	23	25	0.5	45
	Mcgraths Hill	TF		719		0	719	0	0	135	0	0	0	0	135	0	135	719	19	0	555	0	20	20	42	42	14	160
	South Windsor	CEA		1,419		0	1,419	0	7	0	0	0	0	0	7	0	7	1,419	0	0	1,063	0	43	43	105	105	18	205
Hawkesbury City Council	Total/Weighted Average			2,138		0	2,138	0	7	135	0	0	0	0	142	0	142	2,138	7	0	1,618	0	63	63	147	147	32	364

APPENDIX D4: 2015-16 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works	Type of Treatment Works	Sewage taken from sewer mining	Total Sewage Collected	Sewage supplied to other utilities	Sewage with no treatment	Sewage at inlet to STW	Recycled Sewage Effluent										Treated Sewage Effluent	Percent treated sewage effluent recycled	Volume Effluent Disposed W29			Flows					
								Residential	Commercial, Industrial, Municipal	Agricultural	Environmental	On-Site	Other	Managed Aquifer Recharge	Total Recycled Effluent Supplied	Bulk Recycled Water Exports	Recycled Sewage Effluent			Ocean	River - Creek	Land	Av. Dry weather - Perm Pop	Av. Dry weather - Peak Pop	Peak Dry weather - Perm Pop	Peak Dry weather - Peak Pop	Flow max 24hr	Flow max 1hr
			W18.3	W18	W18.1	ML	W18.4 = W18 - W18.1	W20	W21	W22	W23	W24	W25 Includes aquifer recharge	W25.1 Included in W25	W26 = W20+W21+W22+W23+W24+W25	W15	W26 + W15 - W6	W18.4 - Evaporation	(W26 + W15- W6) / W18.5									
	1	2	ML 3	ML 4	ML 5	ML 6	ML 7	ML 8	ML 9	ML 10	ML 11	ML 12	ML 13	ML 14	ML 15	ML 16	ML 18	ML 19	% 20	ML 21	ML 22	ML 23	L/s	L/s	L/s	L/s	L/s	L/s
Hay Shire Council	Hay	TF		237		0	237	0	0	0	0	0	0	0	0	0	0	237	0	0	0	237	8	8	16	16	2	49
	Young (New)	IEA		710		-	710	0	150	0	0	4	0	0	154	0	154	710	22	0	443	0	17	19	50	54	5	94
	Harden Murrumburrah	TF		88		0	88	0	36	0	0	0	0	0	36	0	36	249	14	0	45	0	5.5	5.5	1.0	1.0	7.5	1.0
	Boorowa	TF		140		0	140	0	0	0	0	0	0	0		0	0	116	0	0	5	0	3	8	4	10	1	23
Hilltops Council	Total/Weighted Average			938		0	938	0	186	0	0	4	0	0	190	0	190	1,075	18	0	493	0	25	32	55	65	13	118
	Inverell	IEA		935		0	935	0	0	0	0	0	0	0		0	0	765	0	0	765	0	150	150	150	150	17	299
	Ashford	IEA		35		0	35	0	0	0	0	0	0	0		0	0	35	0	0	35	0	1.0	1.0	1.0	1.0	0.2	2.0
	Delungra	IEA		20		0	20	0	0	0	0	0	0	0		0	0	20	0	0	20	0	0.5	0.5	0.5	0.5	0.2	1.0
	Gilgai	A		30		0	30	0	0	0	0	0	0	0		0	0	30	0	0	30	0	1.0	1.0	1.0	1.0	0.1	2.0
Inverell Shire Council	Total/Weighted Average			1,020		0	1,020	0	0	0	0	0	0	0	0	0	0	850	0	0	850	0	153	153	153	153	18	304
Junee Shire Council	Junee	TF		420		0	420	0	104	0	0	0	0	0	104	0	104	420	25	0	187	0	11	13	25	31	4	59
	Kempsey West	TF		768		0	768	0	7	2	0	0	0	0	9	0	9	768	1	0	759	0	16	18	97	32	18	206
	South West Rocks	IEA		431		0	431	0	22	0	0	0	0	0	22	0	22	432	5	0	0	409	12	16	21	24	3	31
	Kempsey South	TF		302		0	302	0	50	0	0	0	0	0	50	0	50	302	16	0	252	0	7	7	42	12	9	99
	Crescent Head	IEA		120		0	120	0	0	0	0	8	0	0	8	0	8	120	6	113	0	-	3	4	7	8	1.4	31
	Smithtown\Gladstone	IEA		136		0	136	0	0	0	0	0	0	0		0	0	136	0	0	137	0	5	4	17	11	1.5	18
	Frederickton	IEA		58		0	58	0	5	3	0	0	0	0	8	0	8	59	14	0	50	0	1.6	1.9	8	8	1.3	13
	Hat Head	IEA		40		0	40	0	0	0	0	0	0	0	0	0	0	40	0	0	0	40	1.1	2.0	2	4	0.3	4
	Aldavilla	CED		1		0	1	0	0	0	0	0	0	0		0	0	0	0	0	0	1	0.0	-	0	0	0.2	0
Kempsey Shire Council	Total/Weighted Average			1,856		0	1,856	0	84	4	0	8	0	0	96	0	96	1,858	5	113	1,198	450	46	53	194	99	34	402
	Kyogle	TF		344		0	344	-	-	-	-	-	-	-	-	-	0	330	0	-	346	-	6	6	7	7	8	99
	Bonalbo	IEA		33		0	33	-	18	-	-	-	-	-	18	-	18	19	96	0	0	0	0.6	0.6	0.9	0.9	0.5	6
	Woodenbong	IEA		39		0	39	-	20	-	-	-	-	-	20	-	20	39	51	-	19	-	0.6	0.6	0.7	0.7	0.8	10
Kyogle Council	Total/Weighted Average			416		0	416	0	38	0	0	0	0	0	38	0	38	388	10	0	365	0	7	7	8	8	9	115
	Condobolin	TF		336		0	336	0	116	0	0	0	0	0	116	0	116	336	35	0	154	30	8	9	13	13	2	38
	Tottenham	IEA		52		0	52	0	0	0	0	0	0	0		0	0	52	0	0	0	52	1	1	2	2	1	4
	Lake Cargelligo	IEA		142		0	142	0	0	0	0	0	0	0		0	0	142	0	0	0	142	4	5	6	6	1	37
Lachlan Shire Council	Total/Weighted Average			530		0	530	0	116	0	0	0	0	0	116	0	116	530	22	0	154	224	13	15	20	21	4	79
	Leeton	TF		889		0	889	-	-	-	-	-	-	-	-	-	0	889	0	0	0	547	30	36	45	54	5	160
	Yanco	IEA		67		0	67	-	-	-	-	-	-	-	-	-	0	67	0	0	24	19	2.0	3	3	3	1.0	15
	Whitton	A		19		0	19	-	-	-	-	-	-	-	-	-	0	19	0	0	0	0	1.0	1.0	2.0	2.0	0.2	5
Leeton Shire Council	Total/Weighted Average			975		0	975	0	0	0	0	0	0	0	0	0	0	975	0	0	24	566	33	40	50	59	6	180
	Lismore East	IEA		1,459		0	1,459	0	0	0	0	5	0	0	5	0	5	1,459	0	0	1,459	0	34	34	139	139	11	247
	Lismore South	TF		1,315		0	1,315	0	0	0	0	0	0	0		0	0	1,314	0	0	839	0	32	32	143	143	19	238
	Nimbin	IEA		107		0	107	0	0	0	0	0	0	0		0	0	107	0	0	107	0	3.0	3.0	4	4	0.7	77
Lismore City Council	Total/Weighted Average			2,881		0	2,881	0	0	0	0	5	0	0	5	0	5	2,880	0	0	2,405	0	69	69	286	286	31	562
	Lithgow	IEA		1,378		0	1,378	0	0	0	0	0	0	0		0	0	1,378	0	0	1,378	0	-	-	-	-	-	-
	Portland	TF		225		0	225	0	0	0	0	0	0	0		0	0	225	0	0	225	0	-	-	-	-	-	-
	Wallerawang	IEA		152		0	152	0	0	0	0	0	0	0		0	0	152	0	0	152	0	-	-	-	-	-	-
Lithgow City Council	Total/Weighted Average			1,755		0	1,755	0	0	0	0	0	0	0	0	0	0	1,755	0	0	1,755	0	-	-	-	-	-	-
	Quirindi	TF		205		0	205	0	0	0	0	0	0	0		0	0	205	0	0	145	0	10	13	10	15	2	24
	Werris Creek	TF		99		0	99	0	0	0	0	0	0	0		0	0	99	0	0	99	0	2	5	8	9	0.8	39
Liverpool Plains Shire Counc	Total/Weighted Average			304		0	304	0	0	0	0	0	0	0	0	0	0	304	0	0	244	0	12	18	18	23	3	63
	Lockhart	TF		78		-	78	-	2	-	-	-	-	-	2	-	2	78	2	-	-	78	2.3	2.3	6	6	0.5	6
	The Rock	C		57		-	57	-	-	-	-	-	-	-	-	-	0	57	0	-	57	-	1.7	1.7	3	3	0	3
	Yerong Creek	A		5		5	5	-	-	-	-	-	-	-	-	-	0	0	-	-	-	5	0.1	0.1	0.2	0.2	0	0
Lockhart Shire Council	Total/Weighted Average			140		5	140	0	2	0	0	0	0	0	2	0	2	135	1	0	57	83	4	4	9	9	1	10

APPENDIX D4: 2015-16 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works	Type of Treatment Works	Sewage taken from sewer mining	Total Sewage Collected	Sewage supplied to other utilities	Sewage with no treatment	Sewage at inlet to STW	Recycled Sewage Effluent									Treated Sewage Effluent	Percent treated sewage effluent recycled	Volume Effluent Disposed W29			Flows					
								Residential	Commercial, Industrial, Municipal	Agricultural	Environmental	On-Site	Other	Managed Aquifer Recharge	Total Recycled Effluent Supplied	Bulk Recycled Water Exports	Recycled Sewage Effluent			Ocean	River - Creek	Land	Av. Dry weather - Perm Pop	Av. Dry weather - Peak Pop	Peak Dry weather - Perm Pop	Peak Dry weather - Peak Pop	Flow max 24hr	Flow max 1hr
							W18.4 = W18 - W18.1						Includes aquifer recharge	Included in W25	W26 = W20+W21+W22 +W23+W24+W25		W26 + W15 - W6	W18.4 - Evaporation	(W26 + W15- W6) / W18.5									
	W18.3			W18	W18.1		W18.4	W20	W21	W22	W23	W24	W25	W25.1	W26	W15		W18.5	W27								
	ML			ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	%	ML	ML	ML	L/s	L/s	L/s	L/s	L/s	L/s
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	19	20	21	22	23						
	Gloucester	TF		370		0	370	0	0	0	0	0	0	0		0	0	370	0	0	370	0	9	12	12	19	10	115
	Dawson River	CEA		1,746		0	1,746	-	-	144	-	-	-	-	144	-	144	1,746	8	-	1,597	0	46	46	108	108	29	331
	Tea Gardens	IEA		364		0	364	0	94	0	0	10	0	0	104	0	104	364	29	0	0	260	11	18	22	31	5	52
	Forster	IEA		1,728		0	1,728	0	0	0	0	49	0	0	49	0	49	1,727	3	1,678	0	0	51	77	103	145	28	322
	Harrington	CEA		446		0	446	0	5	0	0	13	0	0	18	0	18	446	4	0	0	428	14	17	19	17	2.8	33
	Wingham	CEA		385		0	385	0	0	142	0	0	0	0	142	0	142	385	37	0	242	0	8	8	25	25	13	151
	Old Bar	CEA		344		0	344	0	0	0	0	0	0	0		0	0	344	0	0	0	344	10	12	12	16	6	69
	Hallidays Point	CEA		1,227		0	1,227	0	346	0	0	24	0	0	370	0	370	1,227	30	0	0	857	37	51	62	67	13	150
	Bulahdelah	IEA		147		0	147	-	14	0	0	0	0	0	14	0	14	147	10	0	133	0	3	3	11	11	5.3	61
	Stroud	CEA		69		0	69	0	0	61	0	0	0	0	61	0	61	69	88	0	22	0	2	2	5	5	1.9	22
	Manning Point	IEA		25		0	25	0	0	0	0	0	0	0		0	0	25	0	0	0	25	0.8	1.5	1.0	2.1	0.2	2.2
	Lansdowne	IEA		26		0	26	0	0	18	0	0	0	0	18	0	18	26	69	0	8	0	0.7	0.7	2.0	2.0	0.6	7
	Coopernook	IEA		26		0	26	0	0	24	-	-	-	-	24	-	24	26	92	0	10	0	0.8	0.8	1	1	0.4	5
MidCoast Water	Total/Weighted Average			6,903		0	6,903	0	459	389	0	96	0	0	944	0	944	6,902	14	1,678	2,382	1,914	193	249	383	449	114	1,321
	Mudgee (New)	IEA		1,084		0	1,084	0	0	0	0	29	0	0	29	0	29	1,015	3	0	986	0	30	31	64	35	6	109
	Gulgong	IEA		133		0	133	0	0	25	0	0	0	0	25	0	25	121	20	0	0	0	4	4	5	5	5	15
	Kandos	TF		89		0	89	0	0	0	0	0	0	0		0	0	76	0	0	76	0	2.0	2.2	5	2.6	5	25
	Rylstone	TF		52		0	52	0	0	0	0	0	0	0		0	0	50	0	0	50	0	1.5	1.6	5	2.1	2.2	4
Mid-Western Regional Counc	Total/Weighted Average			1,358		0	1,358	0	0	25	0	29	0	0	54	0	54	1,262	4	0	1,112	0	37	39	79	45	17	153
	Ashley	A		30		30	30	-	-	-	-	-	-	-		-	0	0		-	-	30	-	-	-	-	-	-
	Boggabilla	A		20		-	20	-	-	-	-	-	-	-		-	0	20	0	-	-	20	-	-	-	-	-	-
	Moree	IEA		1,697		0	1,697	-	392	263	-	-	-	-	655	-	655	1,336	49	0	0	681	-	-	-	-	6	-
	Mungindi	IEA		60		-	60	-	-	-	-	-	-	-		-	0	60	0	-	-	60	-	-	-	-	-	-
Moree Plains Shire Council	Total/Weighted Average			1,807		30	1,807	0	392	263	0	0	0	0	655	0	655	1,416	46	0	0	791	-	-	-	-	6	-
	Moama	A		654		0	654	0	0	133	0	0	0	0	133	0	133	547	24	0	0	0	17	21	26	52	6.0	57
	Mathoura	A		44		0	44	0	0	0	0	0	0	0		0	0	44	0	0	0	44	1.4	1.4	1.7	1.7	0.3	5
	Barham	TF		101		0	101	0	0	0	0	0	0	0		0	0	95	0	0	0	95	-	-	-	-	-	-
	Moulamein	IEA		20		0	20	0	0	0	0	0	0	0		0	0	20	0	0	0	20	-	-	-	-	-	-
	Wakool	A		0		-	0	-	-	-	-	-	-	-		-	0	0		-	-	-	-	-	-	-	-	-
	Murray Downs	BNR		85		-	85	-	-	-	-	-	-	-		-	0	85	0	-	-	85	-	-	-	-	-	-
	Tooleybuc	CED,A		147		-	147	0	0	0	0	0	0	0		0	0	146	0	0	0	146	-	-	-	-	-	-
Murray River Council	Total/Weighted Average			1,051		0	1,051	0	0	133	0	0	0	0	133	0	133	937	14	0	0	390	19	23	28	54	6	62
	Darlington Point	CEA		0		-	0	-	-	-	-	-	-	-		-	0	0		-	-	-	-	-	-	-	-	-
	Coleambally	A		0		-	0	-	-	-	-	-	-	-		-	0	0		-	-	-	4	5	-	-	-	-
	Jerilderie	A		68		0	68	0	-	0	0	0	0	0		0	0	68	0	0	0	0	1.2	1	5	3	0.9	3
Murrumbidgee Council	Total/Weighted Average			68		0	68	0	0	0	0	0	0	0	0	0	0	68	0	0	0	0	5	6	5	3	1	3
	Muswellbrook	TF		826		-	826	-	815	-	-	-	-	-	815	-	815	826	99	-	-	-	25	-	64	-	8	-
	Denman	IEA		129		-	129	-	48	-	-	-	-	-	48	-	48	129	37	-	-	-	4	-	7	-	2	-
Muswellbrook Shire Council	Total/Weighted Average			955		0	955	0	863	0	0	0	0	0	863	0	863	955	90	0	0	0	29	-	71	-	10	-
	Nambucca Heads	IEA		531		0	531	0	0	0	0	0	0	0		0	0	531	0	0	666	0	22	24	100	100	18	170
	Macksville	IEA		442		0	442	0	0	0	0	0	0	0		0	0	442	0	442	0	0	13	12	24	28	17	61
	Scotts Head	IEA		102		0	102	0	0	0	0	0	0	0		0	0	102	0	0	0	102	3	4	41	41	2	41
	Bowraville	TF		88		0	88	0	0	49	0	0	0	0	49	0	49	88	56	39	0	0	3	3	3	3	2	32
Nambucca Shire Council	Total/Weighted Average			1,163		0	1,163	0	0	49	0	0	0	0	49	0	49	1,163	4	481	666	102	41	43	169	172	40	304
	Narrabri	TF		570		0	570	0	0	398	0	0	0	0	398	0	398	570	70	0	0	0	18	21	19	22	5	50
	Wee Waa	TF		142		0	142	0	0	0	0	0	0	0		0	0	145	0	0	0	145	16	19	20	21	4	30
	Boggabri	TF		64		0	64	0	0	0	0	0	0	0		0	0	62	0	0	0	62	1.8	1.9	2.2	2.3	0.5	6
Narrabri Shire Council	Total/Weighted Average			776		0	776	0	0	398	0	0	0	0	398	0	398	777	51	0	0	207	36	42	41	45.3	10	86
Narrandera Shire Council	Narrandera	RC		-		-	0	-	-	-	-	-	-	-	-	-		0		-	-	-	-	-	-	-	-	-

APPENDIX D4: 2015-16 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works	Type of Treatment Works	Sewage taken from sewer mining	Total Sewage Collected	Sewage supplied to other utilities	Sewage with no treatment	Sewage at inlet to STW	Recycled Sewage Effluent										Treated Sewage Effluent	Percent treated sewage effluent recycled	Volume Effluent Disposed W29			Flows					
								Residential	Commercial, Industrial, Municipal	Agricultural	Environmental	On-Site	Other	Managed Aquifer Recharge	Total Recycled Effluent Supplied	Bulk Recycled Water Exports	Recycled Sewage Effluent			Ocean	River - Creek	Land	Av. Dry weather - Perm Pop	Av. Dry weather - Peak Pop	Peak Dry weather - Perm Pop	Peak Dry weather - Peak Pop	Flow max 24hr	Flow max 1hr
			W18.3	W18	W18.1		W18.4 = W18 - W18.1		Includes aquifer recharge	Included in W25	W26 = W20+W21+W22 +W23+W24+W2 5		W18.4 - Evaporation	(W26 + W15- W6) / W18.5														
			W18.3	W18	W18.1		W18.4	W20	W21	W22	W23	W24	W25	W25.1	W26	W15												
			ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	W26 + W15 - W6	W18.5	W27	Ocean	River - Creek	Land	L/s	L/s	L/s	L/s	L/s	L/s
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	19	20	21	22	23						
	Narromine	A		396		0	396	0	0	0	0	0	0	0		0	0	396	0	0	0	396	10	10	10	13	1	13
	Trangie	A		110		0	110	0	0	0	0	0	0	0		0	0	110	0	0	0	110	2.4	2.4	2.4	2.4	3	35
Narromine Shire Council	Total/Weighted Average			506		0	506	0	0	0	0	0	0	0	0	0	0	506	0	0	0	506	12	12	12	15	4	48
Oberon Council	Oberon	TF		389		0	389	0	0	0	0	0	0	0	0	0	0	389	0	0	391	0	11	-	-	-	2	85
	Orange	CEA		4,898		0	4,898	0	2,051	0	0	0	0	0	2,051	0	2,051	4,898	42	0	2,841	0	136	136	459	459	52	1,553
	Spring Hill	CEA		38		0	38	0	0	0	0	0	0	0		0	0	38	0	0	0	0	0.7	0.7	6.4	6.4	0.3	10.7
Orange City Council	Total/Weighted Average			4,936		0	4,936	0	2,051	0	0	0	0	0	2,051	0	2,051	4,936	42	0	2,841	0	137	137	465	465	52	1,564
	Parkes	TF		782		1	782	0	153	0	0	0	0	0	153	0	153	781	20	0	387	0	23	27	61	65	6	138
	Tullamore	A		13		0	13	0	2	0	0	0	0	0	2	0	2	13	18	0	0	10	0.4	-	-	-	-	-
	Trundle	A		47		0	47	0	0	0	0	0	0	0		0	0	47	0	0	0	47	1.7	-	-	-	-	-
	Peak Hill	TF		33		0	33	0	0	0	0	0	0	0		0	0	30	0	0	0	29	1	1	0	0	0.2	8
Parkes Shire Council	Total/Weighted Average			875		1	875	0	155	0	0	0	0	0	155	0	155	871	18	0	387	86	26	28	61	65	6	146
	Port Macquarie	IEA		6,125		0	6,125	0	181	0	0	0	0	0	181	0	181	6,126	3	0	5,945	0	160	-	-	-	59	-
	Camden Haven (Dunboga	BNR		1,163		0	1,163	0	1	0	0	3	1	0	5	0	5	1,163	0	1,158	0	0	22	-	-	-	17	-
	Wauchope	IEA		930		0	930	0	41	0	0	2	0	0	43	0	43	930	5	0	887	0	18	-	-	-	19	-
	Lake Cathie\Bonny Hills	CEA		567		0	567	0	0	0	0	2	0	0	2	0	2	567	0	0	0	565	16	-	-	-	6	-
	Kew/Kendall	IEA		109		0	109	0	33	76	-	-	-	-	109	-	109	109	100	-	-	-	2	-	-	-	3	-
Port Macquarie-Hastings Cou	Total/Weighted Average			8,894		0	8,894	0	256	76	0	7	1	0	340	0	340	8,895	4	1,158	6,832	565	218	-	-	-	104	-
	Queanbeyan	CEA		3,750		0	3,750	0	0	0	0	0	0	0		0	0	3,750	0	0	3,379	105	207	207	298	298	50	1,154
	Googong	MBR		73		0	73	0	0	0	0	0	0	0		0	0	73	0	0	70	0	12	12	11	11	1.0	46
	Braidwood	IEA		138		0	138	0	0	0	0	30	0	0	30	0	30	138	22	0	108	0	4	4	10	10	1.8	35
	Bungendore	IEA		227		0	227	0	30	0	0	12	28	0	70	0	70	227	31	0	157	0	10	10	22	22	2.1	100
	Captains Flat	IEA		41		0	41	0	0	0	0	0	0	0		0	0	41	0	0	41	0	1.3	1	4	4	1.2	15
Queanbeyan-Palerang Regio	Total/Weighted Average			4,229		0	4,229	0	30	0	0	42	28	0	100	0	100	4,229	2	0	3,755	105	234	234	345	345	56	1,350
	Casino	TF		1,002		-	1,002	-	0	375	-	-	-	-	376	-	376	1,755	21	-	625	-	27	27	39	39	30	350
	Evans Head	IEA		534		-	534	-	-	-	-	-	-	-		-	0	534	0	-	519	-	16	17	23	22	7	83
	Coraki	TF		112		-	112	-	1	-	-	-	-	-	1	-	1	112	1	-	111	-	3	3	9	9	2	19
	Rileys Hill	CEA		7		-	7	-	-	-	-	-	-	-		-	0	7	0	-	7	-	0.2	0.2	0.4	0.4	0.1	0.5
Richmond Valley Council	Total/Weighted Average			1,655		0	1,655	0	1	375	0	0	0	0	377	0	377	2,408	16	0	1,262	0	46	48	71	70	39	453
	Bendalong	IEA		159		0	159	0	0	0	0	0	0	0		0	0	111	0	0	0	111	2.6	8	71	71	1.7	61
	Nowra	TF		2,260		0	2,260	0	36	0	0	0	0	0	36	0	36	2,211	2	0	2,175	0	57	61	169	186	19	245
	St Georges Basin	IEA		1,536		0	1,536	0	88	481	0	0	0	0	569	0	569	1,435	40	851	0	0	32	43	180	208	27	288
	Vincentia	IEA		754		0	754	0	43	237	0	0	0	0	280	0	280	558	50	278	0	0	15	33	244	265	9	348
	Bomaderry	TF		895		0	895	0	0	0	0	0	0	0		0	0	819	0	0	819	0	21	26	134	145	19	338
	Milton Ulladulla	IEA		1,432		0	1,432	0	0	0	0	0	0	0		0	0	1,295	0	1,295	0	0	33	56	183	219	15	258
	Culburra	IEA		792		0	792	0	43	237	0	0	0	0	280	0	280	618	45	338	0	0	19	26	137	159	8	240
	Sussex Inlet	IEA		632		0	632	0	3	0	0	0	0	0	3	0	3	511	1	0	0	508	12	24	157	220	17	290
	Callala	IEA		336		0	336	0	28	155	0	0	0	0	183	0	183	304	60	121	0	0	6	16	141	177	10	231
	Conjola	IEA		118		0	118	0	0	0	0	14	0	0	14	0	14	109	13	0	0	95	2	7	24	29	1.3	49
	Shoalhaven Heads	IEA		287		0	287	0	74	48	0	0	0	0	122	0	122	269	45	0	0	147	8	12	83	86	2.5	99
	Berry	IEA		293		0	293	0	0	0	0	0	0	0		0	0	251	0	0	251	0	6	7	52	54	5	70
	Kangaroo Valley	MBR		107		0	107	0	0	64	0	0	0	0	64	0	64	38	168	0	2	0	1.1	2.3	2.1	2	0.7	12
Shoalhaven City Council	Total/Weighted Average			9,600		0	9,600	0	315	1,222	0	14	0	0	1,551	0	1,551	8,529	18	2,883	3,247	861	214	321	1,577	1,821	135	2,529
Singleton Council	Singleton	IEA		1,065		0	1,065	0	0	0	0	0	0	0	0	0	0	1,064	0	0	1,063	0	30	30	205	205	16	308

APPENDIX D4: 2015-16 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works	Type of Treatment Works	Sewage taken from sewer mining	Total Sewage Collected	Sewage supplied to other utilities	Sewage with no treatment	Sewage at inlet to STW	Recycled Sewage Effluent										Treated Sewage Effluent	Percent treated sewage effluent recycled	Volume Effluent Disposed W29			Flows					
								Residential	Commercial, Industrial, Municipal	Agricultural	Environmental	On-Site	Other	Managed Aquifer Recharge	Total Recycled Effluent Supplied	Bulk Recycled Water Exports	Recycled Sewage Effluent			Ocean	River - Creek	Land	Av. Dry weather - Perm Pop	Av. Dry weather - Peak Pop	Peak Dry weather - Perm Pop	Peak Dry weather - Peak Pop	Flow max 24hr	Flow max 1hr
			W18.3	W18	W18.1		W18.4 = W18 - W18.1	W20	W21	W22	W23	W24	W25 Includes aquifer recharge	W25.1 Included in W25	W26 = W20+W21+W22+W23+W24+W25	W15	W26 + W15 - W6	W18.4 - Evaporation	(W26 + W15- W6) / W18.5									
	1	2	ML 3	ML 4	ML 5	ML 6	ML 7	ML 8	ML 9	ML 10	ML 11	ML 12	ML 13	ML 14	ML 15	ML 16	ML 18	ML 19	% 20	ML 21	ML 22	ML 23	L/s	L/s	L/s	L/s	L/s	L/s
	Jindabyne	IEA		316		-	316	-	-	-	-	-	-	-		-	0	316	0	-	406	-	-	-	-	-	-	-
	Berridale	IEA		145		-	145	-	31	-	-	-	-	-	31	-	31	131	24	-	-	-	-	-	-	-	-	-
	Adaminaby	TF		39		-	39	-	-	-	-	-	-	-		-	0	39	0	-	39	-	-	-	-	-	-	-
	Interlaken	IEA		16		-	16	-	-	-	-	-	-	-		-	0	16	0	-	-	-	-	-	-	-	-	-
	Cooma (The Glen)	IEA		869		0	869	0	0	0	0	13	0	0	13	0	13	842	2	0	614	0	21	25	23	37	18	325
	Nimmitabel	IEA		29		0	29	0	0	0	0	0	0	0	0	0	0	27	1	0	27	0	0.2	0.4	0.6	1.0	0.7	8
	Bombala	TF		7		0	7	0	0	0	0	0	0	0		0	0	170	0	0	0	0	40	40	40	11	-	28
	Delegate	AL		0		0	0	0	20	0	0	0	0	0	20	0	20	35	57	0	0	0	-	1.0	2	2	-	-
Snowy Monaro Regional Cou	Total/Weighted Average			1,421		0	1,421	0	51	0	0	13	0	0	64	0	64	1,576	4	0	1,086	0	61	67	65	51	18	361
	Khancoban	TF		46		0	46	0	0	0	0	0	0	0		0	0	33	0	0	0	33	-	-	5	7	7	13
	Tumbarumba	IEA		105		0	105	0	0	0	0	0	0	0		0	0	142	0	0	142	0	4	6	10	12	1.2	15
	Tumut	IEA		745		-	745	-	79	-	-	3	-	-	82	-	82	745	11	-	525	64	18	21	89	35	10	137
	Brungle	IEA		5		-	5	-	-	-	-	-	-	-		-	0	5	0	-	5	-	0.2	0.3	1.0	1.3	0.0	2.6
	Batlow	BNR		113		-	113	-	8	-	-	-	25	-	33	-	33	113	29	-	82	11	3	4	5	5	0.6	7
	Talbingo	IEA		46		-	46	-	98	-	-	-	-	-	98	-	98	46	215	-	36	10	0.6	1.2	0.8	1.9	0.9	25
	Adelong	IEA		76		-	76	-	-	-	-	-	-	-		-	0	76	0	-	54	22	2.4	2.4	6.1	6.1	0.5	15
Snowy Valleys Council	Total/Weighted Average			1,137		0	1,137	0	185	0	0	28	0	0	213	0	213	1,160	18	0	844	140	29	34	117	68	20	215
	Tamworth (Westdale)	TF		5,126		0	5,126	0	147	3,480	0	60	0	0	3,687	0	3,687	5,126	72	0	1,223	0	163	181	204	185	33	386
	Manilla	TF		151		-	151	-	-	151	-	-	-	-	151	-	151	151	100	0	0	0	5	5	10	10	1.4	14
	Kootingal	A		103		0	103	0	0	103	0	0	0	0	103	0	103	103	100	0	0	0	3.2	3.2	5	5	0.5	6
	Barraba	TF		130		0	130	0	0	130	0	0	0	0	130	0	130	130	100	0	0	0	4	4	15	15	106.0	18
Tamworth Regional Council	Total/Weighted Average			5,510		0	5,510	0	147	3,864	0	60	0	0	4,071	0	4,071	5,511	74	0	1,223	0	174	193	233	215	141	424
Temora Shire Council	Temora	AL		330		-	330	-	61	-	-	-	-	-	61	-	61	329	19	-	107	163	10	10	10	12	2.5	35
	Tenterfield	IEA		313		-	313	-	51	-	-	-	-	-	51	-	51	313	16	0	137	0	8	8	13	13	3	29
	Urbenville	IEA		16		0	16	-	-	-	-	-	-	-		-	0	16	0	0	16	0	0.2	0.2	0.2	3	-	-
Tenterfield Shire Council	Total/Weighted Average			329		0	329	0	51	0	0	0	0	0	51	0	51	329	16	0	153	0	8	8	13	16	3	29
	Banora Point	BNR		3,884		0	3,884	0	171	0	0	1	0	0	172	0	172	3,884	4	0	3,711	0	116	109	819	650	49	819
	Murwillumbah	IEA		1,318		0	1,318	0	450	0	0	0	0	0	450	0	450	1,193	38	0	743	0	37	34	228	143	26	228
	Kingscliff	BNR		1,082		0	1,082	0	39	0	0	0	0	0	39	0	39	1,064	4	0	1,025	0	33	34	211	155	5	211
	Hastings Point	IEA		1,090		0	1,090	0	8	0	0	0	0	0	8	0	8	1,089	1	0	0	1,089	29	30	181	165	8	181
	Tumbulgum	IEA		39		0	39	0	0	0	0	0	0	0	0	0	0	38	0	0	38	0	1.2	0.9	10	8	0.4	10
	Tyalgum	IEA		31		0	31	0	0	0	0	0	0	0	0	0	0	30	0	0	0	30	0.8	0.8	4.5	1.0	0.6	4.5
	Uki	CEA		26		0	26	0	0	26	0	0	0	0	26	0	26	26	100	0	0	0	0.8	0.8	1.6	0.9	0.5	1.6
	Burringbar/Mooball	IEA		26		0	26	0	0	0	0	0	0	0	0	0	0	26	0	0	26	0	0.8	0.8	1.0	0.9	0.7	1.0
Tweed Shire Council	Total/Weighted Average			7,495		0	7,495	0	667	26	0	2	0	0	696	0	696	7,351	9	0	5,543	1,119	219	210	1,456	1,124	90	1,456
	Scone	TF		618		0	618	0	88	203	0	1	0	0	292	0	292	619	47	0	22	292	16	25	36	38	9	-
	Aberdeen	IEA		162		0	162	0	1	0	0	1	0	0	2	0	2	162	1	0	98	2	5	5	12	17	1.8	-
	Merriwa	TF		58		0	58	0	0	0	0	0	0	0		0	0	58	0	0	40	-	2	2	3	5	0.4	-
	Murrurundi	IEA		95		0	95	0	0	0	0	0	0	0		0	0	95	0	0	65	0	3.4	5	16	19	0.8	-
Upper Hunter Shire Council	Total/Weighted Average			933		0	933	0	89	203	0	2	0	0	294	0	294	934	31	0	225	294	26	37	68	79	12	-
	Crookwell	TF		433		0	433	0	0	0	0	0	0	0		0	0	433	0	0	433	0	6	6	8	8	3	80
	Taralga	IEA		50		0	50	0	0	50	0	0	0	0	50	0	50	50	100	0	0	50	2.0	2.0	3	3	0.4	5
	Gunning	IEA		60		0	60	0	0	0	0	0	0	0		0	0	60	0	0	60	0	2.0	2.0	3	3	0.2	5
Upper Lachlan Shire Council	Total/Weighted Average			543		0	543	0	0	50	0	0	0	0	50	0	50	543	9	0	493	50	10	10	14	14	4	90

APPENDIX D4: 2015-16 RECYCLING PERFORMANCE

Water Utility	Sewage Treatment Works	Type of Treatment Works	Sewage taken from sewer mining	Total Sewage Collected	Sewage supplied to other utilities	Sewage with no treatment	Sewage at inlet to STW	Recycled Sewage Effluent										Treated Sewage Effluent	Percent treated sewage effluent recycled	Volume Effluent Disposed W29			Flows					
								Residential	Commercial, Industrial, Municipal	Agricultural	Environmental	On-Site	Other	Managed Aquifer Recharge	Total Recycled Effluent Supplied	Bulk Recycled Water Exports	Recycled Sewage Effluent			Ocean	River - Creek	Land	Av. Dry weather - Perm Pop	Av. Dry weather - Peak Pop	Peak Dry weather - Perm Pop	Peak Dry weather - Peak Pop	Flow max 24hr	Flow max 1hr
							W18.4 = W18 - W18.1		Includes aquifer recharge					Included in W25	W26 = W20+W21+W22 +W23+W24+W2 5		W26 + W15 - W6	W18.4 - Evaporation	(W26 + W15- W6) / W18.5									
	W18.3	W18	W18.1		W18.4	W20	W21	W22	W23	W24	W25	W25.1	W26	W15		W18.5	W27											
	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	ML	%	ML	ML	ML	ML	L/s	L/s	L/s	L/s	L/s	L/s
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*18*	*19*	*20*	*21*	*22*	*23*						
Uralla Shire Council	Uralla	CEA		139		0	139	0	0	0	0	0	0	0	0	0	0	139	0	0	139	0	4	4	4	4	0.6	28
	Wagga (Narrung St)	IEA		3,998		0	3,998	0	118	0	3,849	31	0	0	3,998	0	3,998	3,998	100	0	0	0	126	129	247	189	18	397
	Wagga (Kooringal)	IEA		1,414		0	1,414	0	128	0	1,286	0	0	0	1,414	0	1,414	1,414	100	0	0	0	43	47	77	83	9	222
	Collingullie	A		9		0	9	0	0	0	0	0	0	0		0	0	9	0	0	0	9	-	-	-	-	-	-
	Forest Hill	IEA		267		0	267	0	0	267	0	0	0	0	267	0	267	267	100	0	0	0	8	8	11	9	1.3	15
	Uranquinty	A		138		0	138	0	0	0	0	0	0	0		0	0	138	0	0	0	138	4	4	8	6	0.9	24
	Tarcutta	A		55		0	55	0	0	0	0	0	0	0		0	0	55	0	0	0	55	1.4	1.7	4	2.1	0.8	20
Wagga Wagga City Council	Total/Weighted Average			5,881		0	5,881	0	246	267	5,135	31	0	0	5,679	0	5,679	5,881	97	0	0	202	183	190	347	289	30	678
Walcha Council	Walcha	TF		156		0	156	0	0	0	0	0	0	0	0	0	0	148	0	0	148	0	4	4	9	9	2	37
	Walgett	TF,A		230		-	230	-	-	-	-	-	-	-		-	0	230	0	-	-	230	-	-	-	-	-	-
	Lightning Ridge	CED,A		0		-	0	-	-	-	-	-	-	-		-	0	0		-	-	-	-	-	-	-	-	-
	Collarenebri	CED,A		0		-	0	-	-	-	-	-	-	-		-	0	0		-	-	-	-	-	-	-	-	-
Walgett Shire Council	Total/Weighted Average			230		0	230	0	0	0	0	0	0	0	0	0	0	230	0	0	0	230	-	-	-	-	-	-
	Warren	TF		167		0	167	0	0	0	0	0	0	0		0	0	172	0	0	0	172	15	15	17	17	0.5	25
	Nevertire	A		11		0	11	0	0	0	0	0	0	0		0	0	11	0	0	0	0	0.3	0.3	0.5	0.5	0.5	40
Warren Shire Council	Total/Weighted Average			178		0	178	0	0	0	0	0	0	0	0	0	0	183	0	0	0	172	15	15	18	18	1.0	65
	Coonabarabran	TF		183		0	183	0	0	0	0	0	0	0		0	0	182	0	0	73	18	6	6	19	19	1.5	18
	Coolah	C		67		0	67	0	0	67	0	0	0	0	67	0	67	67	100	0	0	0	2.1	21.0	3	3	1.1	13
	Baradine	A		50		0	50	0	0	16	0	0	0	0	16	0	16	50	31	0	0	-	-	-	-	-	-	-
	Dunedoo	IEA		36		0	36	0	0	0	0	0	0	0		0	0	36	0	0	36	0	1	1	5	5	0.7	8
Warrumbungle Shire Council	Total/Weighted Average			336		0	336	0	0	83	0	0	0	0	83	0	83	335	25	0	109	18	9	28	26	26	3.3	39
Weddin Shire Council	Grenfell	TF		175		0	175	0	-	0	0	0	0	0	0	0	0	170	0	0	158	26	5	6	6	8	2.5	17
	Buronga Gol Gol	A		180		-	180	-	-	-	-	-	-	-		-	0	180	0	-	-	180	-	-	-	-	-	-
	Wentworth	TF		80		-	80	-	-	-	-	-	-	-		-	0	80	0	-	80	-	-	-	-	-	-	-
	Dareton	TF		36		-	36	-	-	-	-	-	-	-		-	0	36	0	-	-	36	-	-	-	-	-	-
	Namatjira	A		25		-	25	-	-	-	-	-	-	-		-	0	25	0	-	-	25	-	-	-	-	-	-
	Wentworth (East)	A		7		-	7	-	-	-	-	-	-	-		-	0	7	0	-	-	7	-	-	-	-	-	-
Wentworth Shire Council	Total/Weighted Average			328		0	328	0	0	0	0	0	0	0	0	0	0	328	0	0	80	248	-	-	-	-	-	-
	Mittagong	IEA		1,218		0	1,218	0	0	42	0	0	0	0	42	0	42	1,218	3	0	1,175	0	28	32	40	45	24	277
	Bowral	IEA		1,619		0	1,619	0	0	18	0	0	0	0	18	0	18	1,619	1	0	1,602	0	32	76	44	104	19	763
	Moss Vale	IEA		1,098		0	1,098	0	0	0	0	0	0	0		0	0	1,098	0	0	1,007	0	22	26	53	61	25	1,018
	Bundanoon	IEA		355		0	355	0	0	70	0	0	0	0	70	0	70	355	20	0	285	0	8	10	16	18	9	360
	Berrima	IEA		116		0	116	0	0	0	0	0	0	0		0	0	117	0	0	117	0	1.9	2	5	6	4	146
	Robertson	MBR		122		0	122	0	0	102	0	0	0	0	102	0	102	116	88	0	14	0	2.0	2.6	3	4	1.2	48
Wingecarribee Shire Council	Total/Weighted Average			4,528		0	4,528	0	0	232	0	0	0	0	232	0	232	4,523	5	0	4,200	0	94	148	160	238	81	2,612
Yass Valley Council	Yass	IEA		482		3	482	0	0	0	0	0	0	0	0	0	0	479	0	0	482	0	16	18	50	60	4	100
Statewide Totals			0	174,000	0	120	174,000	70	11,600	15,100	7,110	1,600	30	0	35,500	0	35,500	173,000		51,800	62,600	16,600						

APPENDIX E: CIRCULAR LWU 18 OF JUNE 2014 – ASSURING THE SAFETY OF WATER SUPPLY DISTRIBUTION SYSTEMS

Department of Primary Industries
Office of Water

WS14/109

Circular No. LWU 18
Date 4 June 2014
Contact Bill Ho
Phone 9842 8495
Fax
E-mail bill.ho@dpi.nsw.gov.au

Assuring the safety of drinking water supplies

This Circular has been prepared to advise NSW local water utilities (LWUs) of an important new protocol for assuring the safety of all drinking water supplies in regional NSW. The protocol is robust and cost-effective and must be implemented by all LWUs providing a drinking water supply.

Protocol

Following its review of a number of recent boil water alerts[1] in regional NSW, DPI Water, in consultation with NSW Health and the NSW Water Directorate, has developed the new protocol, which is set out in Attachment 2 – Appendix E of the *2012-13 NSW Water Supply and Sewerage Benchmarking Report* (www.water.nsw.gov.au). Appendix E documents the minimum requirements for ensuring each potable water supply is safe from microbial contamination. Under this protocol, each LWU will need to ensure that the **standard operating procedures (SOP)** for its water supply systems meet these requirements in order to achieve the following three key barriers:

Barrier 1 – **Effective disinfection** to kill, inactivate or remove pathogens in the water supply prior to distribution.

Barrier 2 – Ensure **distribution system integrity** to prevent contamination.

Barrier 3 – **Maintain free chlorine residual** in the water in the distribution system to help protect against minor contamination and as an indicator of a potential breach in distribution system integrity.

Together, these 3 barriers operate to assure the safety of each water supply and to prevent microbial contamination.

The *Public Health Act (2010)* requires each LWU to develop and implement a risk based Drinking Water Management System in accordance with the *NSW Guidelines for Drinking Water Management Systems*, NSW Health and NSW Office of Water, 2013. Activities related to disinfection and distribution system integrity should be clearly defined in each water utility's Drinking Water Management System, in accordance with the above Appendix E.

[1] Attachment 1 is a copy of section 4.3.3 of the 2015-16 NSW Water Supply and Sewerage Benchmarking Report which provides examples of recent failures of integrity of water supply distribution systems.

Level 10 Macquarie Tower | Locked Bag 5123 | Parramatta NSW 2124
t 1800 353 104 | www.water.nsw.gov.au

Once a water supply is effectively disinfected (Barrier 1), enteric pathogens should not reappear within the distribution system, unless there is a failure of the integrity of the distribution system. Maintaining the integrity of the distribution system (Barrier 2) is therefore the most important barrier to prevent contamination of a disinfected water supply. To verify and maintain integrity of all its distribution systems, each LWU must carry out the actions identified in section E3 of Appendix E as a matter of priority within **the next 12 months**. These actions include the following and need to be repeated at frequencies appropriate for each system, but no less than every **four (4) years**.

Carry out a careful and **detailed examination** of each service reservoir to ensure:

(1) the reservoir and its roof are secured from entry by birds, animals, vermin and windborne contaminants;

(2) rainwater cannot enter into the reservoir (i.e., no leaking roof or holes in the reservoir wall or gaps around the openings on the roof);

(3) roof is adequately drained especially near the openings and landings. The roof should extend beyond the reservoir wall;

(4) all inspection hatches are closed and locked at all times; and

(5) the reservoir site and roof are secured from unauthorised access.

Where reservoir cleaning has been a routine activity for a water utility, reports from past cleaning episodes should be reviewed to find any reservoir integrity problems that have been identified but not corrected. Recent reports from experienced reservoir cleaners may satisfy the requirement for a detailed examination. Any deficiency in the roof or mesh design will need to be rectified by the LWU following such examination.

Action

Each LWU will need to extend the standard operating procedures (SOP) for its water supply systems to meet the minimum requirements in Appendix E (Attachment 2) and to carry out the actions in section E3 of Appendix E within the next 12 months in order to ensure the integrity of its distribution systems and the safety of its water supplies.

Reporting

Each LWU will need to complete the attached Summary Report (Attachment 3) following its detailed examination of the integrity of each of its water supply distribution systems in accordance with Appendix E (Attachment 2).

Further information on this matter is available from DPI Water by contacting Mr Bill Ho, Manager Water and Sewerage on 9842 8495 or bill.ho@dpi.nsw.gov.au.

Yours sincerely

A/Deputy Director General, Water

Encl. Attachments:

(1) Copy of section 4.3.3 of 2015-16 NSW Benchmarking Report

(2) Appendix E - Effective disinfection of a potable water supply and assuring integrity of the distribution system to prevent contamination of the supply

(3) Summary Report – Distribution System Integrity

Attachment 1

Examples of Failure of Integrity of Distribution Systems

Photo 1 shows the **hatch** of a 20m high service reservoir, which has inadvertently been **left open** for a few weeks. The result was repeat detections of E. coli in the reticulated water supply and the need to issue a boil water alert.

Photo 1 - Service reservoir hatch left open

Photos 2 and 3 are underwater photos in the above service reservoir showing evidence of contamination by birds - **bird eggs** & **dead birds**.

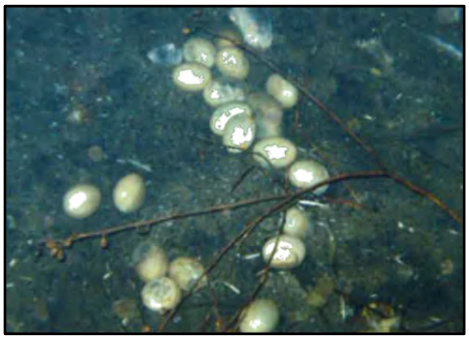

Photo 2 - Bird eggs in reservoir

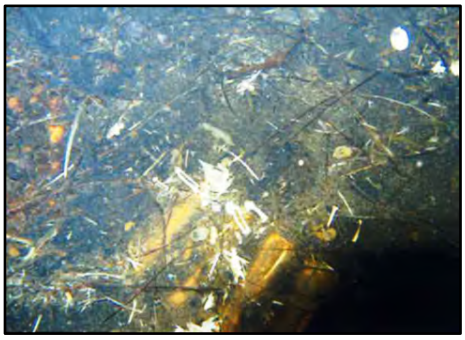

Photo 3 - Dead birds in reservoir

Photo 4 is a service reservoir where the **mesh openings** are **too large** and the roof design is deficient, allowing the entry of small birds, rainwater and windblown material to contaminate the stored water. The reservoir roof needs to be modified so that roof runoff and windblown material cannot contaminate the stored water. **Photo 5** shows mesh openings that are also too large, allowing entry of vermin, such as wasps and windblown material.

Photo 4 – Deficient reservoir roof design

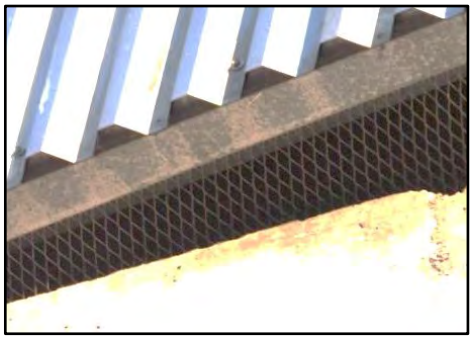

Photo 5 - Large mesh openings on reservoir

The continued detection of E. coli in reticulated water supplies and boil water alerts in 2012 and 2013 have highlighted the need for a strategic approach for assuring the integrity of the distribution system to prevent contamination of a water supply that has been effectively disinfected. The recommended approach in Appendix E was developed by DPI Water and NSW Health in consultation with the NSW Water Directorate and LWUs to provide a robust basis for assuring the safety of a water supply. As noted in the box in section 4.3.1, each LWU needs to review its present standard operating procedures (SOP) to ensure they address the minimum requirements in Appendix E for achieving safe water supplies:

Barrier 1 – **Effective disinfection** to kill, inactivate or remove pathogens in the water supply prior to distribution.

Barrier 2 – Ensure **distribution system integrity** to prevent contamination.

Barrier 3 – **Maintain free chlorine residual** in the water in the distribution system where practicable, to help protect against minor contamination and as an indicator of a potential breach in distribution system integrity.

Attachment 2

Effective disinfection of a potable water supply and assuring integrity of the distribution system to prevent contamination of the supply

E1 Overview

This appendix highlights the key requirements for ensuring the effective disinfection[22] and assuring the safety of a potable water supply. Each NSW Local Water Utility (LWU) needs to ensure that the **standard operating procedures (SOP)** for its water supply systems **meet** these minimum requirements, in order to achieve the following three key barriers:

Barrier 1 – **Effective disinfection** to kill, inactivate or remove pathogens in the water supply prior to distribution.

Barrier 2 – Ensure **distribution system integrity** to prevent contamination.

Barrier 3 – **Maintain free chlorine residual** in the water in the distribution system to help protect against minor contamination and as an indicator of a potential breach in distribution system integrity.

Guiding principle 1 of the *Australian Drinking Water Guidelines* (below[1]) highlights the risks to consumers from pathogenic organisms and the paramount importance of protecting water sources and water treatment.

For **free chlorine** disinfection, **Figure 1** of Appendix E shows how the above 3 barriers work together to provide a safe water supply.

In addition, as indicated in the *2015-16 NSW Water Supply and Sewerage Benchmarking Report* (section 4.3.1) each utility has now developed and needs to implement a risk based Drinking Water Management System in accordance with the *NSW Guidelines for Drinking Water Management Systems*, NSW Health and NSW Office of Water, 2013. These systems should include reference to sound standard operating procedures (SOP) in accordance with this Appendix and are required from 1 September 2014 under the *Public Health Act 2010*. Activities related to disinfection and distribution system integrity need to be clearly defined in each water utility's Drinking Water Management System (DWMS).

The *NSW Guidelines for Drinking Water Management Systems* is based on the Framework for the Management of Drinking Water Quality outlined in the *2011 Australian Drinking Water Guidelines* (ADWG) to assure the safety and quality of the water supplied to the consumers.

Effective disinfection of the source water and ensuring the integrity of the distribution system with or without a residual disinfectant are separate barriers (ADWG and above).

Effective disinfection of a water supply is essential to kill, inactivate or remove any pathogens in the water supply prior to distribution (Barrier 1 above). This could be achieved through a number of disinfection systems. Disinfection is a **critical control point** and must be appropriately monitored (ADWG).

Preventing ingress of contaminants at vulnerable points within the distribution system is a key **system integrity** barrier (Barrier 2 above) and **maintaining a residual disinfectant**[23] throughout the distribution

[22] Guiding principles 1 to 6 in Chapter 1 of the 2011 ADWG are listed below to provide an overall context to this Appendix:

- The greatest risks to consumers of drinking water are pathogenic microorganisms. Protection of water sources and treatment are of paramount importance and must never be compromised.
- The drinking water system must have, and continuously maintain, robust multiple barriers appropriate to the level of potential contamination facing the raw water supply.
- Any sudden or extreme change in water quality, flow or environmental conditions (e.g. extreme rainfall or flooding) should arouse suspicion that drinking water might become contaminated.
- System operators must be able to respond quickly and effectively to adverse monitoring signals.
- System operators must maintain a personal sense of responsibility and dedication to providing consumers with safe water, and should never ignore a consumer complaint about water quality.
- Ensuring drinking water safety and quality requires the application of a considered risk management approach.

[23] Refer to page 186 of ADWG (Version 2.0, December 2013), under 'managing water supplies with no disinfection residual'.

system is another barrier (Barrier 3 above). Together, the 3 barriers operate to assure the safety of each water supply. A sound verification monitoring program[24] is needed to assure that these three barriers[25] are functioning effectively. The monitoring frequency for each water supply system is dependent on its key characteristics identified through analysis and should be reviewed as part of a comprehensive risk assessment. The guidance in the following sections E2, E3 and E4 provides the minimum requirements for each barrier for inclusion in each LWU's standard operating procedures (SOP) for its water supply systems. Following risk assessment for its systems, a LWU may include additional requirements in its SOP where warranted.

Service reservoir integrity is a Critical Control Point for disinfected water supply and should be appropriately monitored (section E3).

E2 Barrier 1 – Effective Disinfection

Disinfection is the single process that has had the greatest impact on drinking water safety. In Australia the common disinfection systems used include chlorination, chloramination, ultraviolet irradiation and ozonation. The advantages and disadvantages for each of these systems are discussed in detail in ADWG.

When chlorination is used, a source water is effectively disinfected when the required C.t values have been achieved (ADWG 2013, page 186). However, the C.t values used in the design of chlorine disinfection systems in Australia are generally higher than those required for effective disinfection (ADWG and WHO general recommendation is 0.5 mg/L of free chlorine residual after 30 minutes). The C.t values can be achieved by adjusting the chlorine dose or the contact time to provide a minimum C.t value of 15 mg/L/minute. The LWU should check the adequacy of this for its system.

To achieve effective disinfection of a water supply with **free chlorine**, monitoring of the following parameters prior to the distribution of the water should be included in your LWU's SOP as these parameters could diminish disinfection effectiveness:

- Monitor the factors which affect effective disinfection (e.g. chlorine residual, pH and turbidity). Refer to section E5 in regard to matters to be included in a LWU's verification monitoring program. For each system, determine and document the contact time.
- Maintain appropriate levels of free chlorine residual above 0.5 mg/L[26] for the available[27] contact time to provide a C.t. value greater than 15 mg/L/minute.
- Keep turbidity as low as practicable (aim for <1 NTU[28]). Turbidity higher than 1 NTU is acceptable where the source water is free from faecal contamination or where the effectiveness of chlorination has been validated[29].
- Keep pH <8.5[30]
- Thoroughly clean and super-chlorinate[31] before use, all new and repaired distribution system infrastructure that is in contact with potable water such as mains and reservoirs.

[24] Each LWU's drinking water monitoring program (testing for E.coli (i.e. sampling location, frequency and number of samples tested) needs, as a minimum, to be in accordance with the NSW Health requirements. These requirements are consistent with ADWG and the number of annual samples allocated for each LWU is shown in Appendix D1, *2014-15 NSW Water Supply and Sewerage Benchmarking Report*. Appendix D1 shows that the required number of samples has been collected and tested for almost all LWUs. Each water utility should assess its monitoring requirements to determine whether additional monitoring above this minimum is needed.

[25] For very small communities, typically serving a population of about 30, with a high quality source water such as groundwater from a confined aquifer, it may be cost-effective for the LWU to complete the actions outlined in section E3 on page 310 at 4-monthly intervals, rather than consistently maintaining a positive free chlorine residual disinfectant as long as the regular E.coli tests results continue to comply with ADWG. Refer also to the 4th paragraph of section E4 on page 312.

[26] Part IV Information Sheet 1.3, Disinfection with Chlorine, ADWG.

[27] If the source water does not contain pathogens (e.g., a good quality groundwater from a confined aquifer), no chlorine contact time is required.

[28] Table 10.5, ADWG.

[29] Monitoring test results which consistently find no E.coli in a water supply would validate the safety of the water supply.

[30] For effective disinfection pH should be as low as possible, but this needs to be tempered by the need for corrosion control. In most cases a pH of 7.8 to 8.2 is desirable.

Disinfection is a **critical control point** and must be adequately monitored, preferably continuously, to ensure effective disinfection (refer section E1). For **free chlorine** disinfection, in addition to an appropriate operational monitoring program, the minimum requirements to be included in the SOP are as follows:

1. Check that turbidity of the water being disinfected remains below the target critical limits for the system. Take appropriate corrective actions if the critical limits are exceeded.
2. Check the chlorine demand of the water supply being chlorinated as the raw water quality changes and adjust the chlorine dose rate accordingly to achieve the required residual.
3. Check the pH of water to be disinfected where a pH correction facility has been provided.
4. Confirm correct functioning of each chlorination plant.
5. Verify that the required chlorine dose rate has been added to the water supply[32].
6. Provide continuous monitoring and/or daily testing of free chlorine residual at representative sampling points after the appropriate chlorine contact time.

For other types[33] of disinfection systems appropriate SOPs need to be developed to ensure effective disinfection.

E3 Barrier 2 - Distribution System Integrity

Once a water supply is effectively disinfected, enteric pathogens should not reappear within the distribution system unless there is a failure of the integrity of the distribution system (ADWG 2013, page 186). Once a water supply has been effectively disinfected (Barrier 1), the disinfected water should remain safe to drink even in the **absence**[34] of a disinfectant residual. The integrity of the distribution system (Barrier 2) is therefore the most important barrier to prevent contamination of a disinfected water supply. To verify and maintain integrity of all its distribution systems, each LWU must carry out the following actions as a matter of priority within **the next 12 months**. Thereafter, **repeat** these actions at frequencies appropriate for each system but no less than every **four (4) years**.

a. Carry out a careful and **detailed examination**[35] of each service reservoir to ensure:

   1) the reservoir and its roof are secured from entry by birds, animals, vermin and windborne contaminants;

   2) rainwater cannot enter into the reservoir (i.e., no leaking roof or holes in the reservoir wall or gaps around the openings on the roof);

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[31] Chlorine Fact Sheet under Drinking Water Treatment Chemicals, ADWG.

[32] Check to ensure the storage tanks or cylinders have adequate chlorine. For sodium hypochlorite dosing plants complete a drop test to verify the accuracy of the chlorinator dosing rate as in some instances the released oxygen could interfere with the actual dosage rate. Also check the concentration of the sodium hypochlorite solution in the storage tank and adjust the dosage rate to allow for any loss of chlorine strength.

[33] Refer to Part IV Information Sheets 1.4 to 1.8 of ADWG.

[34] Where there is a risk of *Naegleria fowleri*, a free chlorine residual of 0.5mg/L or higher will control *N. fowleri*, provided the disinfectant residual persists throughout the distribution system (ADWG 'Disinfection with Chlorine' Information Sheet, page 191).

[35] Note that the careful and detailed examination of each service reservoir in steps (1) to (5) above is **NOT** a routine inspection, but rather a careful and detailed examination of each reservoir in order to detect and rectify any breaches of reservoir integrity. Such detailed examinations are necessary proactive measures to be undertaken by each LWU in order to detect and rectify breaches which are often not identified during routine inspections. There have been several recent instances where following detection of E.coli in the water supply and imposing a boil water alert, such detailed inspections have identified and rectified the breaches to reservoir integrity. The following paragraphs highlight that any **deficiency in the roof or mesh design** needs to be identified and **rectified** by the LWU following such examination.

It is essential all service reservoirs are designed and constructed to prevent ingress of contaminants. Additionally, for each service reservoir, a careful inspection of the reservoir roof, wall and mesh is essential in order to detect any breaches to the reservoir's integrity. As noted in section 4.3.4 of the *2015-16 NSW Water Supply and Sewerage Benchmarking Report*, 86% of the 22 boil water alerts in regional NSW during the period May 2006 to June 2008 have been due to such breaches in reservoir integrity. In most cases the breach was not visible from ground level and required use of mobile lifting equipment in order to detect the breach. Similarly a number of recent boil water alerts have been due to breaches in service reservoir integrity.

A confirmed detection of **E.coli** in a microbiological test sample should trigger a careful review by the LWU of whether the requirements of section E3 above have been met.

3) roof is adequately drained especially near the openings and landings. The roof should extend beyond the reservoir wall;

4) all inspection hatches are closed and locked at all times; and

5) the reservoir site and roof are secured from unauthorised[36] access.

b. Check the air valves and ensure they are functioning in accordance with the manufacturer's standard operating procedures.

c. Check any backflow prevention devices and ensure they are operating in accordance with the manufacturer's standard operating procedures, tested in accordance with AS3500 and there is no cross contamination.

d. Check and ensure all potable water connections with a risk of cross contamination such as connections to sewerage facilities (pumping station, treatment works, etc.) are provided with backflow prevention devices and are regularly tested in accordance with AS3500.

e. Check and ensure all potable water connections to top up alternative water systems such as rainwater tanks/automatic switching device on premises are provided with backflow prevention devices (refer to Circular LWU 17) and are operating in accordance with the manufacturer's standard operating procedures, tested in accordance with AS3500 and there is no cross contamination.

f. Review the reservoir maintenance standard operating procedures to ensure they are sound and fit for purpose[35,37].

g. Review the standard operating procedures for repair and re-instatement of distribution system infrastructure that comes into contact with potable water such as mains and reservoirs to ensure the procedures are sound and fit for purpose[37].

h. Undertake all remedial works to assure system integrity as a matter of **priority**.

E4 Barrier 3 – Maintain a Free Chlorine Residual in the Water in the Distribution System

A residual disinfectant such as chlorine is maintained in the water within the distribution system to help protect against minor contamination due to a breach in the distribution system integrity (Barrier 2 above). **Monitoring of free chlorine residual**, in the water in a distribution system on at least a weekly basis provides one of the key indications of the proper operation of the chlorination, of system integrity, and the necessary data for the utility to carry out timely corrective action. More frequent monitoring will provide more information to make better and timely decisions on changes to disinfection required to protect public health. On-site testing of free and total chlorine residual (and if possible pH and turbidity) should be carried out each time an E. coli sample is collected for testing by the NSW Health Drinking Water Monitoring Program for verification monitoring of the drinking water quality in accordance with ADWG. The ADWG suggests that:

- a minimum free chlorine residual of about 0.2mg/L[38] be maintained in the water throughout the distribution system. Re-chlorination may be necessary to achieve this chlorine residual in very extensive water supply distribution systems with long detention times.

[36] Where access to third parties (e.g., telephone companies, SES, NSW Police, etc.,) has been given to install equipment, appropriate written reinstatement and communication protocols need to established between the LWU and each third party to ensure the reservoir integrity is not compromised. The LWU must conduct regular audits to ensure the protocols are being effectively implemented. Similar protocols should also be effected between the LWU and any service providers authorised by the LWU to access its service reservoir. A financial penalty should be imposed for any failures to comply with the protocol as these may breach the distribution system integrity and result in E.coli contamination of the supply and the need for a boil water alert. A model 'service reservoir integrity protocol' will be prepared by DPI Water to assist LWUs.

[37] As noted in section E2, ensure your LWU's standard operating procedures including contracts with service providers include super chlorination and effective disinfection of any new and repaired or replaced water mains and other distribution system infrastructure that is in contact with potable water before the infrastructure is commissioned or the water service is reinstated.

[38] Example in Table A1.10 on page A-20, ADWG. Such a chlorine residual can normally be achieved for the vast majority of consumers supplied by a water supply distribution system. However, as noted in the 2nd paragraph of the following page, it may be difficult to maintain such a residual at the extremities of a distribution system.

- a sudden large drop in free chlorine residual may be an indicator of a fault in the chlorination system or an increase in the chlorine demand of the water or a major breach in distribution system integrity.

When it is difficult to maintain the desired target free chlorine residual level of ≥ 0.2mg/L at the extremities of your system, your LWU should using a trial and error process increase the free chlorine residual level at the dosing points to the maximum generally acceptable[39] to the community. Consideration should be given to providing re-chlorination for systems where there is a significant risk of contamination of the reticulated water supply.

Once the desired free chlorine residual of the dosed water has been achieved and if the free chlorine residual at the extremities of the reticulation system continues to consistently remain below 0.2mg/L but greater than 0.05mg/L with E.coli test results showing 100% compliance[24], then the LWU should undertake the actions outlined in section E3 on an **annual**[40] basis.

If however, the free chlorine residual level is consistently below 0.05mg/L with E.coli test results showing 100% compliance[24,41] and the LWU can demonstrate the continuous integrity of the water supply distribution system[42], the LWU should then undertake the actions outlined in section E3 on a **four monthly**[41] basis and should also complete the following:

1. inspect and flush as needed the extremities of the system to remove 'stagnant' water.
2. opportunistically install pipe loops to any existing dead-end mains (i.e. as part of your LWU's repair and/or renewal work).

The measures in paragraphs 3 and 4 above are warranted in order to minimise capital and operating expenditure, while assuring safety of the water supply.

E5 Develop a Verification Monitoring Program

The verification monitoring program developed by a LWU for each distribution system should include the following:

- Parameters to be monitored (e.g. disinfectant residual, pH and turbidity)[43].
- Sampling frequency.
- Sampling locations including system extremities[44].
- Sampling methods and equipment.
- Schedules for sampling.
- Methods for quality assurance and validation of sampling results.
- Requirements for checking and interpreting results.
- Responsibilities and necessary training[45] of staff including induction of contractors.

[39] The risk posed by disinfection by-products is considerably smaller than the risk posed by the presence of pathogenic microorganisms in water that has not been disinfected (Guiding Principle 1 of ADWG).

[40] The first action in section E3 may be undertaken from ground level using a telescope, binoculars, etc.

[41] If the microbiological test samples regularly fail for E.coli then the LWU must investigate the reasons for the failures and consider maintaining a free chlorine residual of about 0.2 mg/L on a consistent basis. This could be achieved by one of many options such as early warning control/communication systems, secondary chlorination plants, sub-system cleaning including air scouring/swabbing of the pipeline, super chlorination, etc. It is expected the preferred option would be chosen on the basis of a cost-benefit analysis.

[42] If the LWU is finding difficulty in ensuring the continuous integrity of the water supply system due to remoteness of the operating staff, etc. then the LWU could consider intermittent manual dosing of chlorine to boost the chlorine residual or installation of a secondary chlorination plant. It is expected the preferred option would be chosen on a cost-benefit analysis. Manual dosing could be accomplished by dosing the required quantity of chlorine tablets or sodium hypochlorite into the service reservoir servicing the sub-system and/or using a portable liquid chlorine chlorinator.

[43] For filtered water supplies, all the treated water should normally have a turbidity of less than 1 NTU, with 95 per cent of the supply having a turbidity of under 0.3 NTU.

[44] Each LWU's sampling locations for monitoring microbiological water quality for reporting in the NSW Water Quality Database would be suitable for this purpose.

- Requirements for documentation and management of records, including how monitoring results will be recorded and stored.
- Requirements for reporting and communication of results.

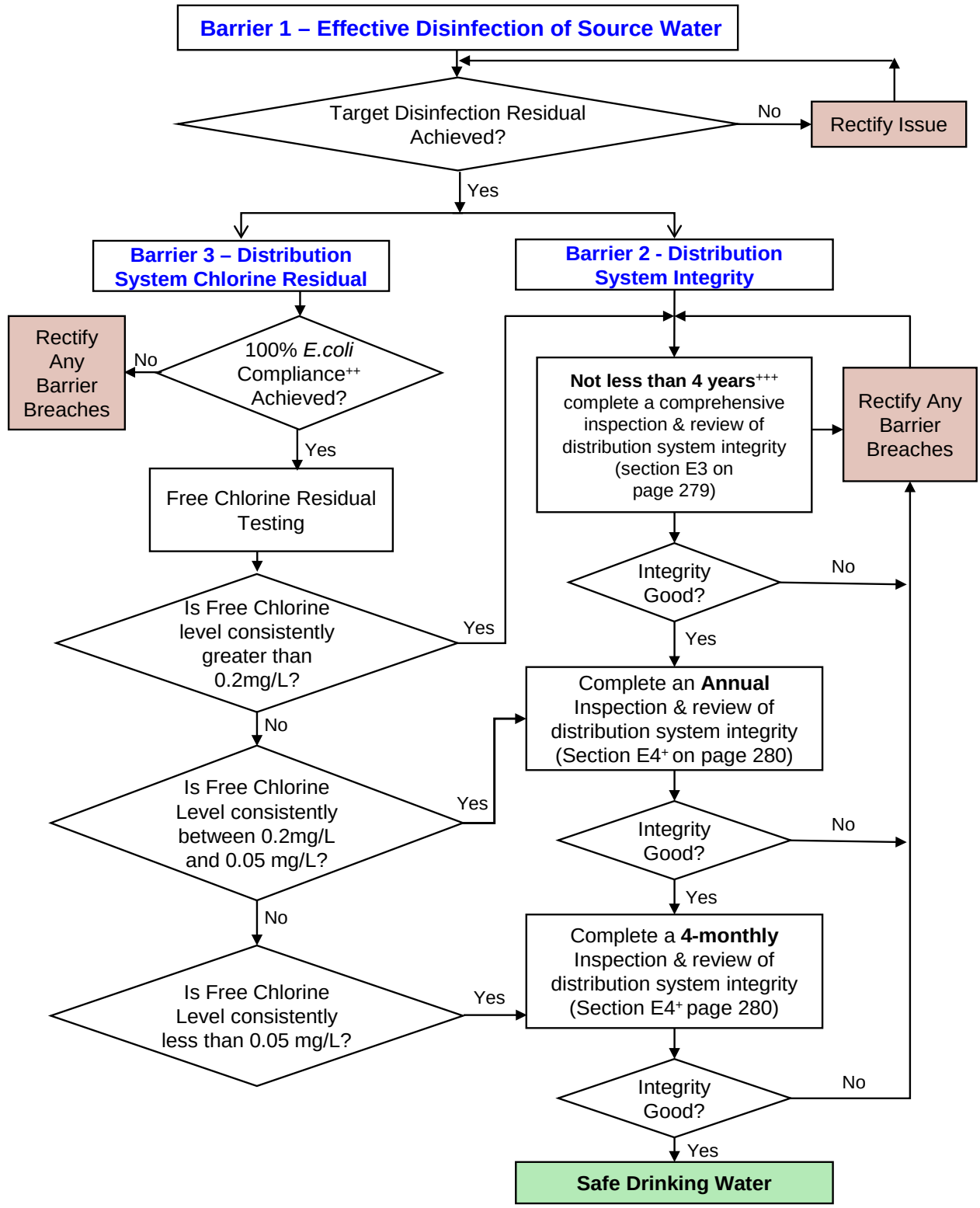
E6 Field Tests

- Test kits for measuring chlorine residual, pH and turbidity are available.
- Chlorine residual, pH and turbidity measurements need to be done in the field.
- Ensure the operators have a thorough understanding of the field test kits especially the range they can measure, detection limits, error and interference tolerances.

If you wish to discuss any aspects covered in this Appendix, please contact the Manager Water and Sewerage, DPI Water on telephone: (02) 9842 8495 or email: bill.ho@dpi.nsw.gov.au.

[45] LWU water treatment operators need to have appropriate skills and qualifications in accordance with page 23 of the NSW Guidelines for Drinking Water Systems, 2013. Refer also to section 6.2 of the *2015-16 NSW Water Supply and Sewerage Benchmarking Report* (www.water.nsw.gov.au) in regard to National Certification of Water Treatment Operators.

Figure 1 – Effective disinfection1 of a potable water supply and assuring integrity of the distribution system to prevent contamination of the supply



+++ The first comprehensive inspection and review of water supply system integrity should be completed within 12 months in order to assure system integrity.

++ The 100% E.coli compliance requirement refers to test results where any failures in distribution system integrity have been detected and rectified by the LWU.

\+ The actions in the 3rd and 4th paragraphs of section E4 should be undertaken by the LWU over the next 12 months or 4 months respectively in order to assure continuing distribution system integrity. These actions are only applicable for the extremities of a distribution system where the free chlorine residual is consistently below 0.2 mg/L.

1 Figure 1 is on the basis of disinfection with free chlorine.

Attachment 3

SUMMARY REPORT[1] ON ASSURING INTEGRITY & SAFETY OF WATER SUPPLY DISTRIBUTION SYSTEMS

LWU -

Contact Officer -

Date -

Phone -

Email -

- Water Supply Distribution **System** -
- Detailed examination of service **reservoirs** :
- Date completed -
- Key **Deficiencies** Identified -
- **Rectification** Works Completed -
- Addressed all the requirements of **Circular LWU 18**? Y/N Date -
- Standard Operating Procedures (**SOP**) updated to address the requirements of Circular LWU18? Y/N Date -

[1] This summary report has been prepared in response to DPI Water Circular LWU 18 of June 2014 and is to be retained in your LWU's records.

The first Summary Report prepared by a LWU for each of its water supply distribution systems is to be emailed to: Bill.Ho@dpi.nsw.gov.au.

APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2015-16

	WATER UTILITY	WATER RESOURCES																													
		SOURCES OF WATER																													
		Volume of water sourced from surface water W1 Includes W3.3 (ML)				Volume of water sourced from groundwater W2 Includes W3.2 Excludes W25.1 (ML)				Volume of water sourced from marine desalination W3.1 (ML)				Volume of water sourced from recycling (ie where potable water would normally be supplied) W4 Excludes W28.4 Includes W23. Excludes W25.1 (ML)				Volume from bulk supplier W5 W5=W5.1+W5.2+W6+W28.2 (ML)				Volume of potable water received from bulk supplier Excludes W6 & W28.2 W5.1 (ML)				Volume of non-potable water received from bulk supplier Excludes W6 & W28.2 W5.2 (ML)				Volume bulk recycled purchased W6 Excludes W28.2 (ML)				Total sourced water W7 W7=W1+W2+W3.1+W4+W5+W28.4 (ML)			
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation	6,395	6,862	6,468	5,955	0	0	0	0	0	0	0	0	41,776	41,543	38,280	38,465	510,299	523,725	509,573	528,687	0	0	0	0	510,299	523,725	509,573	528,687	0	0	0	0	558,470	572,129	554,321	573,107
	Hunter Water Corporation	66,060	67,253	64,281	59,444	2,561	4,230	2,734	9,016	0	0	0		1,874	2,505	3,045	4,292	0	267	257	321	0	267	257	321	0	0	0		0	0	0		70,495	74,255	70,317	73,073
	Water NSW	847,623	824,365	888,144	924,337	0	0	0	0									1,014	2,524	2,043	2,181					1,014	2,524	2,043	2,181					848,637	826,889	890,187	926,518
112	Central Coast Council				28,332				83				0				811				539				539				0				0				29,795
3	Shoalhaven City Council	14,393	13,963	13,740	12,687	0	0	0	0	0	0	0	0	194	194	173	153	95	86	77	83	0	0	0	0	95	86	77	83	0	0	0	0	14,682	14,243	13,990	12,923
4	Rous Water	11,077	11,521	11,183	10,666	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,077	11,521	11,183	10,666
5	MidCoast Water	8,010	8,124	7,845	8,383	556	542	526	552	0	0	0	0	133	372	373	459	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,699	9,038	8,744	9,394
6	Tweed Shire Council	9,317	9,802	9,284	9,082	0	0	0	0	0	0	0	0	431	563	385	667	0	6	5	6	0	6	5	6	0	0	0	0	0	0	0	0	9,748	10,371	9,674	9,755
7	Port Macquarie Hastings Council	5,792	6,090	5,990	6,092	0	0	0	0	0	0	0	0	110	142	189	228	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	5,902	6,232	6,179	6,320
8	Riverina Water	2,590	2,625	2,212	2,303	12,329	11,819	12,564	12,827	0	0	0	0	0	0	0	0	34	56	32	53	34	56	32	53	0	0	0	0	0	0	0	0	14,953	14,500	14,808	15,183
9	Wagga Wagga Council	0																																0			0
11	Albury City Council	7,376	7,599	6,238	7,353	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,376	7,599	6,238	7,353
10	Coffs Harbour City Council	5,864	5,957	5,688	5,304		0	0	0									0	0	0	0													5,864	5,957	5,688	5,304
13	Tamworth Regional Council	9,376	9,358	6,890	8,353	613	579	1,045	704	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9,989	9,937	7,935	9,057
14	Clarence Valley Council	5,765	6,199	5,894	5,127	0	0	0	0	0	0	0	0	128	176	195	307	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5,893	6,375	6,089	5,434
122	Dubbo Regional Council				7,454				2,363				0				0				0				0				0				0				9,817
119	Queanbeyan-Palerang Regional C				241				296				0				0				4,202				4,202				0				0				4,739
15	Eurobodalla Shire Council	2,914	3,055	3,132	3,309	483	363	161	128	0	0	0	0	189	216	243	196	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,586	3,634	3,536	3,633
12	Fish River Water	8,107	10,713	5,961		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0		8,107	10,713	5,961	0
16	Wingecarribee Shire Council	1,119	1,352	515	561	0	0	0	0	0	0	0	0	98	124	163	0	3,796	4,319	4,447	5,031	0	0	0	0	3,796	4,319	4,447	5,031	0	0	0	0	5,013	5,795	5,125	5,592
19	Orange City Council	4,528	4,557	4,748	4,947	120	59	53	56	0	0	0	0	1,573	2,903	2,826	2,052	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6,221	7,519	7,627	7,055
21	Bathurst Regional Council	6,598	6,354	6,642	6,725	5	9	31	26	0	0	0	0	579	638	653	737	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7,182	7,001	7,326	7,488
23	Bega Valley Shire Council	2,398	1,756	1,635	1,830	1,550	1,489	1,402	1,396	0	0	0	0	484	623	436	399	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,432	3,868	3,473	3,625
24	Ballina Shire Council	134	156	132	124	0	0	0	0	0	0	0		266	257	575		3,607	3,684	3,604	3,519	3,607	3,684	3,604	3,519	0	0	0	0	0	0	0	0	4,007	4,097	4,311	3,643
22	Lismore City Council	210	168	195	211	0	0	0	0	0	0	0	0	0	0	0	0	3,117	3,258	3,238	3,074	3,117	3,258	3,238	3,074	0	0	0	0	0	0	0	0	3,327	3,426	3,433	3,285
25	Kempsey Shire Council	0	0	0	0	3,479	3,627	3,530	3,498	0	0	0	0	75	97	77	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,554	3,724	3,607	3,594
27	Byron Shire Council	402	408	370	428	0	0	0	0	0	0	0	0	547	390	285	242	2,365	2,429	2,371	2,407	2,365	2,429	2,371	2,407	0	0	0	0	0	0	0	0	3,314	3,227	3,026	3,077
20	Goulburn Mulwaree Council	2,768	2,707	2,558	2,967	0	0	0	0	0	0	0	0	0	0	0	0	71	52	46	10	0	0	0	0	71	52	46	10	0	0	0	0	2,839	2,759	2,604	2,977
26	Essential Energy	4,660	760	907	0	0	0	0	0	0				782	515	525	417	1,140	4,940	4,185	4,935	0	0			1,140	4,940	4,185	4,935	0	0			6,582	6,215	5,617	5,352
28A	Goldenfields - Reticulation		0	0	0		0	0	0	0	0	0	0	0	0	0	0	5,551	5,794	5,759	5,821	5,551	5,794	5,759	5,821		0	0	0	0	0	0	0	5,551	5,794	5,759	5,821
28B	Goldenfields - Bulk Water Supply	3,722	3,781	4,136	4,243	4,556	4,644	4,435	4,542	0	0	0	0	0	0	0	0	389	450	417	422	250	309	277	274	139	141	140	148	0	0	0	0	8,667	8,875	8,988	9,207
	LWU Range Max	14,393	13,963	13,740	28,332	12,329	11,819	12,564	12,827	0	0	0	0	1,573	2,903	2,826	2,052	5,551	5,794	5,759	5,821	5,551	5,794	5,759	5,821	3,796	4,940	4,447	5,031	0	0	0	0	14,953	14,500	14,808	29,795
	LWU Range Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,759	2,604	0
	Median of NMU Indicators shown in Table	4,594	4,169	4,442	4,595	0	0	0	0	0	0	0	0	110	142	173	125	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	5,902	6,304	6,025	5,707

Notes * Indicators shown are those published in the 2015-16 National Performance Report.

APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2015-16

	WATER UTILITY	WATER RESOURCES																									
		USES OF WATER SUPPLIED																									
		Volume of water supplied - Residential (incl nonpotable) W8 Includes recycled water W8=W8.1+W8.2+W20 (ML)				Volume of potable water supplied – Residential Excludes recycled water W8.1 (ML)				Volume of non-potable water supplied – Residential excludes recycled water W8.2 (ML)				Volume of water supplied - commercial, municipal, industrial (incl nonpotable) W9 Includes recycled water W9=W9.1+W9.2+W21 (ML)				Volume of potable water supplied - Commercial, municipal and industrial W9.1 (ML)				Volume of non-potable water supplied - Commercial, municipal and industrial W9.2 (ML)				Volume of water supplied - other (incl nonpotable) W10 W10=W10.1+W10.2+W25 excludes W10.3 (ML)			
		2012/13	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*
	Sydney Water Corporation	335,976	354,877	352,843	356,577	333,912	352,740	350,705	354,088	0	0	0	0	123,804	126,539	123,680	130,673	112,149	114,695	112,827	119,455	1,111	1,639	1,171	1,319	63,729	60,076	52,302	51,654
	Hunter Water Corporation	38,370	40,150	37,723	37,936	38,370	40,150	37,723	37,936	0	0	0		22,670	23,580	21,430	22,277	21,026	21,306	18,572	18,171	0	0	0		9,198	9,995	10,596	12,189
	Water NSW																												
112	Central Coast Council				20,368				20,303				0				6,630				6,089				19				2,029
3	Shoalhaven City Council	6,432	6,463	6,276	6,667	6,425	6,455	6,273	6,665	7	8	3	2	6,710	6,952	6,015	6,128	4,108	3,903	3,914	4,175	2,310	2,405	1,923	1,638	1,162	1,280	1,878	1,586
4	Rous Water	0	0	0	0	0		0	0	0	0	0	0	764	824	806	767	764	824	806	767	0	0		0	605	652	508	334
5	MidCoast Water	5,107	5,365	5,102	5,152	5,107	5,365	5,102	5,152	0	0	0	0	2,329	2,891	2,881	2,750	2,196	2,372	2,296	2,291	0	0		0	1,263	1,301	1,346	1,492
6	Tweed Shire Council	5,379	5,685	5,545	5,218	5,379	5,685	5,545	5,218	0	0	0	0	2,542	2,899	2,597	2,840	2,160	2,336	2,097	2,173	0	0		0	1,167	1,183	1,024	1,046
7	Port Macquarie Hastings Council	4,213	4,296	4,188	4,360	4,213	4,296	4,188	4,360	0	0	0	0	1,643	1,752	1,813	1,880	1,343	1,322	1,319	1,396	111	141	195	228	617	625	611	636
8	Riverina Water	8,856	8,741	8,513	9,589	8,856	8,741	8,513	9,589	0	0	0		5,447	5,471	5,548	4,636	5,447	5,471	5,548	4,636	0	0		0	1,590	1,579	1,562	2,634
9	Wagga Wagga Council																												
11	Albury City Council	5,320	5,003	4,836	5,251	5,320	5,002	4,835	5,250	0	1	1	1	1,854	2,118	2,050	2,180	1,850	1,925	1,833	1,989	4	193	217	191	761	759	741	805
10	Coffs Harbour City Council	3,721	3,929	3,912	3,924	3,721	3,929	3,912	3,924		0			1,635	1,998	1,618	1,686	1,370	1,422	1,300	1,304	6	9	9	10	797	607	572	572
13	Tamworth Regional Council	4,925	5,532	3,691	5,028	4,925	5,532	3,691	5,028	0	0	0	0	4,096	3,734	3,493	4,129	3,901	3,594	3,353	3,911	195	140	140	71	965	1,014	783	993
14	Clarence Valley Council	2,951	3,051	2,793	3,009	2,951	3,051	2,793	3,009	0	0	0	0	1,989	2,105	1,938	2,002	1,797	1,866	1,696	1,612	64	63	47	53	982	1,509	1,553	777
122	Dubbo Regional Council				5,900				5,900				0				3,595				3,336				259				1,026
119	Queanbeyan-Palerang Regional C				3,237				3,237				0				788				758				0				751
15	Eurobodalla Shire Council	2,146	2,204	2,112	2,193	2,146	2,204	2,112	2,193	0	0	0	0	817	865	854	845	647	675	631	672	0	0		0	604	539	550	572
12	Fish River Water	0	0	0		0	0	0		0	0	0		5,970	5,072	1,144		65	72	120		5,905	5,000	1,024		1,411	1,753	1,555	
16	Wingecarribee Shire Council	3,149	3,437	3,092	3,270	3,149	3,437	3,092	3,270	0	0	0	0	1,044	1,044	948	948	946	1,044	948	948	0	0		0	882	967	495	868
19	Orange City Council	2,725	2,695	2,717	2,829	2,725	2,695	2,717	2,829	0	0	0	0	2,660	3,987	3,941	3,247	1,087	1,084	1,115	1,196	0	0		0	470	462	649	534
21	Bathurst Regional Council	3,574	3,236	3,238	3,459	3,569	3,227	3,206	3,443	5	9	32	16	2,832	3,253	3,198	3,688	1,831	2,213	2,156	3,476	1,001	1,040	1,042	212	586	538	583	708
23	Bega Valley Shire Council	1,814	1,765	1,811	1,800	1,814	1,765	1,811	1,800	0	0	0	0	1,549	1,472	1,171	1,204	1,038	945	747	769	27	66	57	58	1,098	534	479	702
24	Ballina Shire Council	2,326	2,483	2,345	2,310	2,326	2,483	2,345	2,310	0	0	0	0	628	844	1,064	992	628	571	547	531	0	0		0	787	805	810	821
22	Lismore City Council	1,859	1,975	1,959	1,951	1,859	1,975	1,959	1,951	0	0	0	0	851	894	904	829	851	894	904	829	0	0		0	301	319	315	305
25	Kempsey Shire Council	1,682	1,686	1,705	1,635	1,682	1,686	1,705	1,635	0	0	0	0	1,215	1,223	1,315	1,234	1,142	1,133	1,255	1,150	73	0		0	622	837	756	816
27	Byron Shire Council	1,687	1,754	1,758	1,678	1,687	1,754	1,758	1,678	0	0	0	0	1,331	1,211	1,350	975	784	821	777	733	0	0	285	0	296	276	276	383
20	Goulburn Mulwaree Council	1,447	1,516	1,403	1,655	1,447	1,516	1,403	1,655		0	0	0	1,070	1,162	1,026	1,339	843	921	822	1,145	34	37	10	15	311	349	319	277
26	Essential Energy	2,731	2,697	2,471	2,235	2,690	2,697	2,471	2,235	41	0	0	0	3,704	3,633	3,407	3,049	2,022	1,967	1,759	1,587	1,053	957	872	793	521	513	465	423
28A	Goldenfields - Reticulation	1,819	2,009	1,940	2,002	1,797	1,986	1,918	1,979	22	23	22	23	3,157	3,600	3,637	3,455	3,074	3,493	3,526	3,363	83	107	111	92	543	611	606	594
28B	Goldenfields - Bulk Water Supply		0	0	0		0	0	0		0	0	0		0	0	0		0				0		0	490	440	440	440
	LWU Range Max	8,856	8,741	8,513	20,368	8,856	8,741	8,513	20,303	41	23	32	23	6,710	6952	6,015	6,630		5,471	5,548	6,089	5905	5,000	1,923	1,638	1,590	1753	1878	2,634
	LWU Range Min	0	0	0	0	0	0	0	0	0	0	0	0	628	0	0	0		0	120	531	0	0	9	0	296	276	276	277
	Median of NMU Indicators shown in Table	2,731	2,696	2,594	3,123	2,725	2,697	2,594	3,123	0	0	0	0	1,854	2052	1,716	1,941		1,228	1,300	1,396	6	5	195	5	692	639	609	730

APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2015-16

	WATER UTILITY	WATER RESOURCES																									
		USES OF WATER SUPPLIED																									
		Volume of potable water supplied – Non-Revenue Water W10.1 (ML)				Volume of non-potable water supplied – Other W10.2 (ML)				Volume of water supplied - managed aquifer recharge W10.3 (ML)				Volume of water supplied - agricultural irrigation W10.4 (ML)				Total Urban Water Supplied (Excl Bulk Water W14 & Environmental Flows W13 Incl Urban Recycled & Losses) W11 W11=W8+W9+W10 =W11.1+W11.2+W26-W22-W23-W24+W28.4 Includes recycled, excludes environmental & aquifer recharge (ML)				Total urban potable water supplied W11.1=W8.1+W9.1+W10.1 excludes bulk exports W11.1 (ML)				Total urban non-potable water supplied W11.2=W8.2+W9.2+W10.2 excludes recycled & stormwater W11.2 (ML)			
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation				51,654													523,509	541,492	528,825	538,904	446,061	467,435	463,532	525,197	1,111	1,639	1,171	1,319
	Hunter Water Corporation	9,198	9,995	10,596	12,189	0	0	0		0	0	0		0	0	0		70,238	73,725	69,749	72,402	68,594	71,451	66,891	68,296	0	0	0	
	Water NSW																	536,949	551,686	538,472						536,949	551,686	538,472	555,110
112	Central Coast Council				1,924				75				0				0				29,027				28,316				94
3	Shoalhaven City Council	1,162	1,280	1,878	1,586	0	0	0	0	0	0	0	0	0	0	0	0	14,304	14,695	14,169	14,381	11,695	11,638	12,065	12,426	2,317	2,413	1,926	1,640
4	Rous Water	605	652	508	334	0	0	0	0	0	0	0	0	0	0	0	0	1,369	1,476	1,314	1,101	1,369	1,476	1,314	1,101	0	0	0	0
5	MidCoast Water	1,263	1,301	1,346	1,492	0	0	0	0	0	0	0	0	0	0	0	0	8,699	9,557	9,329	9,394	8,566	9,038	8,744	8,935	0	0	0	0
6	Tweed Shire Council	1,167	1,183	1,024	1,046	0	0	0	0	0	0	0	0	0	0	3	0	9,088	9,767	9,166	9,104	8,706	9,204	8,666	8,437	0	0	0	0
7	Port Macquarie Hastings Council	617	625	611	635	0	0	0	0	0	0	0	0	0	0	0	0	6,473	6,673	6,612	6,876	6,173	6,243	6,118	6,391	111	141	195	228
8	Riverina Water	1,590	1,579	1,562	2,634	0	0	0		0	0	0		0	0	0		15,893	15,791	15,623	16,859	15,893	15,791	15,623	16,859	0	0	0	
9	Wagga Wagga Council																												
11	Albury City Council	761	759	741	805	0	0	0	0	0	0	0	0	0	0	0	0	7,935	7,880	7,627	8,236	7,931	7,686	7,409	8,044	4	194	218	192
10	Coffs Harbour City Council	797	607	572	572													6,153	6,534	6,102	6,182	5,888	5,958	5,784	5,800	6	9	9	10
13	Tamworth Regional Council	965	1,014	783	993	0	0	0	0	0	0	0	0	0	0	0	0	9,986	10,280	7,967	10,150	9,791	10,140	7,827	9,932	195	140	140	71
14	Clarence Valley Council	982	1,509	1,553	777	0	0	0	0	0	0	0	0	0	0	0	0	5,922	6,665	6,284	5,788	5,730	6,426	6,042	5,398				53
122	Dubbo Regional Council				1,026				0				0				0				10,521				10,262				259
119	Queanbeyan-Palerang Regional C				723				0				0				0				4,776				4,718				0
15	Eurobodalla Shire Council	604	539	550	572	0	0	0	0	0	0	0	0	0	0	0	0	3,567	3,608	3,516	3,610	3,397	3,418	3,293	3,437	0	0	0	0
12	Fish River Water	1,411	1,753	1,555			0	0			0	0			0	0		7,381	6,825	2,699		1,476	1,825	1,675		5,905	5,000	1,024	
16	Wingecarribee Shire Council	882	967	495	868	0	0	0	0	0	0	0	0	0	0	0	0	5,075	5,448	4,535	5,086	4,977	5,448	4,535	5,086	0	0	0	0
19	Orange City Council	470	462	649	534	0	0	0	0	0	0	0	0	0	0	0	0	5,855	7,144	7,307	6,610	4,282	4,241	4,481	4,559	0	0	0	0
21	Bathurst Regional Council	586	538	583	708			0	0	0	0	0	0	0	0	0	0	6,992	7,027	7,019	7,855	5,986	5,978	5,945	7,627	1,006	1,049	1,074	228
23	Bega Valley Shire Council	1,098	534	479	702	0	0	0	0	0	0	0	0	0	0	0	0	4,461	3,770	3,461	3,706	3,950	3,429	3,037	3,271	27	66	57	58
24	Ballina Shire Council	787	805	810	821	0	0	0	0	0	0	0	0	0	0	0	0	3,741	4,132	4,219	4,123	3,741	3,859	3,702	3,662	0	0	0	0
22	Lismore City Council	301	319	315	305	0	0	0	0	0	0	0	0	0	0	0	0	3,011	3,188	3,178	3,085	3,011	3,188	3,178	3,085	0	0	0	0
25	Kempsey Shire Council	622	837	756	816	0	0	0	0	0	0	0	0	0	0	0	0	3,519	3,746	3,776	3,685	3,446	3,656	3,716	3,601	73	0	0	0
27	Byron Shire Council	296	276	276	383	0	0	0	0	0	0	0	0	0	0	0	0	3,314	3,241	3,384	3,036	2,767	2,851	2,811	2,794	0	0	285	0
20	Goulburn Mulwaree Council	311	349	319	277	0	0	0	0	0	0	0	0	0	0	0	0	2,828	3,027	2,748	3,271	2,601	2,786	2,544	3,077	34	37	10	15
26	Essential Energy	521	513	465	423	0				0				0				6,956	6,843	6,343	5,707	5,233	5,177	4,695	4,245	1,094	957	872	793
28A	Goldenfields - Reticulation	541	609	605	593	2	2	1	1	0	0	0	0	0	0	0	0	5,519	6,220	6,183	6,051	5,412	6,088	6,049	5,935	107	132	134	116
28B	Goldenfields - Bulk Water Supply	490	440	440	440		0	0	0		0	0	0		0	0	0	490	440	440	440	490	440	440		0	0	0	0
	LWU Range Max	1,590	1,753	1,878	2,634	2	2	1	75	0	0	0	0	0	0	3	0	15893	15791	15623	29,027	15893	15,791	15,623	28,316	5905	5,000	1,926	1,640
	LWU Range Min	296	276	276	277	0	0	0	0	0	0	0	0	0	0	0	0	490	440	440	440	490	440	440	1,101	0	0	0	0
	Median of NMU Indicators shown in Table	692	639	608	716	0	0	0	0	0	0	0	0	0	0	0	0	5889	6600	6143	5,920	5105	5,313	4,615	5,398	4	0	9	10

APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2015-16

	WATER UTILITY	WATER RESOURCES																									
		USES OF WATER SUPPLIED																									
		Total volume of potable water produced W11.3=W11.1+W14.1-W5.1 excludes recycled & stormwater				Average Annual Residential Water Supplied				Volume of water supplied - Environmental flows				Volume of bulk water exports				Volume of potable bulk water exports excludes recycled & stormwater				Volume of non-potable bulk water exports excludes recycled & stormwater				Volume of bulk recycled water exports			
		W11.3				W12				W13 Generally upstream of master meter Excludes recycled & aquifer recharge & stormwater				W14 W14=W14.1+W14.2+W15+W28.1 Includes recycled & stormwater				W14.1				W14.2				W15 component of W14			
		(ML)				(kL/prop)				(ML)				(ML)				(ML)				(ML)				(ML)			
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation	509,790	527,511	515,834	528,620	198	206	201	201	0	0	0	0	0	0	0	0											0	0
	Hunter Water Corporation	68,623	71,483	67,014	68,459	176	181	168	166	5,110	5,110	5,110	5,110	29	299	380	484	29	299	380	484	0	0	0		0	0	0	
	Water NSW									310,309	272,314	349,307	368,861	521,945	536,435	520,830	535,091					521,945	536,435	520,830	535,091				
112	Central Coast Council				28,086				155				4,198				309				309				0				0
3	Shoalhaven City Council	11,695	11,638	12,065	12,426	149	148	143	150	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Rous Water	11,077	11,521	11,183	10,681					0	0	0	0	9,708	10,045	9,869	9,580	9,708	10,045	9,869	9,580	0	0	0	0	0			0
5	MidCoast Water	8,566	9,038	8,744	8,935	143	150	142	139	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Tweed Shire Council	8,706	9,204	8,661	8,431	177	184	178	165	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	Port Macquarie Hastings Council	6,173	6,243	6,118	6,391	157	157	151	158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	Riverina Water	15,893	15,791	15,591	16,806	347	324	311	333	0	0	0	0	0	0	0	0	0	0	0		0	0	0		0			0
9	Wagga Wagga Council													0												0			0
11	Albury City Council	8,310	8,078	7,788	8,462	255	232	205	223	0		0	0	379	392	379	418	379	392	379	418	0	0	0	0	0	0	0	0
10	Coffs Harbour City Council	5,888	5,958	5,784	5,800	161	169	167	167					401	63	0	0			0		401	63	0			0	0	0
13	Tamworth Regional Council	9,791	10,140	7,827	9,932	261	287	188	251	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0
14	Clarence Valley Council	5,730	6,426	6,042	5,398	148	161	147	158	0	1,696	2,445	3,568	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
122	Dubbo Regional Council				10,262				322				0								0				0				0
119	Queanbeyan-Palerang Regional C				516				163				0								0				0				0
15	Eurobodalla Shire Council	3,397	3,418	3,293	3,437	116	119	114	117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Fish River Water	2,309	2,615	871						809	1,025	1,025		2,432	3,912	2,793		833	790	751		1,599	3,122	2,042					
16	Wingecarribee Shire Council	4,977	5,448	4,535	5,086	186	200	178	186	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Orange City Council	4,282	4,241	4,481	4,559	180	174	170	173	378	228	206	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Bathurst Regional Council	5,988	5,984	5,951	7,631	260	227	225	235	1,497	1,497	1,497	1,658	2	6	6	4	2	6	6	4			0	0	0	0	0	0
23	Bega Valley Shire Council	3,950	3,429	3,037	3,271	139	134	137	135	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Ballina Shire Council	3,741	3,859	98	143	177	194	181	168	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Lismore City Council	3,011	3,188	0	11	145	155	155	155	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Kempsey Shire Council	3,479	3,687	3,743	3,626	156	157	155	149	0		0	0	33	31	27	25	33	31	27	25	0	0	0	0	0	0	0	0
27	Byron Shire Council	2,767	2,851	440	387	176	181	180	169	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Goulburn Mulwaree Council	2,603	2,788	2,546	3,081	150	165	139	162	0	0	0	0	2	2	2	4	2	2	2	4	0	0	0	0	0	0	0	0
26	Essential Energy	5,233	5,177	4,695	4,245	285	281	257	233					0	0	0	0	0		0		0					0	0	0
28A	Goldenfields - Reticulation	5,412	6,088	290	114	265	287	275	280		0	0	0	0	0	0	0	0	0	0	0	96	0	0	0				0
28B	Goldenfields - Bulk Water Supply	9,157	9,315	9,151	9,373						0			8,667	8,875	8,988	9,207	8,667	8,875	8,988	9,207		0	0	0				0
	LWU Range Max	15893	15,791	15,591	28,086	347	324	311	333	1497	1696	2445	4,198	9708	10045	9869	9,580	9708	10,045	9,869	9,580	1,599	3,122	2,042	0	0	0	0	0
	LWU Range Min	2309	2,615	0	11	116	119	114	117	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Median of NMU Indicators shown in Table	5571	5,971	5,240	5,599	176	174	170	166	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2015-16

	WATER UTILITY	WATER RESOURCES																													
		SEWAGE COLLECTED																													
		Volume of sewage collected - Residential, nonresidential and nontrade waste W16 Includes infiltration (ML)				Volume of sewage collected - trade waste W17 (ML)				Total Sewage collected W18 W18=W16+W17 Excludes W13 (ML)				Volume of sewage supplied to other infrastructure operators W18.1 (ML)				Volume of sewage taken from other infrastructure operators W18.2 (ML)				Volume of sewage taken from sewer mining W18.3 (ML)				Volume of sewage measured at inlet to treatment works W18.4 (ML)				Volume of treated sewage effluent W18.5 (ML)				Sewage collected per property W19 W19=W18/C8 (kL/property)			
		2012/13	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*
	Sydney Water Corporation	473,726	448,104	541,607	528,743	22,849	21,475	22,817	19,040	496,575	469,579	564,424	547,783	1,245	1,237	1,208	1,178	0	0	0	0	0	0	0	0	480,359	464,586	532,742	520,273		478,591	547,195	535,275	277	261	309	296
	Hunter Water Corporation	63,400	59,904	67,136	65,281	4,697	4,974	4,702	4,927	68,097	64,878	71,838	70,208	0	0	0		0	0	0		0	0	0		68,097	64,878	71,838	70,208	68,097	64,878	71,838	70,208	308	289	316	304
	Water NSW																																				
112	Central Coast Council				32,649				768				33,417				0				0				0				33,417				34,131				249
3	Shoalhaven City Council	7,361	8,257	9,195	9,496	127	127	192	104	7,488	8,384	9,387	9,600	0	0	0	0	0	0	0	0	0	0	0	0	7,488	8,384	9,387	9,600	7,314	8,543	8,298	8,543	182	200	224	228
4	Rous Water																																				
5	MidCoast Water	6,325	5,399	6,541	6,580	230	259	309	323	6,555	5,658	6,850	6,903	0	0	0	0	0	0	0	0	0	0	0	0	6,555	5,658	6,850	6,903	6,608	5,639	6,849	6,998	188	161	195	195
6	Tweed Shire Council	7,678	6,466	7,841	7,241	228	238	264	254	7,906	6,704	8,105	7,495	0	0	0	0	0	0	0	0	0	0	0	0	7,906	6,704	8,105	7,495	7,904	6,621	8,011	7,353	263	221	263	241
7	Port Macquarie Hastings Council	8,706	8,476	7,850	8,894	0				8,706	8,476	7,850	8,894	0	0	0	0	0	0	0	0	0	0	0	0	8,706	8,476	7,850	8,894	8,526	8,476	7,850	8,902	319	308	282	315
8	Riverina Water																																				
9	Wagga Wagga Council	4,926	4,904	4,975	5,088	808	819	847	793	5,734	5,723	5,822	5,881	0	0	0	0	0	0	0	0	0	0	0	0	5,734	5,723	5,822	5,881	5,734	5,723	5,822	5,912	220	218	214	212
11	Albury City Council	4,533	4,473	4,156	4,593	335	290	284	4	4,624	4,477	4,440	4,597	0	0	0	0	0	0	0	0	0	0	0	0	4,624	4,477	4,440	4,597	2,755	4,550	4,444	4,597	214	204	185	189
10	Coffs Harbour City Council	6,878	5,370	7,360	5,706	0				6,878	5,370	7,360	5,706	0	0	0	0	0	0	0	0	0	0	0	0	6,878	5,370	7,360	5,706	7,314	5,626	7,353	5,886	294	228	310	241
13	Tamworth Regional Council	4,267	3,697	4,132	4,273	1,129	1,045	1,077	1,237	5,396	4,742	5,209	5,510	0	0	0	0	0	0	0	0	0	0	0	0	5,396	4,742	5,209	5,510	4,531	4,128	5,209	5,571	282	245	265	275
14	Clarence Valley Council	3,240	2,473	2,804		66	52	52		3,306	2,525	2,856		0	0	0	0	0	0	0	0	0	0	0	0	3,306	2,525	2,856	2,667	3,454	2,528	2,856		226	172	194	
122	Dubbo Regional Council				3,736				151				3,887				0				0				0				3,887								200
119	Queanbeyan-Palerang Regional C				3,985				244				4,229				0				0				0				4,229				4,271				214
15	Eurobodalla Shire Council	3,084	3,068	3,401	3,604	77	73	76	80	3,161	3,141	3,477	3,684	0	0	0	0	0	0	0	0	0	0	0	0	3,161	3,141	3,477	3,684	3,161	3,140	3,477	3,706	176	174	193	200
12	Fish River Water																																				
16	Wingecarribee Shire Council	3,908	3,289	5,054	4,293	234	215	148	235	4,142	3,504	5,202	4,528	0	0	0	0	0	0	0	0	0	0	0	0	4,142	3,504	5,202	4,528	3,981	3,537	5,194	4,523	282	225	331	279
19	Orange City Council	3,852	3,564	3,723	4,747	236	209	206	189	4,088	3,773	3,929	4,936	0	0	0	0	0	0	0	0	0	0	0	0	4,088	3,773	3,929	4,936	4,059	3,796	3,620	4,936	252	229	237	292
21	Bathurst Regional Council	4,133	4,016	3,664	3,364	529	597	452	513	4,662	4,613	4,116	3,877		0	0	0		0	0	0		0	0	0	4,662	4,613	4,116	3,877	4,788	3,942	3,731	3,876	308	299	259	241
23	Bega Valley Shire Council	1,890	2,105	2,244	2,393	0				1,890	2,105	2,244	2,393	0	0	0	0	0	0	0	0	0	0	0	0	1,890	2,105	2,244	2,393	1,795	2,016	2,244	2,394	156	173	184	196
24	Ballina Shire Council	4,407	2,872	5,319	4,534	147	80	82		4,554	2,952	5,401	4,534	0	0	0	0	0	0	0	0	0	0	0	0	4,554	2,952	5,401	4,534	4,341	2,869	5,397	4,573	331	210	383	315
22	Lismore City Council	4,160	3,574	3,888	2,758	390	169	120	123	4,550	3,743	4,008	2,881	0	0	0	0	0	0	0	0	0	0	0	0	4,550	3,743	4,008	2,881	4,030	3,355	3,920	2,885	359	293	313	225
25	Kempsey Shire Council	2,508	1,847	2,201	1,769	79	79	83	87	2,587	1,926	2,283	1,856	0	0	0	0	0	0	0	0	0	0	0	0	2,587	1,926	2,283	1,856	2,436	1,921	2,558	1,866	277	198	233	203
27	Byron Shire Council	3,663	3,042	2,783	3,194	141	110	315	70	3,804	3,152	3,098	3,264	0	0	0	0	0	0	0	0	0	0	0	0	3,804	3,152	3,098	3,264	4,550	3,126	3,098	3,254	367	300	291	299
20	Goulburn Mulwaree Council	1,692	1,723	1,835	1,916	96	124	98	138	1,788	1,847	1,933	2,054	0	0	0	0	0	0	0	0	0	0	0	0	1,788	1,847	1,933	2,054	1,659	1,627	1,933	2,054	186	175	180	189
26	Essential Energy	1,366	1,380	1,358	1,283	0				1,366	1,380	1,358	1,283	0	0	0	0	0	0	0	0	0	0	0	0	1,366	1,380	1,358	1,283	1,366	1,380	1,358	1,283	140	142	140	132
28A	Goldenfields - Reticulation																																				
28B	Goldenfields - Bulk Water Supply																																				
	LWU Range Max	8,706	8,476	9,195	32,649	1,129	1,045	1,077	1,237	8,706	8,476	9,387	33,417		0	0	0		0	0	0	0	0	0	0	8,706	8,476	9,387	33,417	8,526	8,543	8,298	34,131	367	308	383	315
	LWU Range Min	1,366	1,380	1,358	1,283	0	52	52	4	1,366	1,380	1,358	1,283		0	0	0		0	0	0	0	0	0	0	1,366	1,380	1,358	1,283	1,366	1,380	1,358	1,283	140	142	140	132
	Median of NMU Indicators shown in Table	4,147	3,569	4,010	4,283	144	189	199	189	4,552	3,758	4,278	4,531		0	0	0		0	0	0	0	0	0	0	4,552	3,758	4,278	4,528	4,200	3,667	4,182	4,573	258	214	235	226

APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2015-16

	WATER UTILITY	WATER RESOURCES																													
		USES OF RECYCLED WATER AND STORMWATER																													
		Volume of Recycled water supplied (Residential) W20 Includes potable & non-potable. Excludes sewer mining (ML)				Volume of Recycled water supplied (Commercial, Industrial, Municipal) W21 Includes to golf courses. Excludes stormwater. Includes sewer mining (ML)				Volume of Recycled water supplied (Agricultural) W22 Includes crops, forestry & livestock. Excludes Stormwater. Includes sewer mining (ML)				Volume of Recycled water supplied (Environmental) W23 Exclude disposal if not beneficial use. Exclude stormwater. Include sewer mining. (ML)				Volume of Recycled water supplied (On-site) W24 Exclude stormwater. Include sewer mining. (ML)				Volume of Recycled water supplied (Other) W25 Include managed aquifer recharge W25.1, non revenue water, losses and sewer mining. (ML)				Volume of recycled water supplied - Managed Aquifer Recharge W25.1 (ML)				Total Recycled water supplied W26 W26=W20+W21+W22+W23+W24+W25 Includes sewer mining. Excludes stormwater (ML)			
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation	2,064	2,137	2,138	2,489	10,544	10,205	9,682	9,899	5,175	5,400	4,795	4,876	15,142	14,990	11,779	10,837	14,026	14,211	14,680	15,241	0	0	0	0	0				46,951	46,943	43,075	43,342
	Hunter Water Corporation	0	0	0		1,644	2,274	2,858	4,106	2,445	2,441	1,562	1,087	0	0	0		180	180	180	180	0	0	0		0	0	0			4,895	4,600	5,373
	Water NSW																																
112	Central Coast Council				65				522				0				0				308				0				0				895
3	Shoalhaven City Council	0	0	0	0	292	644	178	315	1,670	1,708	1,527	1,222	0	0	0	0	30	0	0	14	0	0	0	0	0	0	0	0	1,992	2,352	1,705	1,551
4	Rous Water	0				0				0				0				0				0				0				0			
5	MidCoast Water	0	0	0	0	133	519	585	459	664	821	650	389	0	0	0	0	51	99	93	96	0	0	0	0	0	0	0	0	848	1,439	1,327	944
6	Tweed Shire Council	0	0	0	0	382	563	500	667	47	38	49	26	0	0	0	0	2	3	2	2	0	0	0	0	0	0	0	0	431	604	551	695
7	Port Macquarie Hastings Council	0	0	0	0	189	289	299	256	53	67	80	76	0	0	0	0	0	7	7	7	0	0	0	1	0	0	0	0	242	363	386	339
8	Riverina Water	0				0				0				0				0				0				0							
9	Wagga Wagga Council	0	0	0	0	331	251	249	246	224	225	247	267	4,988	5,047	5,116	5,135	0	0	8	31	0	0	0	0	0				5,543	5,523	5,620	5,679
11	Albury City Council	0	0	0	0	0	0	0	0	1,208	803	880	1,076	1,525	1,664	1,518	1,427	0	0	0	0	0	0	0	0	0	0	0	0	2,733	2,468	2,398	2,503
10	Coffs Harbour City Council		0	0	0	259	567	309	372	542	614	497	539		0	0	0	0	255	207	202		0	0	0		0	0	0	801	1,436	1,013	1,113
13	Tamworth Regional Council		0	0	0		0	0	147	3,595	4,068	4,278	3,864		0	0	0		60	0	60		0	0	0		0	0	0	3,595	4,128	4,278	4,071
14	Clarence Valley Council	0	0	0	0	128	176	195	337	0	0	0	0	0	0	0	0	0	0	0	48	0	0	0	0	0	0	0	0	128	176	195	385
122	Dubbo Regional Council				0				0				2,319				0				280				0				0				2,599
119	Queanbeyan-Palerang Regional C				0				30				0				0				42				28				0				72
15	Eurobodalla Shire Council	0	0	0	0	170	190	223	173	0	0	0	0	0	0	0	0	19	26	20	22	0	0	0	0	0	0	0	0	189	216	243	195
12	Fish River Water																																
16	Wingecarribee Shire Council	0	0	0	0	98	0	0	0	0	124	160	232	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	98	124	163	232
19	Orange City Council	0	0	0	0	1,573	2,903	2,826	2,051	0	0	0	0	0	0	0	0	108	44	0	0	0	0	0	0	0	0	0	0	1,681	2,947	2,826	2,051
21	Bathurst Regional Council	0	0	0	0	0	0	0	0	0	0	0	0	4,062	3,197	3,059	0	726	745	653	0	0	0	0	0	0	0	0	0	4,788	3,942	3,712	0
23	Bega Valley Shire Council	0	0	0	0	484	461	367	377	196	165	79	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	680	626	446	401
24	Ballina Shire Council	0	0	0	0	0	273	517	461	128	0	0	0	0	0	0	0	4	0	0	39	0	0	0	0	0	0	0	0	132	273	517	500
22	Lismore City Council	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	34	5	5	0	0	0	0	0	0	0	0	0	34	5	5
25	Kempsey Shire Council	0	0	0	0	0	90	60	84	0	13	12	4	0	0	0	0	10	7	5	8	0	0	0	0	0	0	0	0	10	110	77	96
27	Byron Shire Council	0	0	0	0	547	390	288	242	49	88	156	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	596	478	444	367
20	Goulburn Mulwaree Council	0	0	0	0	193	204	194	179	1,374	1,389	1,612	1,551	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,567	1,593	1,806	1,730
26	Essential Energy		0	0	0	629	709	776	669		0	0	0		0	0	0		0	0	0		0	0	0		0	0	0	629	709	776	669
28A	Goldenfields - Reticulation																													0			
28B	Goldenfields - Bulk Water Supply																																
	LWU Range Max	0	0	0	65	1,573	2,903	2,826	2,051	3,595	4,068	4,278	3,864	4,988	5,047	5,116	5,135	726	745	653	308	0	0	0	28	0	0	0	0	5,543	5,523	5,620	5,679
	LWU Range Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	5	0
	Median of NMU Indicators shown in Table	0	0	0	0	170	262	236	246	51	78	80	26	0	0	0	0	0	2	1	8	0	0	0	0	0	0	0	0	613	668	664	669

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	WATER UTILITY	WATER RESOURCES															
		USES OF RECYCLED WATER AND STORMWATER															
		Recycled water (% of effluent recycled)				Volume of urban stormwater supplied to other infrastructure operators				Volume of urban stormwater used				Total volume of treated and untreated sewage discharges from a sewage discharge point			
		W27 W27=(W26+W15-W6)/W18.5x100 Exclude bulk recycled purchased				W28.1				W28.4				W29			
		(%)				(ML)				(ML)				(ML)			
		2012/13	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*
	Sydney Water Corporation	10	10	8	8										451,791	520,859	507,952
	Hunter Water Corporation	6	8	6	8	0	0	0		0	0	0		63,828	59,983	67,238	64,835
	Water NSW																
112	Central Coast Council				3								30				33,005
3	Shoalhaven City Council	27	28	21	18	0	0			0	0	0	0	5,322	6,191	6,589	6,991
4	Rous Water					0	0			0	0	0	0				
5	MidCoast Water	13	26	19	13	0	0			0	0	0	0	5,760	4,200	5,494	5,974
6	Tweed Shire Council	6	9	7	9	0	0			0	0	0	0	7,473	6,017	7,459	6,662
7	Port Macquarie Hastings Council	3	4	5	4	0	0			0	0	0	0	8,284	8,113	7,464	8,555
8	Riverina Water					0	0			0	0	0	0				
9	Wagga Wagga Council	97	97	97	96	0				0				191	200	202	202
11	Albury City Council	59	54	54	54	0	0			0	0	0	0	22	2,082	3,106	2,082
10	Coffs Harbour City Council	11	26	14	19	0	0			0	0	0	0	6,513	4,190	6,340	4,685
13	Tamworth Regional Council	79	100	82	73	0	0			0	0	0	0	936	0	0	1,223
14	Clarence Valley Council	4	7	7		0	0			0	0	0	0	3,326	2,352	2,536	2,341
122	Dubbo Regional Council												0				558
119	Queanbeyan-Palerang Regional C				2								0				3,860
15	Eurobodalla Shire Council	6	7	7	5	0	0			0	0	0	0	2,972	2,924	3,233	3,489
12	Fish River Water					0	0			0	0	0					
16	Wingecarribee Shire Council	3	4	3	5	0	0			0	0	0	0	3,883	3,413	4,967	4,200
19	Orange City Council	41	78	78	42	0	0			0	0	0	0	2,378	849	1,106	2,841
21	Bathurst Regional Council	103	100	100	0	0	0			0	0	0	0	0	0	0	3,876
23	Bega Valley Shire Council	38	31	20	17	0	0			0	0	0	0	1,115	1,390	1,681	1,894
24	Ballina Shire Council	3	10	10	11	0	0			0	0	0	0	4,209	2,596	5,123	4,035
22	Lismore City Council	0	1	0	0	0	0			0	0	0	0	4,030	3,321	3,451	2,405
25	Kempsey Shire Council	0	6	3	5	0	0			0	0	0	0	2,426	1,811	2,301	1,761
27	Byron Shire Council	13	15	14	11	0	0			0	0	0	0	3,954	2,648	2,689	3,314
20	Goulburn Mulwaree Council	95	98	93	84	0	0			0	0	0	0	92	34	44	55
26	Essential Energy	46	51	57	52	0	0			0	0	0	0	737	671	447	546
28A	Goldenfields - Reticulation					0	0			0	0	0	0				
28B	Goldenfields - Bulk Water Supply					0	0			0	0	0	0				
	LWU Range Max	103	100	100	96	0	0			0	0	0	30	8,284	8,113	7,464	33,005
	LWU Range Min	0	1	0	0	0	0			0	0	0	0	0	0	0	55
	Median of NMU Indicators shown in Table	13	26	17	11	0	0			0	0	0	0	3,149	2,474	2,898	3,314

APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2015-16

	WATER UTILITY	ASSETS																					
		WATER ASSETS												SGE ASSETS									
		No. of WTWs providing full treatment				Length of Water Mains (excluding source transfer mains & property connections)				Properties served per km of water main				Number of Sewage Treatment Plants				Length of sewerage mains & channels				Properties served per km of sewer main			
		A1				A2				A3				A4				A5				A6			
		(No.)				(km)				(no.)				(no.)				(km)				(no.)			
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation	9	9	9	9	21,930	22,105	22,293	22,461	84	84	84	85	24	24	26	26	24,540	24,786	25,085	25,355	73	73	73	73
	Hunter Water Corporation	6	6	6	6	4,820	4,893	4,945	4,985	48	48	48	49	19	19	19	19	4,852	4,903	4,945	4,995	46	46	46	46
	Water NSW																								
112	Central Coast Council				3				2,163				64				8				2,547				53
3	Shoalhaven City Council	4	4	4	4	1,489	1,492	1,510	1,534	31	31	31	31	13	13	13	13	1,168	1,169	1,217	1,225	35	36	34	34
4	Rous Water	2	2	2	2	402	405	441	411																
5	MidCoast Water	4	5	5	5	1,390	1,393	1,395	1,384	27	28	28	29	13	13	13	13	1,098	1,123	1,125	1,127	30	31	31	32
6	Tweed Shire Council	3	3	3	3	702	713	716	718	45	45	45	45	8	8	8	8	691	700	706	713	44	43	44	44
7	Port Macquarie Hastings Council	4	4	4	4	793	802	810	819	37	38	38	37	5	5	5	5	661	684	689	704	41	40	40	40
8	Riverina Water	17	17	2	17	1,648	1,652	1,660	1,714	18	18	18	19												
9	Wagga Wagga Council													6	6	6	6	599	623	626	660	43	42	43	42
11	Albury City Council	1	1	1	1	583	594	599	604	40	40	43	42	4	4	4	4	511	519	548	564	42	42	44	43
10	Coffs Harbour City Council	2	2	2	2	652	676	621	662	38	37	40	38	5	5	5	4	689	693	701	633	34	34	34	38
13	Tamworth Regional Council	5	5	5	5	676	707	640	653	31	30	34	34	4	4	4	4	542	555	554	564	35	35	36	36
14	Clarence Valley Council	0		0	0	1,104	1,118	1,123	1,132	19	19	19	19	5	6	6	6	369	409	417	410	40	36	35	36
122	Dubbo Regional Council				4				634				33				6				507				38
119	Queanbeyan-Palerang Regional C				4				411				51				4				445				45
15	Eurobodalla Shire Council	2	2	2	2	868	886	884	884	22	22	22	22	5	5	5	5	526	527	527	537	34	34	34	34
12	Fish River Water	1	1	1	1	241	241	241																	
16	Wingecarribee Shire Council	3	3	2	2	656	660	661	673	29	29	29	29	5	6	6	6	515	555	558	564	29	28	28	29
19	Orange City Council	1	1	1	1	610	621	634	640	28	28	28	28	2	2	2	2	430	437	450	455	38	38	37	37
21	Bathurst Regional Council	1	1	1	1	385	392	395	405	40	40	40	40	1	1	1	1	391	394	400	408	39	39	40	39
23	Bega Valley Shire Council	0	0	0	0	611	613	615	620	23	23	23	23	10	10	10	10	401	401	401	405	30	30	30	30
24	Ballina Shire Council	1	1	1	1	330	332	333	348	42	43	43	44	4	4	4	4	322	324	327	329	43	43	43	44
22	Lismore City Council	0	0	0	0	343	343	343	344	42	42	42	41	3	3	3	3	359	359	359	360	35	36	36	36
25	Kempsey Shire Council	3	4	4	4	491	491	491	493	26	25	25	25	8	8	7	8	272	273	273	273	34	36	36	33
27	Byron Shire Council	1	1	1	1	237	237	239	269	47	47	47	43	4	4	4	4	248	248	251	284	42	42	42	38
20	Goulburn Mulwaree Council	2	2	2	2	279	281	282		36	37	40		2	2	2	2	283	283	285		34	37	38	
26	Essential Energy	3	3	3	3	382	382	382	382	28	28	28	28	2	2	2	2	246	246	246		40	40	40	
28A	Goldenfields - Reticulation	1	1	1	1	1,834	1,834	1,834	1,846	6	6	6	6												
28B	Goldenfields - Bulk Water Supply	3	3	3	3	315	315	315	315																
	LWU Range Max	17	17	5	17	1,834	1,834	1,834	2,163	47	47	47	64	13	13	13	13	1,168	1,169	1,217	2,547	44	43	44	53
	LWU Range Min	0	0	0	0	237	237	239	269	6	6	6	6	1	1	1	1	246	246	246	273	29	28	28	29
	Median of NMU Indicators shown in Table	2	2	2	2	611	617	618	640	31	30	31	33	5	5	5	5	471	478	489	537	37	37	37	38

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	WATER UTILITY	ASSETS																					
		WATER ASSETS														SGE ASSETS							
		Water main breaks per 100km of main				Infrastructure Leakage Index (ILI)				Real lossses (L/connection/day)				Real lossses (kL/km main/day)				Sge Main Breaks and chokes per 100km of main (excludes property connections)				Property Connection Breaks and chokes per 1000 props			
		A8				A9				A10				A11				A14				A15			
		(no./100km)								(L/connection/day)				(kL/km main/day)				(per 100km of main)				(per 1000 properties)			
		2012/13	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*
	Sydney Water Corporation	29	30	26	26	1.5	1.4	1.3	1.3	87	81	74	76	6	5	5	5	46	61	69	58	0	0	0	0
	Hunter Water Corporation	32	30	29	27	1.1	1.2	1.3	1.5	75	82	91	104	3	4	4	5	42	54	54	43	9	10	10	9
	Water NSW																								
112	Central Coast Council				17				1.0				31				2				38				3
3	Shoalhaven City Council	10	10	8	8	1.0	1.0	1.1	1.0	43	57	92	72	1	2	3	2	14	8	11	13	1	0	0	0
4	Rous Water	36	12	10	8									3	3	1	0								
5	MidCoast Water	8	8	9	2	1.0	1.0	1.0	1.0	57	57	61	71	1	2	2	2	6	6	6	8				
6	Tweed Shire Council	4	8	4	8	1.0	1.0	1.0	1.1	58	61	56		2	2	2		2	1	0	1	0	0	0	1
7	Port Macquarie Hastings Council	3	2	3	3	1.0	1.0	1.0	1.0	37	37	45	43	1	1	2	2				27				
8	Riverina Water	14	19	7	19	1.0	1.0	1.0	1.2	81	81	86	115	2	2	2	2								
9	Wagga Wagga Council																	88	80	80	72	17	21	15	13
11	Albury City Council	8	10	5	4	1.0	1.0	1.0	1.0	56	57	55		2	2	2		67	75	65	76	12	10	13	13
10	Coffs Harbour City Council	10	3	3	7	1.0	1.0	1.0	1.0	75	63	50	48	3	2	2	2	65	76	89	97	13	3	4	2
13	Tamworth Regional Council	8	7	14	9	3.0	3.2	2.6	3.2	83	91	69	87	3	3	2	3	77	74	50	20	3	9	2	11
14	Clarence Valley Council	12	13	11	12	1.0	1.2	1.1	1.0	104	127	111		2	2	2		43	45	52		11	10	4	
122	Dubbo Regional Council				7				1.8												46				
119	Queanbeyan-Palerang Regional C				8				1.2												33				
15	Eurobodalla Shire Council	11	13	13	13	1.0	1.0	1.0	1.0	50	50	48	50	1	1	1	1	29	30	32	23	6	5	6	4
12	Fish River Water	5	8	6										16	19	18									
16	Wingecarribee Shire Council	6	12	5	12	1.4	1.5	1.0	1.3	122	133	61	116	3	4	2	3	44	46	22	10	9	7	9	4
19	Orange City Council	9	9	7	9	1.0	1.0	1.0	1.0	64	60	61	63	2	2	2	2	15	24	33	42	1	5	10	1
21	Bathurst Regional Council	5	8	7	15				1.0									58	84	99	162	3	3	2	3
23	Bega Valley Shire Council	8	9	6	5	2.1	1.0	1.0	1.0	143	50	50	50	3	1	1	1	9	22	9	20	3	3	1	2
24	Ballina Shire Council	12	6	5	4	2.7	2.5	2.7	2.7	156	145	156	156	6	6	6	6	8	20	3		2	2	0	
22	Lismore City Council	25	37	20	36	1.0	1.0	1.0	1.0	37	39	40	39	1	2	2	2	55	49	50	28	6	9	10	8
25	Kempsey Shire Council	7	10	7	6	1.0	1.6	1.6	1.6	50	96	97	93	1	2	2	2	24	16	33	25	10	14	10	14
27	Byron Shire Council	7	9	9	7	1.6	1.4	1.2	2.0	78	68	53	90	3	3	2	3	32	11	11	21	10	8	8	10
20	Goulburn Mulwaree Council	11	11	10		1.0	1.0	1.0	1.0	68	82	70		2	3	3						13	5	7	17
26	Essential Energy	24	17	14	21	1.7	1.5	1.4	1.4	102	90	82	84	3	3	2	2	128	115	129		36	37	41	44
28A	Goldenfields - Reticulation	21	10	13	13	1.0	1.0	1.0	1.0	91	92	91		1	1	1									
28B	Goldenfields - Bulk Water Supply	0	0	0	0									4	4	4	4								
	LWU Range Max	36	37	20	36	3.0	3.2	2.7	3.2	156	145	156	156	16	19	18	6	128	115	129	162	36	37	41	44
	LWU Range Min	0	0	0	0	1.0	1.0	1.0	1.0	37	37	40	31	1	1	1	0	2	1	0	1	0	0	0	0
	Median of NMU Indicators shown in Table	9	9	7	8	1.0	1.0	1.0	1.0	72	66	61	72	2	2	2	2	38	38	33	27	8	6	6	4

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	WATER UTILITY	ENVIRONMENTAL															
		SEWAGE TREATMENT LEVELS												BIOSOLIDS			
		% sge treated to primary level only				% sge treated to secondary level (but not tertiary)				% sge treated to tertiary level				Biosolids reused			
		E1				E2				E3				E8			
		(%)				(%)				(%)				(%)			
		2012/13	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*
	Sydney Water Corporation	74	74	73	73	4	3	4	4	22	23	23	23	100	100	100	100
	Hunter Water Corporation	0	0	0		56	57	53		44	43	47		92	85	89	88
	Water NSW																
112	Central Coast Council				0				97				3				100
3	Shoalhaven City Council	0	0	0	0	0	0	0	0	100	89	88	100	100	100	100	100
4	Rous Water																
5	MidCoast Water	0	0	0	0	19	17	18	18	81	83	82	82	100	100	100	100
6	Tweed Shire Council	0	0	0		1	1	1		99	98	98		100	87	100	100
7	Port Macquarie Hastings Council	0	0	0	0	1	0	0	0	99	100	100	100	100	100	100	100
8	Riverina Water																
9	Wagga Wagga Council	0	0	0	0	3	4	4	3	97	97	97	97	100	100	100	100
11	Albury City Council	0	0	0	0	0	0	0	0	100	100	100	100	0	0	0	0
10	Coffs Harbour City Council	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
13	Tamworth Regional Council	0	0	0	0	100	100	100	100	0	0	0	0	99	100	100	0
14	Clarence Valley Council	0	0	0		0	0	0		100	100	100		40	58	97	0
122	Dubbo Regional Council				0				13				87				82
119	Queanbeyan-Palerang Regional C				0				0				100				0
15	Eurobodalla Shire Council	0	1	1	2	6	5	5	5	94	95	95	94	0	33	69	90
12	Fish River Water																
16	Wingecarribee Shire Council	0	0	0	0	0	1	1	1	100	98	99	99	0	0	0	0
19	Orange City Council	1	0	0	4	1	2	1	0	98	99	91	96	100	100	0	100
21	Bathurst Regional Council	0	0	0	0	0	0	0	0	100	86	91	100	100	100	100	100
23	Bega Valley Shire Council	0	0	0	0	60	61	61	36	40	39	39	64	0	0	0	0
24	Ballina Shire Council	0	0	0	0	0	0	0	0	100	100	100	100	100	100	100	100
22	Lismore City Council	5	2	5	5	0	0	0	0	95	98	93	95	0	0	0	0
25	Kempsey Shire Council	0	0	0	0	22	28	0	0	78	63	100	100	96	100	100	100
27	Byron Shire Council	0	0	0	0	0	1	0	0	100	96	100	100	100	100	100	100
20	Goulburn Mulwaree Council	0	0	0	0	0	0	0	100	100	100	100	0	0	0	0	0
26	Essential Energy	0	0	0	0	0	0	0	100	100	100	100	0	0	0	0	0
28A	Goldenfields - Reticulation																
28B	Goldenfields - Bulk Water Supply																
	LWU Range Max	5	2	5	5	100	100	100	100	100	100	100	100	100	100	100	100
	LWU Range Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Median of NMU Indicators shown in Table	0	0	0	0	0	1	0	0	100	98	99	97	100	100	100	100

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	WATER UTILITY	ENVIRONMENTAL																											
		GREENHOUSE GAS WS & SGE														GREENHOUSE GAS WS & SGE BULK												SEWER OVERFLOWS			
		Greenhouse emissions WATER				Greenhouse emissions SEWERAGE				Net greenhouse emissions OTHER				TOTAL Net greenhouse emissions				Greenhouse emissions WATER				Greenhouse emissions SEWERAGE				Net greenhouse emissions OTHER				TOTAL Net greenhouse emissions				Sewer overflows reported to environmental regulator			
		E9				E10				E11				E12				E9.1				E10.1				E11.1				E12.1				E13			
		(t CO2 per 1,000 properties)				(t CO2 per 1,000 properties)				(t CO2 per 1,000 properties)				(t CO2 per 1,000 properties)				(t CO2 per ML)				(t CO2 per ML)				(t CO2 per ML)				(t CO2 per ML)				(number per 100km of main)			
		2012/13	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*
	Sydney Water Corporation	66	69	63	60	113	118	126	110	-91	-99	-102	-24	85	85	84	144																	0	0	0	1
	Hunter Water Corporation	114	116	103	106	254	285	105	56	25	24	17	21	381	412	220	181																	0	0	0	
	Water NSW																	0	0	0						0	0	0		0	0	0					
112	Central Coast Council				134				250				19				397																				3
3	Shoalhaven City Council	171	147	180	176	280	253	282	306	5	5	6	8	423	377	437	454																	1	1	1	4
4	Rous Water																	0	0	0						0	0	0		1	1	0	0				
5	MidCoast Water	149	219	226	165	169	263	263	194	38	26	25	32	340	483	490	371																	1	1	1	2
6	Tweed Shire Council	172	175	155	146	268	271	264	313	7	7	6	6	434	441	413	453																	1	2	0	1
7	Port Macquarie Hastings Council	166	146	178	127	274	263	260	279	0	0	0	0	417	386	416	385																	1	1	1	0
8	Riverina Water	351	353	364	329					15	19	8	9	365	372	372	341																				
9	Wagga Wagga Council								171																									0	1	0	1
11	Albury City Council	307	262	236	277	253	203	168	204	0	0	1	9	541	451	393	477																	2	2	1	0
10	Coffs Harbour City Council	98	103	109	106	382	267	363	332	55	6	35	37	515	362	487	456																	13	1	3	1
13	Tamworth Regional Council	177	214	186	194	223	227	228	252	0	0	0	0	378	419	393	423																	0	0	0	
14	Clarence Valley Council	19	19	69	29	139	139	74	215					114	114	119	177																	0	0	1	
122	Dubbo Regional Council				299				200				2				492																				2
119	Queanbeyan-Palerang Regional C				26				210				7				233																				1
15	Eurobodalla Shire Council	162	159	136	126	191	204	205	205	14	16	35	16	352	363	359	335																	7	8	8	11
12	Fish River Water																	0	0							0	0	0		0	0	0					
16	Wingecarribee Shire Council	183	230	162	196	257	260	337	316	13	23	30	35	398	467	469	492																	9	1	5	6
19	Orange City Council	235	221	204	285	182	199	207	241	6	5	5	4	414	416	405	515																	0	1	0	1
21	Bathurst Regional Council	192	172	158	220	193	191	177	197					384	362	337	416																	0	0	0	
23	Bega Valley Shire Council	122	118	107	101	212	219	239	345	29	39	32	31	331	343	342	422																	0	0	0	1
24	Ballina Shire Council	15	13	13	10	357	415	384	373	0			23	366	425	390	385																	1	0	1	1
22	Lismore City Council	22	20	27	26	196	242	220	213	13	12	10	9	210	248	233	229																	0	1	1	1
25	Kempsey Shire Council	180	198	162	156	231	172	151	151	26	16	44	32	376	349	324	292																	6	1	2	1
27	Byron Shire Council	6	6	6	6	169	172	169	174					164	167	166	172																	1	2	2	3
20	Goulburn Mulwaree Council	116	118	99	113	493	472	346	553	22	20	18	20	615	618	449	662																	1	0	0	
26	Essential Energy	536	886	732	1,029	84	48	50	46	34				647	930	779	1,118																	0	0	0	
28A	Goldenfields - Reticulation	445	390	378	383					18	18	16	17	461	407	394	389																				
28B	Goldenfields - Bulk Water Supply																	1	1	1						0	0	0		1	1	1	1				
	LWU Range Max	536	886	732	1,029	493	472	384	553	55	39	44	37	647	930	779	1,118	1	1	1						0	0			1	1	1		13	8	8	11
	LWU Range Min	6	6	6	6	84	48	50	46	0	0	0	0	114	114	119	172	0	0	0						0	0			0	0	0		0	0	0	0
	Median of NMU Indicators shown in Table	171	172	162	151	223	227	228	215	14	14	13	13	384	386	393	407	0	0	1						0	0			1	0	1		1	1	1	1

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	WATER UTILITY	CUSTOMERS																											
		WS CUSTOMERS																SGE CUSTOMERS											
		Population receiving water supply services				Connected residential properties - water supply				Connected nonresidential properties - water supply				Total connected properties - water supply				Population receiving sewerage services				Connected residential properties - sewerage				Connected nonresidential properties - sewerage				Total connected properties - sewerage			
		C1				C2				C3				C4				C5				C6				C7				C8			
		('000)				('000)				('000)				('000)				('000)				('000)				('000)				('000)			
		2012/13	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*
	Sydney Water Corporation	4,657	4,755	4,833	4,994	1,698	1,724	1,752	1,774	145	124	124	125	1,844	1,848	1,876	1,899	4,530	4,644	4,721	4,798	1,663	1,687	1,716	1,740	132	111	111	112	1,795	1,799	1,827	1,852
	Hunter Water Corporation	545	550	558	564	218	222	225	228	15	14	14	14	233	236	239	242	523	528	535	540	209	213	216	219	12	11	11	12	221	224	228	231
	Water NSW																																
112	Central Coast Council				324				131				6				138				318				129				6				134
3	Shoalhaven City Council	90	89	89	90	44	44	44	44	3	3	3	3	47	47	47	47	79	79	81	82	39	40	40	40	2	2	2	2	41	42	42	42
4	Rous Water																																
5	MidCoast Water	82	83	83	83	36	36	36	37	3	3	3	3	39	39	39	40	81	81	81	82	32	32	32	33	3	3	3	3	35	35	35	35
6	Tweed Shire Council	79	78	79	80	31	31	31	32	1	1	1	1	32	32	32	33	75	76	76	78	29	29	30	30	1	1	1	1	30	30	31	31
7	Port Macquarie Hastings Council	80	81	81	81	27	27	28	28	3	3	3	3	30	30	30	30	74	75	78	81	25	26	26	26	2	2	2	2	27	28	28	28
8	Riverina Water	70	71	72	77	27	27	27	29	3	3	3	3	29	30	30	32																
9	Wagga Wagga Council																	61	62	63	63	24	25	25	26	2	2	2	2	26	26	27	28
11	Albury City Council	49	50	51	52	21	22	24	24	2	2	2	2	23	24	26	25	48	48	49	50	20	20	22	23	2	2	2	2	22	22	24	24
10	Coffs Harbour City Council	69	70	71	72	23	23	24	23	2	2	2	2	25	25	25	25	68	69	70	71	22	22	22	22	2	2	2	1	23	24	24	24
13	Tamworth Regional Council	44	45	45	46	19	19	20	20	2	2	2	2	21	21	22	22	44	45	45	46	18	18	18	18	2	2	2	2	19	19	20	20
14	Clarence Valley Council	46	46	46	46	19	19	19	19	2	3	3	3	21	21	22	22	30	30	32	33	14	14	14	14	1	1	1	1	15	15	15	15
122	Dubbo Regional Council				42				18				2				21				41				18				2				19
119	Queanbeyan-Palerang Regional C				46				20				1				21				45				19				1				20
15	Eurobodalla Shire Council	31	31	31	32	19	19	19	19	1	1	1	1	20	20	20	20	27	29	30	30	17	17	17	17	1	1	1	1	18	18	18	18
12	Fish River Water																																
16	Wingecarribee Shire Council	40	40	41	41	17	17	17	18	2	2	2	2	19	19	19	19	35	38	39	39	14	15	15	15	1	1	1	1	15	16	16	16
19	Orange City Council	40	41	41	42	15	16	16	16	2	2	2	2	17	17	18	18	40	41	41	42	15	15	15	16	1	1	1	1	16	17	17	17
21	Bathurst Regional Council	34	34	34	35	14	14	14	15	1	1	1	1	15	16	16	16	33	33	34	34	14	14	14	15	2	2	2	2	15	16	16	16
23	Bega Valley Shire Council	24	24	25	25	13	13	13	13	1	1	1	1	14	14	14	14	21	21	21	21	11	11	11	11	1	1	1	1	12	12	12	12
24	Ballina Shire Council	37	38	38	38	13	13	13	14	1	1	1	2	14	14	14	15	36	36	37	37	12	13	13	13	1	2	1	1	14	14	14	14
22	Lismore City Council	31	31	32	32	12	13	13	13	2	2	2	1	14	14	14	14	28	28	29	29	12	12	12	12	1	1	1	1	13	13	13	13
25	Kempsey Shire Council	25	25	27	26	11	11	11	11	2	2	2	1	13	13	13	12	20	21	20	21	9	9	9	8	1	1	1	1	9	10	10	9
27	Byron Shire Council	21	21	21	21	10	10	10	10	1	2	2	2	11	11	11	11	21	21	21	21	9	9	9	9	1	1	1	2	10	11	11	11
20	Goulburn Mulwaree Council	23	23	23	23	9	9	10	10	1	1	1	1	10	10	11	11	22	22	22	22	9	10	10	10	1	1	1	1	10	11	11	11
26	Essential Energy	19	19	19	19	10	10	10	10	1	1	1	1	11	11	11	11	19	19	19	19	9	9	9	9	1	1	1	1	10	10	10	10
28A	Goldenfields - Reticulation	23	23	23	23	7	7	7	7	3	3	3	3	10	10	10	10																
28B	Goldenfields - Bulk Water Supply																																
	LWU Range Max	90	89	89	324	44	44	44	131	3	3	3	6	47	47	47	138.0	81	81	81	318	39	40	40	129	3	3	3	6	41	42	42	134.0
	LWU Range Min	19	19	19	19	7	7	7	7	1	1	1	1	10	10	10	10.0	19	19	19	19	9	9	9	8	1	1	1	1	9	10	10	9.0
	Median of NMU Indicators shown in Table	40	40	41	42	17	17	17	19	2	2	2	2	19	19	19	20.5	36	37	38	41	15	15	15	17	1	1	1	1	16	17	17	18.0

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	WATER UTILITY	COMPLAINTS & INTERRUPTIONS																																			
		WS								SGE				WS & SGE												WS				SGE				WS							
		Water quality complaints				Water service complaints				Sewage service complaints (including odour complaints)				Billing and account complaints - water supply & sewerage				Total water and sewerage complaints				% of calls answered by an operator within 30 secs				Av duration of unplanned interruptions				Av sewerage interruption				Incidence of unplanned interruptions - water				No. of restrictions applied for non-payment of bills				No. of legal actions applied for non-payment of bills			
		C9				C10				C11				C12				C13				C14				C15				C16				C17				C18				C19			
		(per 1000 properties)				(per 1000 properties)				(per 1000 properties)				(per 1000 properties)				(per 1000 properties)				(%)				(min)				(min)				(per 1000 props)				(per 1000 props)				(per 1000 props)			
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation	1	0	0	0	0	0	0	0	0	1	1	1	3	2	1	1	4	3	3	3	86	83	79	73	153	151	147	136	277	277	281	265	160	183	179	190	4	6	4	3	1	1	1	1
	Hunter Water Corporation	3	3	3	2	0	0	0	0	2	1	1	1	2	2	2	2	7	6	6	5	79	71	70	71	142	128	136	137	154	148	148	148	236	304	267	310	5	8	7	6	3	1	2	0
	Water NSW																																												
112	Central Coast Council				17																								198				209				113				0				2
3	Shoalhaven City Council	0	0	1	0	0	0	1	1	0	1	0	1	0	0	0	0	1	1	2	2	100	96	96	98	194	220	135	202	92	90	60	47	82	65	78	49	1	1	1	1	0	1	2	1
4	Rous Water																									180	195	237																		
5	MidCoast Water	3	3	3	4	2	2	4	2	2	2	3	2	1	1	1	1	7	7	11	8													2	2	6		0	1	0	0	1	3	2	0
6	Tweed Shire Council	4	5	6		24	28	17		6	7	6		0	0	1		33	40	29		51	56	48	49	160	149	134	112	182	130	95	240	27	50	19	37	0	0	0	0	3	7	12	9
7	Port Macquarie Hastings Council	9	7	6	5	17	14	20	17	8	10	6	9	0	0	0	0	33	31	32	31	77	75	84	98	163	174	210	121	60	60	60	60	11	10	14	10	1	1	0	0	0	0	1	0
8	Riverina Water	4	3	3	3	2	3	2	2					3	4	2	2	9	10	7	6					308	173	185	206					55	63	57	53	1	1	7	4	0	0	0	8
9	Wagga Wagga Council									54	53	41	38		0	0		54	53	41	38	100	100	100	100					50	49	51	53												
11	Albury City Council	4	3	3	2	2	1	1	3	1	1	2	1	0	0	0	1	6	5	6	7					104	124	137	137	87	84	94	95					0	0	1	2	4	27	23	24
10	Coffs Harbour City Council	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	99	99	99						91	99	95	115	35	9	11	30	5	6	2	3	0	0	0	0
13	Tamworth Regional Council	1	0	0	0	47	56	43	40	22	21	16	16	0	0	0	0	67	78	59	55																		0	0	0	0	0	0	0	0
14	Clarence Valley Council	8	23	14		28	57	68		23	19	26		1	2	2		53	101	109																		0	0	0	0	6	6	5	2
122	Dubbo Regional Council				0				11				12				1				23																32				1				0
119	Queanbeyan-Palerang Regional C																																								0				10
15	Eurobodalla Shire Council	0	1	1	0	0	0	0	0	1	2	0	1	0	0	0	0	1	3	1	2	84		100	72	240	190	220	214				108	57	93	120	132	0	0	0	0	0	25	6	7
12	Fish River Water																					100	100	100		1,640	600	600																	
16	Wingecarribee Shire Council	13	12	8	9	75	72	55	67	21	20	11	15	0	0	0	0	105	103	74	88	66	79	53	66	91	108	122		120	120	120		53	73	14	57	1	1	0	0	4	6	7	7
19	Orange City Council	2	1	1	2	59	53	62	82	26	30	41	42	0	8			85	92	104	123				65	240	238	255	135	100	41	52	79	66	73	51	58	0	0	1	0	0	0	0	0
21	Bathurst Regional Council	38	35	34	9	45	24	28	34	18	24	29	47	0	0	0	0	100	82	91	89													1	2	2		0	0	0	0	0	0	0	0
23	Bega Valley Shire Council	9	13	13	4	5	1	2	1	2	2	1	2	1	0	1	0	16	17	16	7	72	79	87										3	1	3	21	0	0	0	0	5	2	4	4
24	Ballina Shire Council	0	4	0	0	0	4	0	0	1	4	3	1	0		0	0	1	12	3	1																	0	0	0	0	0	1	2	3
22	Lismore City Council	0	0	0	0	0	1	2	0	3	16	2	0	1	2	0	0	4	19	4	0	80	80	80	77	288	120	140	214	112	69	118	135	123	32	49	61	0	0	0	0	1	1	4	5
25	Kempsey Shire Council	0	1	0	1	0	0	0	0	2	2	1	2	0	0	0	0	2	3	2	2	49	48	45	42	165	127	215	155	170	119	99	79	68	72	124	29	2	2	1	0	0	0	0	0
27	Byron Shire Council	0	1	2	1	0	0	0	0	2	4	1	1	2	2	2	2	5	7	5	5																	2	1	3	1	0	0	0	0
20	Goulburn Mulwaree Council	3	8	5	20	28	28	36	51	21	30	29	29	0	0	0	0				99													276	17	3		2	5	4	7	1	0	0	
26	Essential Energy	8	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	10	1	1	3	76	78	78	78													28	27	31	34	0	0	0	0
28A	Goldenfields - Reticulation	9	7	5	0	39	1	0	1					0		0	0	49	8	5	1					235	192	205	240						77	96	100		1	1	1		0	0	0
28B	Goldenfields - Bulk Water Supply																																												
	LWU Range Max	38	35	34	20	75	72	68	82	53.7	53.4	41.4	47	3	8	2	2	105	103	109	123	100	100	100	100	1,640	600	600	240	182	130	120	240	276	93	124	132	28	27	31	34	6	27	23	24
	LWU Range Min	0	0	0	0	0	0	0	0	0.3	0.0	0.2	0	0	0	0	0	1	0	1	0	49	48	45	42	91	108	122	112	50	41	51	47	1	1	2	10	0	0	0	0	0	0	0	0
	Median of NMU Indicators shown in Table	3	3	3	1	2	2	2	1	2.5	5.3	2.9	2	0.2	0.2	0.1	0.2	10	12	7	7	79	79	86	75	194	174	205	198	96	87	95	95	54	50	19	51	0	1	0	0	0	0	1	1

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	WATER UTILITY	HEALTH															
		WS															
		Water quality guidelines				% population with microbiological compliance				No. of zones with chemical compliance				Risk based drinking water management plan externally assessed			
		H1				H3				H4				H5			
						(%)								(YES/NO)			
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	12 of 13	13 of 13	13 of 13	13 of 13	Yes	Yes	Yes	Yes
	Hunter Water Corporation	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	5 of 5	5 of 5	5 of 5	5 of 5	No	No	No	Yes
	Water NSW	ADWG 2011	ADWG 2011	ADWG 2011													
112	Central Coast Council				ADWG 2011				100				2 of 3				No
3	Shoalhaven City Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	4 of 4	4 of 4	4 of 4	4 of 4	No	No	No	No
4	Rous Water	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	3 of 3	3 of 3	3 of 3	3 of 3	No	No	No	No
5	MidCoast Water	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	4 of 5	4 of 5	5 of 5	5 of 5	Yes	Yes	Yes	Yes
6	Tweed Shire Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	3 of 3	3 of 3	3 of 3	3 of 3	No	No	No	No
7	Port Macquarie Hastings Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	5 of 5	5 of 5	5 of 5	5 of 5	No	No	No	No
8	Riverina Water	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	14 of 14	14 of 14	14 of 14	13 of 14	Yes	Yes	Yes	Yes
9	Wagga Wagga Council																
11	Albury City Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	1 of 1	1 of 1	1 of 1	1 of 1	No	No	No	No
10	Coffs Harbour City Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	3 of 3	3 of 3	3 of 3	3 of 3	No	No	No	No
13	Tamworth Regional Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	99	100	100	100	7 of 7	7 of 7	7 of 7	7 of 7	No	No	No	No
14	Clarence Valley Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	73	100	100	100	6 of 6	6 of 6	5 of 5	5 of 5	No	No	No	No
122	Dubbo Regional Council				ADWG 2011				100				3 of 3				No
119	Queanbeyan-Palerang Regional C				ADWG 2011				100				4 of 4				No
15	Eurobodalla Shire Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	2 of 2	2 of 2	2 of 2	2 of 2	No	No	No	No
12	Fish River Water	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100		1 of 1	1 of 1	1 of 1		No	No	No	No
16	Wingecarribee Shire Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	3 of 3	3 of 3	2 of 2	2 of 2	No	No	No	No
19	Orange City Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	2 of 2	2 of 2	2 of 2	2 of 2	No	No	No	No
21	Bathurst Regional Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	1 of 1	1 of 1	1 of 1	1 of 1	No	No	No	No
23	Bega Valley Shire Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	8 of 8	8 of 8	8 of 8	6 of 6	No	No	No	No
24	Ballina Shire Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	3 of 3	3 of 3	3 of 3	3 of 3	No	No	No	No
22	Lismore City Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	2 of 2	2 of 2	2 of 2	2 of 2	No	No	No	No
25	Kempsey Shire Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	7 of 7	7 of 7	7 of 7	7 of 7	No	No	No	No
27	Byron Shire Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	2 of 2	2 of 2	2 of 2	2 of 2	No	No	No	No
20	Goulburn Mulwaree Council	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	2 of 2	2 of 2	2 of 2	2 of 2	No	No	No	No
26	Essential Energy	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	2 of 2	2 of 2	2 of 2	2 of 2	No	No	No	No
28A	Goldenfields - Reticulation	ADWG 2011	ADWG 2011	ADWG 2011	ADWG 2011	100	100	100	100	1 of 1	1 of 1	1 of 1	3 of 3	No	No	No	No
28B	Goldenfields - Bulk Water Supply	ADWG 2011	ADWG 2011	ADWG 2011		100	100	100	100	2 of 3	3 of 3	3 of 3	1 of 1	No	No	No	No
	LWU Range Max					100	100	100	100								
	LWU Range Min					73	100	100	100								
	Median of NMU Indicators shown in Table					100	100	100	100								

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	WATER UTILITY	RESIDENTIAL CHARGES AND BILLS – WATER SUPPLY																	
		Tariff structure		Free water allowance		Fixed charge		Usage charge 1st step				Usage charge 2nd step				Usage charge 3rd step			
		P1		P1.1		P1.2		P1.3				P1.4				P1.5			
				kL	kL	$	$	kL limit		$/kL		kL limit		$/kL		kL limit		$/kL	
		2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16
	Sydney Water Corporation					116	103	All	All	2.30	2.00								
	Hunter Water Corporation		f: fixed service charge +	0		18	18	All	All	2.20	2.20								
	Water NSW																		
112	Central Coast Council		Two Part		0		174	All	All		2.30								
3	Shoalhaven City Council	Two Part	Two Part	0	0	82	80	All	All	1.60	1.70								
4	Rous Water																		
5	MidCoast Water	Inclining Block	Inclining Block	0	0	208	215	<200	<200	2.70	2.90	>200	>200	3.10	3.30				
6	Tweed Shire Council	Inclining Block	Inclining Block	0	0	150	159	<300	<300	2.50	2.70	>300	>300	3.80	4.10				
7	Port Macquarie Hastings Council	Inclining Block	Inclining Block	0	0	186	194	<270	<270	2.60	2.70	>270	>270	5.20	5.40				
8	Riverina Water	Inclining Block	Inclining Block	0	0	162	160	<500	<500	1.30	1.40	>500	>500	2.00	2.10				
9	Wagga Wagga Council																		
11	Albury City Council	Inclining Block	Inclining Block	0	0	114	128	<225	<225	1.20	1.30	>225	>225	2.20	2.30				
10	Coffs Harbour City Council	Inclining Block	Inclining Block	0	0	145	143	<365	<365	2.70	2.70	>365	>365	4.00	4.00				
13	Tamworth Regional Council	Inclining Block	Inclining Block	0	0	252	254	<400	<400	1.40	1.50	400-800	400-800	2.20	2.20	>800	>800	3.20	3.30
14	Clarence Valley Council	Inclining Block	Inclining Block	0	0	151	177	<450	<450	1.80	1.90	>450	>450	2.70	2.90				
122	Dubbo Regional Council		Two Part		0		250	All	All		1.90								
119	Queanbeyan-Palerang Regional C		Inclining Block		0		417	<160	<176		3.00	>160	>176		4.60				
15	Eurobodalla Shire Council	Two Part	Two Part	0	0	286	289	All	All	3.40	3.50								
12	Fish River Water																		
16	Wingecarribee Shire Council	Inclining Block	Inclining Block	0	0	156	158	<225	<225	1.80	1.80	>225	>225	2.60	2.70				
19	Orange City Council	Inclining Block	Inclining Block	0	0	225	252	<450	<450	2.00	2.20	>450	>450	3.10	3.30				
21	Bathurst Regional Council	Inclining Block	Inclining Block	0	0	123	156	<250	<250	1.80	1.80	>250	>250	2.70	2.70				
23	Bega Valley Shire Council	Two Part	Two Part	0	0	201	203	All	All	2.50	2.70								
24	Ballina Shire Council	Inclining Block	Inclining Block	0	0	192	195	<350	<350	2.00	2.10	>350	>350	3.10	3.10				
22	Lismore City Council	Two Part	Two Part	0	0	207	235	All	All	3.00	3.20								
25	Kempsey Shire Council	Inclining Block	Inclining Block	0	0	259	268	<250	<250	2.10	2.20	>250	>250	3.10	3.20				
27	Byron Shire Council	Inclining Block	Inclining Block	0	0	157	175	<450	<450	2.40	2.40	>450	>450	3.50	3.60				
20	Goulburn Mulwaree Council	Inclining Block	Inclining Block	0	0	167	170	<292	<292	2.80	2.80	>292	>292	3.80	3.80				
26	Essential Energy	Two Part	Two Part	0	0	317	317	All	All	1.70	1.70								
28A	Goldenfields - Reticulation	Two Part	Two Part	0	0	176	178	All	All	2.10	2.20								
28B	Goldenfields - Bulk Water Supply																		
	LWU Range Max			0	0	317	417			3.40	3.50			5.20	5.40			3.20	3.30
	LWU Range Min			0	0	82	80			1.20	1.30			2.00	2.10			3.20	3.30
	Median of NMU Indicators shown in Table			0	0	176	186			2.10	2.20			3.10	3.25			3.20	3.30

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	WATER UTILITY	RESIDENTIAL CHARGES AND BILLS – WATER SUPPLY															
		Special levies		Income retained from special levies		Annual Bill based on 200kL/a				Average Annual Residential Water Supplied				Typical Residential Bill (TRB)			
		P1.12		P1.13		P2				P2.1				P3			
		$		(Yes/No)		($ per assessment)				(kL)				($ per assessment)			
		2014/15	2015/16	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation			No	No	594	576	568	558	198	206	201	201	589	589	571	560
	Hunter Water Corporation	0		No	No	461	457	462	462	176	181	168	166	407	415	390	387
	Water NSW																
112	Central Coast Council		0		No				626				154				523
3	Shoalhaven City Council	0	0	No	No	414	413	407	410	149	147	142	150	330	327	313	328
4	Rous Water																
5	MidCoast Water	0	0	No	No	714	716	755	799	143	150	142	139	563	583	595	621
6	Tweed Shire Council	0	0	No	No	570	606	647	699	177	184	178	165	519	570	592	604
7	Port Macquarie Hastings Council	0	0	No	No	653	675	703	734	157	157	151	158	551	567	576	619
8	Riverina Water	0	0	No	No	360	394	432	440	347	324	311	333	531	548	582	627
9	Wagga Wagga Council																
11	Albury City Council	0	0	No	No	290	318	354	388	255	232	205	223	374	360	359	418
10	Coffs Harbour City Council	0	0	No	No	668	669	678	677	161	169	167	167	567	587	590	590
13	Tamworth Regional Council	0	0	No	No	533	534	539	544	261	287	188	251	620	658	522	619
14	Clarence Valley Council	0	0	No	No	487	507	514	559	148	161	147	158	401	440	419	480
122	Dubbo Regional Council		0		No				632				322				866
119	Queanbeyan-Palerang Regional C		0		No				1,049				163				901
15	Eurobodalla Shire Council	0	0	No	No	810	936	975	985	116	119	114	117	543	651	677	695
12	Fish River Water																
16	Wingecarribee Shire Council	0	0	No	No	491	489	509	514	186	200	178	186	467	489	469	489
19	Orange City Council	0	0	No	No	574	587	635	692	180	174	170	173	536	537	572	631
21	Bathurst Regional Council	0	0	No	No	441	472	488	516	259	227	223	233	543	519	529	576
23	Bega Valley Shire Council	0	0	No	No	696	700	708	743	139	134	137	135	543	536	549	568
24	Ballina Shire Council	0	0	No	No	550	577	601	611	177	194	181	168	507	566	563	545
22	Lismore City Council	0	0	No	No	702	752	813	878	145	155	155	155	557	625	675	735
25	Kempsey Shire Council	0	0	No	No	640	674	682	706	156	157	156	149	552	585	588	594
27	Byron Shire Council	0	0	No	No	598	610	628	659	176	181	180	169	544	567	582	584
20	Goulburn Mulwaree Council	41	0	No	No	741	798	806	770	150	165	139	162	634	699	633	663
26	Essential Energy	0	0	No	No	623	606	666	665	281	281	257	233	765	745	766	722
28A	Goldenfields - Reticulation	0	0	No	No	574	587	606	612	261	284	272	277	698	761	761	779
28B	Goldenfields - Bulk Water Supply																
	LWU Range Max					810	936	975	1,049	347	324	311	333	765	761	766	901
	LWU Range Min					290	318	354	388	116	119	114	117	330	327	313	328
	Median of NMU Indicators shown in Table					574	606	635	662	176	174	170	166	543	567	582	612

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	WATER UTILITY	RESIDENTIAL CHARGES AND BILLS – SEWERAGE																			
		Tariff Structure P4 (Charge Type)				Fixed charge min P4.1 ($)				Usage charge P4.2 ($/kL)				Special Levies P4.3						Income from Special Levies Retained by Utility P4.4 (Yes/No)	
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	Description 2015/16	2012/13	2013/14	2014/15	2015/16		2014/15	2015/16
	Sydney Water Corporation	N/A	N/A	NA	N/A	588	588	601	609											No	No
	Hunter Water Corporation	Service charge only	Service charge only	Service charge only	Service charge only	588	587	594	594	0.0	0.0	0.0			38	38	38	38		Yes	Yes
	Water NSW																				
112	Central Coast Council				Fixed Charge				641									0			No
3	Shoalhaven City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	718	736	761	772	0	0				0	0	0	0		No	No
4	Rous Water																				
5	MidCoast Water	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	974	949	961	970	0	0				0	0	0	0		No	No
6	Tweed Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	688	712	742	782	0	0				0	0	0	0		No	No
7	Port Macquarie Hastings Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	714	726	746	769	0	0				0	0	0	0		No	No
8	Riverina Water																				
9	Wagga Wagga Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	460	448	440	454	0	0				0	0	0	0		No	No
11	Albury City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	518	578	648	703	0	0				0	0	0	0		No	No
10	Coffs Harbour City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	805	807	817	806	0	0				0	0	0	0		No	No
13	Tamworth Regional Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	758	761	769	777	0	0				0	0	0	0		No	No
14	Clarence Valley Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	878	935	1,002	1,076	0	0				0	0	0	0		No	No
122	Dubbo Regional Council				Fixed Charge				712									0			No
119	Queanbeyan-Palerang Regional C				Fixed Charge				533									0			No
15	Eurobodalla Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	864	870	877	886	0	0				0	0	0	0		No	No
12	Fish River Water																				
16	Wingecarribee Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	701	733	749	756	0	0				0	0	0	0		No	No
19	Orange City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	370	396	429	452	0	0				0	0	0	0		No	No
21	Bathurst Regional Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	459	470	486	503	0	0				0	0	0	0		No	No
23	Bega Valley Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	1107	1115	1,125	1,136	0	0				0	0	0	0		No	No
24	Ballina Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	714	757	818	864	0	0				0	0	0	0		No	No
22	Lismore City Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	742	761	783	808	0	0				0	0	0	0		No	No
25	Kempsey Shire Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	720	759	802	850	0	0				0	0	0	0		No	No
27	Byron Shire Council	Fixed + Usage Charge	Fixed + Usage Charge	Fixed + Usage Charge	Fixed + Usage Charge	778	782	791	802	2	2	2	2		0	0	0	0		No	No
20	Goulburn Mulwaree Council	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	715	721	734	749	0	0				0	0	0	0		No	No
26	Essential Energy	Fixed Charge	Fixed Charge	Fixed Charge	Fixed Charge	526	512	518	518	0	0				0	0	0	0		No	No
28A	Goldenfields - Reticulation																				
28B	Goldenfields - Bulk Water Supply																				
	LWU Range Max					1,107	1,115	1,125	1,136	2	2	2	2		0	0	0	0			
	LWU Range Min					370	396	429	452	0	0	2	2		0	0	0	0			
	Median of NMU Indicators shown in Table					716	746	765	772	0	0	2	2		0	0	0	0			

APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2015-16

	WATER UTILITY	RESIDENTIAL CHARGES AND BILLS															
		SEWERAGE								WS & SGE							
		Annual Bill based on 200kL/a				Typical Residential Bill (TRB)				Annual Bill based on 200kL/a WS + Sge				Typical Residential Bill (TRB) WS + Sge			
		P5				P6				P7				P8			
		($ per assessment)				($ per assessment)				($ per assessment)				($ per assessment)			
		2012/13	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*
	Sydney Water Corporation	588	588	601	609	588	588	601	609	1,182	1,165	1,169	1,167	1,177	1,178	1,172	1,169
	Hunter Water Corporation	626	625	632	632	626	625	632	632	1,087	1,081	1,094	1,094	1,033	1,040	1,023	1,019
	Water NSW																
112	Central Coast Council				641				641				1,267				1,164
3	Shoalhaven City Council	718	736	761	772	718	736	761	772	1132	1150	1,167	1,182	1048	1063	1,074	1,100
4	Rous Water																
5	MidCoast Water	974	949	961	970	974	949	961	970	1688	1664	1,717	1,769	1538	1531	1,556	1,591
6	Tweed Shire Council	688	712	742	782	688	712	742	782	1258	1319	1,389	1,481	1207	1283	1,334	1,386
7	Port Macquarie Hastings Council	714	726	746	769	714	726	746	769	1367	1401	1,449	1,503	1264	1293	1,322	1,388
8	Riverina Water									360	394	432		531	548	582	
9	Wagga Wagga Council	460	447	440	454	460	447	440	454	460	447	440		460	447	440	
11	Albury City Council	518	578	648	703	518	578	648	703	808	896	1,002	1,091	892	938	1,007	1,121
10	Coffs Harbour City Council	805	807	817	806	805	807	817	806	1473	1476	1,496	1,483	1371	1394	1,407	1,396
13	Tamworth Regional Council	758	761	769	777	758	761	769	777	1291	1295	1,308	1,321	1378	1419	1,291	1,396
14	Clarence Valley Council	878	935	1,002	1,076	878	935	1,002	1,076	1365	1442	1,516	1,635	1279	1375	1,421	1,556
122	Dubbo Regional Council				712				712				1,344				1,578
119	Queanbeyan-Palerang Regional C				533				533				1,582				1,434
15	Eurobodalla Shire Council	864	870	877	886	864	870	877	886	1674	1806	1,853	1,871	1407	1521	1,554	1,581
12	Fish River Water																
16	Wingecarribee Shire Council	701	733	749	756	701	733	749	756	1192	1222	1,258	1,270	1168	1222	1,219	1,245
19	Orange City Council	370	396	429	452	370	396	429	452	944	983	1,064	1,144	905	933	1,001	1,083
21	Bathurst Regional Council	459	470	486	503	459	470	486	503	899	942	973	1,019	1002	989	1,015	1,079
23	Bega Valley Shire Council	1107	1115	1,125	1,136	1107	1115	1,125	1,136	1802	1815	1,832	1,879	1650	1651	1,673	1,704
24	Ballina Shire Council	714	757	818	864	714	757	818	864	1263	1334	1,420	1,475	1221	1323	1,381	1,409
22	Lismore City Council	742	761	783	808	742	761	783	808	1444	1512	1,596	1,686	1299	1386	1,458	1,543
25	Kempsey Shire Council	720	759	802	850	720	759	802	850	1360	1433	1,484	1,556	1272	1343	1,390	1,444
27	Byron Shire Council	1128	1136	1,142	1,156	1073	1093	1,108	1,121	1726	1747	1,769	1,815	1617	1660	1,690	1,705
20	Goulburn Mulwaree Council	715	721	734	749	715	721	734	749	1456	1519	1540	1,519	1349	1420	1367	1,412
26	Essential Energy	526	512	518	518	526	512	518	518	1148	1119	1,184	1,183	1291	1258	1,284	1,240
28A	Goldenfields - Reticulation									574	587	606		698	761	761	
28B	Goldenfields - Bulk Water Supply																
	LWU Range Max	1,128	1,136	1,142	1,156	1,107	1,115	1,125	1,136	1,802	1,815	1,853	1,879	1,650	1,660	1,690	1,705
	LWU Range Min	370	396	429	452	370	396	429	452	360	394	432	1,019	460	447	440	1,079
	Median of NMU Indicators shown in Table	717	747	765	772	717	747	765	772	1,277	1,327	1,405	1,482	1,268	1,308	1,328	1,403

APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2015-16

	WATER UTILITY	FINANCIAL																											
		WS				SGE				WS & SGE				WS						SGE				WS & SGE					
		Total Revenue Water (excludes gain/loss on disposal of assets, grants for capital works & investment income)				Total Revenue Sewerage (excludes gain/loss on disposal of assets, grants for capital works & investment income)				Total Income WS + Sge (includes gain/loss on disposal of assets) (may not equal F1 + F2)				Residential Revenue from Usage Charges				Revenue per property for WS				Revenue per property for Sge				Income for Utility				Revenue from CSOs			
		F1				F2				F3				F4				F5				F6				F7				F8			
		($'000)				($'000)				($'000)				(%)				($/property)				($/property)				($/property)				(%)			
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation	1,303,600	1,319,117	1,340,778	1,359,222	1,291,749	1,290,925	1,335,458	1,386,239	2,616,776	2,640,883	2,714,939	2,802,948	78	79	80	81	707	713	715	716	720	718	731	749	1,419	1,429	1,447	1,476	6	6	6	6
	Hunter Water Corporation	142,213	148,972	142,280	148,247	166,966	162,862	174,470	176,352	309,178	311,834	316,749	324,599	95	96	95	96	610	632	596	612	754	726	767	765	1,327	1,322	1,326	1,340	5	5	5	4
	Water NSW	210,011	211,602	207,951	216,556					213,582	215,717	209,159	218,598																				
112	Central Coast Council																																
3	Shoalhaven City Council	24,827	23,885	27,177	25,000	40,571	41,719	47,401	45,200	66,328	65,657	71,567	70,348	76	74	75	76	533	508	576	526	987	996	1,131	1,072	1,423	1,398	1,516	1,482	2	2	2	2
4	Rous Water	21,018	23,214	23,339	26,600					20,716	22,887	23,160	27,129																	0	0	0	0
5	MidCoast Water	32,393	31,584	31,571	34,800	41,606	39,722	40,315	42,400	69,934	65,491	69,497	74,595	75	75	72	69	842	819	816	876	1,191	1,134	1,149	1,196	1,817	1,698	1,796	1,877	2	1	1	1
6	Tweed Shire Council	24,161	33,409	29,153	30,900	28,511	36,843	33,935	35,900	51,059	68,789	60,873	61,536	75	77	75	76	766	1,050	904	948	948	1,213	1,103	1,154	1,618	2,161	1,888	1,889	2	1	1	1
7	Port Macquarie Hastings Council	21,205	31,111	27,079	38,700	25,038	32,935	24,966	32,500	45,756	62,087	51,908	69,209	74	69	68	70	713	1,034	891	1,274	919	1,198	897	1,151	1,539	2,063	1,707	2,278	2	1	1	1
8	Riverina Water	26,442	28,103	30,889	32,800					26,570	28,069	30,855	32,838	77	76	75	76	901	951	1,034	1,034					905	950	1,033	1,036	1	1	1	1
9	Wagga Wagga Council					17,709	17,131	19,857	18,600	17,709	17,128	19,860	18,621									680	652	730	671	680	652	731		1	1	1	1
11	Albury City Council	15,238	16,877	17,029	18,700	18,615	21,100	21,149	23,700	33,840	37,986	36,311	41,111	79	79	75	76	654	716	662	737	861	962	881	974	1,455	1,610	1,413	1,621	1	1	1	1
10	Coffs Harbour City Council	22,658	20,866	22,433	23,100	27,485	28,345	29,038	30,300	48,455	48,616	50,662	53,255	74	76	76	76	915	838	895	922	1,174	1,204	1,225	1,278	1,958	1,953	2,022	2,125	1	1	1	1
13	Tamworth Regional Council	19,063	23,327	20,332	22,000	19,528	21,120	21,827	24,200	38,587	44,418	41,350	45,914	60	64	55	60	898	1,089	937	1,000	1,019	1,092	1,108	1,210	1,817	2,073	1,906	2,087	1	1	1	1
14	Clarence Valley Council	13,693	14,854	15,111	15,800	15,502	16,441	18,287	19,800	29,809	31,869	32,964	35,071	67	67	66	76	642	694	704	734	1,059	1,123	1,243	1,342	1,396	1,489	1,536	1,629	2	1	1	1
122	Dubbo Regional Council																																
119	Queanbeyan-Palerang Regional C																																
15	Eurobodalla Shire Council	13,361	16,013	17,235	18,300	18,780	19,380	19,570	21,900	29,460	34,917	35,316	39,925	68	64	58	58	686	819	879	928	1,048	1,075	1,081	1,190	1,514	1,785	1,802	2,024	1	1	1	1
12	Fish River Water	9,279	10,356							9,279	10,356																			0	0		
16	Wingecarribee Shire Council	12,934	13,871	13,427	17,700	13,966	15,350	16,990	21,200	26,859	29,205	29,364	37,950	68	69	68	71	690	732	699	915	951	984	1,080	1,304	1,434	1,540	1,533	1,961	1	1	1	1
19	Orange City Council	16,368	16,059	17,828	17,800	10,899	12,057	14,236	12,600	27,324	28,298	32,173	30,399	64	71	70	65	967	934	1,018	988	672	732	860	746	1,614	1,647	1,836	1,687	1	1	1	1
21	Bathurst Regional Council	13,314	15,272	15,448	16,000	10,138	11,118	12,518	11,400	23,285	26,391	27,796	27,396	83	83	82	79	875	980	983	996	670	720	789	709	1,529	1,695	1,768	1,705	1	1	1	1
23	Bega Valley Shire Council	9,399	10,615	10,130	10,900	15,638	16,977	16,864	17,800	25,001	27,574	27,023	28,700	60	63	65	64	656	737	703	756	1,288	1,394	1,382	1,455	1,744	1,917	1,877	1,991	1	1	1	1
24	Ballina Shire Council	10,560	11,633	11,737	11,900	14,359	15,961	17,030	18,200	23,072	27,485	16,377	30,069	67	68	68	65	756	821	817	781	1,045	1,135	1,207	1,264	1,651	1,938	1,141	1,973	1	1	2	1
22	Lismore City Council	10,396	11,149	11,966	12,700	11,634	11,102	11,477	13,200	20,259	21,540	22,020	25,087	70	70	70	68	730	779	836	906	918	870	897	1,032	1,422	1,506	1,537	1,790	1	1	1	1
25	Kempsey Shire Council	10,401	10,207	12,720	11,100	8,124	8,418	9,410	10,000	18,052	17,702	20,845	20,295	59	59	59	56	825	819	1,018	890	870	864	960	1,095	1,431	1,420	1,668	1,628	2	2	1	1
27	Byron Shire Council	7,837	9,051	9,008	9,840	14,323	16,140	16,515	19,200	22,160	24,692	25,451	29,062	73	74	73	71	710	811	804	859	1,381	1,538	1,543	1,759	2,007	2,215	2,272	2,538	1	1	1	1
20	Goulburn Mulwaree Council	10,074	10,424	10,243	10,700	11,369	11,108	11,185	11,400	21,403	21,743	21,431	22,433	52	66	65	73	1,015	1,004	915	948	1,182	1,051	1,045	1,048	2,155	2,095	1,913	1,987	1	1	0	1
26	Essential Energy	17,903	15,445	14,795	25,200	6,612	6,519	6,499	6,000	24,516	21,964	21,294	31,207	66	66	59	57	1,704	1,468	1,405	2,394	680	671	670	617	2,334	2,088	2,022	2,964	1	2	2	1
28A	Goldenfields - Reticulation	12,364	13,936	14,955	15,300					12,461	13,983	14,976	15,268	77	79	78	78	1,218	1,366	1,452	1,487					1,227	1,371	1,454	1,484	1	1	1	1
28B	Goldenfields - Bulk Water Supply	5,034	5,086	5,583	6,000					5,051	5,094	5,586	6,000																	0	0	0	
	LWU Range Max	32,393	33,409	31,571	38,700	41,606	41,719	47,401	45,200	69,934	68,789	71,567	74,595	83	83	82	79	1,704	1,468	1,452	2,394	1,381	1,538	1,543	1,759	2,334	2,215	2,272	2,964	1.7	1.7	2.2	1.5
	LWU Range Min	5,034	5,086	5,583	6,000	6,612	6,519	6,499	6,000	5,051	5,094	5,586	6,000	52	59	55	56	533	508	576	526	670	652	670	617	680	652	731	1,036	0.0	0.0	0.0	0.0
	Median of NMU Indicators shown in Table	13,527	15,359	15,448	17,800	15,570	16,709	17,659	19,500	25,001	27,574	28,580	30,803	70	70	70	71	766	821	891	922	969	1,063	1,081	1,153	1,534	1,697	1,738	1,889	1.1	1.0	1.0	1.0

APPENDIX F: NMUs - NATIONAL PERFORMANCE REPORT 2015-16

	WATER UTILITY	FINANCIAL																									
		WS				SGE				WS				SGE				WS + SGE				WS				SGE			
		Written Down Replacement Cost of WS Assets				Written Down Replacement Cost of Sge Assets				Operating Cost OMA - Water Supply				Operating Cost OMA - Sewerage				Combined Operating Cost OMA - WS & Sge				Total Water Capital Expenditure				Total Sge Capital Expenditure			
		F9				F10				F11				F12				F13				F14				F15			
		($'000)				($'000)				($/prop)				($/prop)				($/prop)				($'000)				($'000)			
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation	12,018,131	12,176,110	12,448,466	12,660,026	30,252,665	30,973,603	31,661,423	32,408,825	413	413	391	399	283	272	282	289	696	686	673	689	262,062	201,761	152,212	222,431	442,518	402,932	484,285	425,749
	Hunter Water Corporation	2,260,902	2,332,222	2,415,117	2,437,309	3,224,788	4,519,324	4,473,873	4,639,746	247	236	273	249	379	351	358	335	627	587	631	584	30,584	78,641	37,181	30,312	62,314	33,639	41,299	58,067
	Water NSW																					18,743	33,273	14,172	15,823				
112	Central Coast Council																												
3	Shoalhaven City Council	309,411	347,993	357,012	364,142	467,845	453,016	465,354	469,092	298	282	279	278	492	493	507	466	790	775	786	744	4,516	10,958	10,419	13,236	17,678	13,450	12,527	8,471
4	Rous Water	309,522	316,410	325,694	328,288																	2,648	5,709	12,290	11,310				
5	MidCoast Water	460,780	457,488	436,300	434,219	448,971	466,861	453,068	403,525	454	424	484	463	522	506	551	509	976	930	1,035	972	11,184	7,740	3,131	8,429	11,418	3,894	3,753	5,908
6	Tweed Shire Council	474,016	491,889	494,987	498,165	585,248	599,624	603,979	609,987	454	436	425	420	487	521	531	514	940	958	956	934	5,539	8,895	1,982	3,173	8,529	4,590	5,113	5,285
7	Port Macquarie Hastings Council	447,416	452,627	347,827	357,799	289,349	298,624	261,026	268,019	387	398	404	390	490	509	487	484	877	907	890	874	6,433	2,501	10,013	6,230	7,888	6,681	6,072	12,673
8	Riverina Water	191,362	195,664	203,441	317,344					410	353	281	242					410	353	281	242	5,851	6,372	12,036	35,016				
9	Wagga Wagga Council					244,885	251,992	255,145	257,761					437	430	424	405	437	430	424	405					3,811	4,866	4,443	4,055
11	Albury City Council	202,526	206,790	207,020	212,641	166,194	176,710	183,299	191,191	347	315	281	276	463	442	399	398	810	758	679	674	3,607	2,506	2,303	2,727	2,519	3,417	1,885	5,707
10	Coffs Harbour City Council	279,777	282,974	285,637	290,025	450,136	461,702	458,031	456,503	411	408	401	388	618	629	628	583	1,029	1,037	1,028	971	3,593	1,720	1,346	1,209	5,389	8,906	12,824	4,250
13	Tamworth Regional Council	185,104	205,537	209,984	216,350	225,723	233,737	233,215	234,337	548	553	524	518	454	486	430	398	1,002	1,038	955	916	10,996	11,288	6,702	4,047	2,412	9,982	2,459	1,640
14	Clarence Valley Council	386,815	386,222	400,037	408,018	259,790	247,953	281,500	298,344	402	392	393	328	555	510	468	478	957	903	862	806	2,556	2,226	1,948	3,359	9,876	8,956	23,913	15,101
122	Dubbo Regional Council																												
119	Queanbeyan-Palerang Regional C																												
15	Eurobodalla Shire Council	275,881	279,102	278,273	278,044	234,645	238,740	231,572	233,467	414	436	410	425	554	583	507	536	968	1,018	917	961	2,807	2,372	2,603	2,938	4,210	4,579	3,997	10,226
12	Fish River Water	2,321,194	2,348,043																			435	1,025						
16	Wingecarribee Shire Council	170,821	165,872	168,869	169,531	223,090	274,694	207,497	197,927	369	387	376	387	449	547	445	423	819	934	821	810	2,563	769	2,844	2,172	12,028	2,239	3,173	3,824
19	Orange City Council	177,872	207,330	219,512	229,371	149,962	153,278	159,197	161,927	365	395	344	365	366	386	415	380	732	779	758	746	7,297	28,059	18,746	9,835	562	930	3,417	1,869
21	Bathurst Regional Council	153,955	158,217	163,421	167,585	86,745	88,989	90,813	91,476	540	548	553	603	448	429	441	443	988	977	994	1,046	2,821	3,740	7,534	5,278	4,224	3,086	5,663	2,368
23	Bega Valley Shire Council	184,180	187,762	190,957	192,931	178,101	181,975	182,250	179,596	551	522	549	598	750	757	749	850	1,300	1,278	1,299	1,448	2,106	2,689	4,139	3,745	2,459	5,730	4,130	1,703
24	Ballina Shire Council	105,664	111,296	68,848	70,961	248,546	264,360	196,454	198,407	672	662	654	606	704	663	656	627	1,377	1,325	1,310	1,233	1,689	2,165	3,124	1,649	27,589	9,067	5,211	2,977
22	Lismore City Council	72,529	75,388	75,248	78,707	185,219	188,544	190,131	192,626	643	635	621	639	485	480	460	478	1,128	1,116	1,081	1,117	2,093	2,360	1,263	4,432	7,221	2,739	4,759	3,881
25	Kempsey Shire Council	186,040	189,371	192,013	193,372	156,084	157,562	157,887	158,822	459	496	484	444	634	560	570	575	1,093	1,056	1,054	1,019	4,763	5,200	5,431	4,009	2,403	1,508	1,650	2,355
27	Byron Shire Council	54,768	55,364	55,735	58,790	145,192	147,030	146,929	145,584	620	621	615	591	666	672	687	662	1,286	1,293	1,301	1,253	1,035	439	351	2,787	1,562	1,572	863	1,218
20	Goulburn Mulwaree Council	201,218	203,326	211,230	215,330	80,882	84,426	82,582	90,477	431	431	432	384	423	379	336	347	854	810	768	731	2,812	2,625	6,256	2,653	1,743	1,337	2,305	2,774
26	Essential Energy			0				0		1,206	1,321	1,039	1,290	348	329	337	317	1,555	1,650	1,376	1,607	3,590	3,198	3,739	12,819	2,065	1,034	2,652	1,612
28A	Goldenfields - Reticulation	161,583	148,566	144,593	135,954					686	662	673	665					686	662	673	665			1,691	3,582				
28B	Goldenfields - Bulk Water Supply	69,912	63,975	62,894	79,792																			734	1,535				
	LWU Range Max	2,321,194	2,348,043	494,987	498,165	585,248	599,624	603,979	609,987	1,206	1,321	1,039	1,290	750	757	749	850	1,555	1,650	1,376	1,607	11,184	28,059	18,746	35,016	27,589	13,450	23,913	15,101
	LWU Range Min	54,768	55,364	0	58,790	80,882	84,426	0	90,477	298	282	279	242	348	329	336	317	410	353	281	242	435	439	351	1,209	562	930	863	1,218
	Median of NMU Indicators shown in Table	191,362	205,537	207,020	215,840	225,723	238,740	201,976	198,407	454	436	432	425	489	508	478	478	963	946	936	925	3,206	2,657	3,131	3,745	4,217	4,237	4,064	3,853

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	WATER UTILITY	FINANCIAL																									
		WS + SGE				WS				SGE				WS + SGE													
		Capital Expenditure WS + Sge				ERRR WS				ERRR Sge				ERRR WS & Sge				Dividend Paid or Payable				Dividend Payout Ratio				Net Debt to Equity			
		F16				F17				F18				F19				F20				F21				F22			
		($'000)				(%)				(%)				(%)				($'000)				(%)				(%)			
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation	704,580	604,694	636,497	648,180	2	2	2	3	1	1	1	2	2	2	2	2	307,772	259,812	673,320	389,232	70	54	129	71	100	96	98	103
	Hunter Water Corporation	92,898	112,280	78,481	88,379	3	4	3	3	2	2	2	2	3	2	2	2	16,520	37,425	21,629	37,300	62	72	54	96	75	78	81	91
	Water NSW	18,743	33,273	14,172														28,336	28,765			75	108			49	48		
112	Central Coast Council																												
3	Shoalhaven City Council	22,193	24,409	22,946	21,707	1	1	2	1	2	2	4	3	2	2	3	2	2,752	2,756	2,747	2,718	20	21	13	13	1	0	-1	-4
4	Rous Water	2,648	5,709	12,290		1	2	2	3									0	0	0	0	0	0	0	0	6	4	5	2
5	MidCoast Water	22,602	11,634	6,884	14,337	0	1	1	0	3	3	3	3	1	2	2	1	0	0	0	0	0	0	0	0	25	23	22	21
6	Tweed Shire Council	14,068	13,485	7,095	8,458	1	2	2	2	1	2	1	2	1	2	1	2	0	0	0	0	0	0	0	0	3	2	0	-2
7	Port Macquarie Hastings Council	14,322	9,182	16,085	18,903	-1	2	1	4	1	3	2	4	0	2	1	4	0	969	872	870	0	11	17	5	-4	-5	-8	-9
8	Riverina Water	5,851	6,372	12,036		4	5	8	6									0	0	0	0	0	0	0	0	-4	-7	-9	-2
9	Wagga Wagga Council	3,811	4,866	4,443						1	0	1	1					0	0	0	0	0	0	0	0	6	6	5	5
11	Albury City Council	6,126	5,923	4,188	8,434	1	2	2	3	3	4	4	5	2	3	3	4	0	0	0	0	0	0	0	0	1	-2	-6	-9
10	Coffs Harbour City Council	8,982	10,625	14,170	5,459	2	1	2	2	0	1	0	1	1	1	1	1	0	0	0	0	0	0	0	0	15	14	13	11
13	Tamworth Regional Council	13,408	21,271	9,160	5,687	2	3	2	3	2	3	3	4	2	3		4	0	0		126	0	0		1	-2	-2	-4	-4
14	Clarence Valley Council	12,433	11,182	25,861	18,460	0	1	0	1	1	2	3	3	0	1	1	2	0	0	0	0	0	0	0	0	10	10	11	12
122	Dubbo Regional Council																												
119	Queanbeyan-Palerang Regional C																												
15	Eurobodalla Shire Council	7,017	6,951	6,600	13,164	0	0	1	1	1	1	2	2	0	1	1	2	560	137	537	531	-23	8	12	7	2	1	-1	-3
12	Fish River Water	435	1,025			11	16											0	0			0	0			0	0		
16	Wingecarribee Shire Council	14,591	3,008	6,017	5,996	1	2	2	4	1	1	3	5	1	1	2	4	0	0	0	0	0	0	0	0	0	-1	-4	-8
19	Orange City Council	7,859	28,989	22,163	11,704	4	3	4	4	1	2	3	2	3	2	4	3	0	0	0	0	0	0	0	0	-13	-14	-12	-13
21	Bathurst Regional Council	7,046	6,826	13,197	7,646	1	2	2	1	1	2	3	2	1	2	2	1	0	0	0	0	0	0	0	0	-11	-12	-12	-12
23	Bega Valley Shire Council	4,565	8,419	8,269	5,448	-1	-1	-1	-1	0	0	1	0	-1	0	0	-1	0	0		0	0	0		0	-2	-3	-3	-3
24	Ballina Shire Council	29,278	11,232	8,335	4,626	-1	0	1	2	1	1	3	3	0	1	2	3	0	0	0	0	0	0	0	0	8	11	17	15
22	Lismore City Council	9,314	5,099	6,022	8,313	-1	0	2	3	1	0	1	1	0	0	1	2	0	0	0	0	0	0	0	0	-1	-1	-2	-2
25	Kempsey Shire Council	7,166	6,709	7,081	6,364	0	0	1	1	-1	0	0	1	0	0	1	1	0	0		0	0	0		0	8	8	8	7
27	Byron Shire Council	2,597	2,011	1,214	4,005	-1	2	2	3	1	4	4	6	1	3	3	5	0	0		0	0	0		0	21	17	14	11
20	Goulburn Mulwaree Council	4,555	3,962	8,561	5,427	1	1	1	1	6	6	6	6	2	2	2	3	0	0		0	0	0		0	-2	-5	-6	-8
26	Essential Energy	5,655	4,232	6,390	14,431														0	0	0		0	0	0				
28A	Goldenfields - Reticulation			1,691		1	2	4	4									0	0	0	0	0	0	0	0	-9	-9	-13	-16
28B	Goldenfields - Bulk Water Supply			734	1,535	1	1	0	0									0	0	0	0	0	0	0	0	-10	-11	-15	-15
	LWU Range Max	29,278	28,989	25,861	21,707	11	16	8	6	5.8	5.6	6.2	6	2.6	3.3	3.5	5	2,752	2,756	2,747	2,718	20	21	17	13	25	23	22	21
	LWU Range Min	435	1,025	734	1,535	-1	-1	-1	-1	-0.6	-0.4	0.1	0	-0.8	-0.2	-0.1	-1	0	0	0	0	-23	0	0	0	-13	-14	-15	-16
	Median of NMU Indicators shown in Table	7,166	6,826	7,682	7,980	1	2	2	2.3	1.1	1.7	2.6	2.50	0.8	1.7	1.7	2.1	0	0	0	0	0	0	0	0	0	-1	-2	-3

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	WATER UTILITY	FINANCIAL																											
		WS + SGE												WS				SGE				WS				SGE				WS & SGE			
		Interest Cover				Net Profit after Tax				CSO				Capital Works Grants WS				Capital Works Grants SGE				Water Supply Capital Expenditure				Sewerage Capital Expenditure				NPAT Ratio			
		F23				F24				F25				F26				F27				F28				F29				F30			
						($'000)				($'000)				($'000)				($'000)				($/property)				($/property)							
		2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16	2012/13	2013/14	2014/15	2015/16
	Sydney Water Corporation	2	2	2	2	439,675	478,892	520,686	548,014	164,640	162,769	165,374	165,869	0	0	0	0	7,083	16,158	4,898	0	142	109	81	117	247	224	265	230	17	18	19	20
	Hunter Water Corporation	1	2	2	2	26,856	51,887	40,438	39,052	14,441	14,236	14,485	14,431	114	285	223	373		0	0		131	333	156	125	281	150	182	252	9	17	13	12
	Water NSW					37,781	26,681																							18	12		
112	Central Coast Council																																
3	Shoalhaven City Council		59		>100	13,524	13,042	21,064	20,533	1,082	1,067	1,068	1,051	0	0	0	0	3,924	0	8,621	2,288	96	233	221	279	430	321	299	201	20	20	29	29
4	Rous Water	4	3	4	6	592	1,949	2,558	7,219	11	10	10	10	0	0	0	0													3	9	11	27
5	MidCoast Water	1	1	1	1	-7,026	-5,517	-2,481	-5,165	1,024	935	944	944	0	0	0	415	1,613	0	0	0	290	201	81	212	327	111	107	167	-10	-8	-4	-7
6	Tweed Shire Council	2	5	3	5	-1,785	14,636	6,612	8,778	776	762	755	750	0	945	4	0	1,144	330	0	0	176	279	62	97	284	152	166	170	-4	21	11	14
7	Port Macquarie Hastings Council	0	23		63	-2,567	8,856	5,141	17,849	755	741	739	725	3,883	1,374	0	0	0	0	0	910	216	84	330	205	289	243	218	449	-6	14	10	26
8	Riverina Water				>100	3,982	7,146	11,401	14,051	225	232	197	219	259	0	0	0					199	215	403	1,104					15	26	37	43
9	Wagga Wagga Council	1	0	2	1	-874	-1,385	1,067	73	167	165	161	159					0	0	0	0					146	186	163	146	-5	-8	5	0
11	Albury City Council	13	54		>100	5,391	11,015	10,013	15,476	337	326	328	326	0	0	0	0	0	0	0	0	155	106	89	108	116	156	79	235	16	29	28	38
10	Coffs Harbour City Council	1	1	1	1	-2,283	-3,296	-3,320	1,261	524	514	512	509	0	0	0	0	550	1,033	298	70	145	69	54	48	231	378	540	179	-5	-7	-7	2
13	Tamworth Regional Council	6	8	10	17	6,274	11,998	6,653	13,899	409	396	409	395	4,907	5,334	610	58	0	0		0	518	527	309	184	126	516	125	82	16	27	16	30
14	Clarence Valley Council	0	1	1	2	-3,995	1,759	913	4,470	471	462	452	449	-90	0	0	0	2,550	2,818	890	1,113	120	104	91	156	675	611	1,625	1,024	-13	6	3	13
122	Dubbo Regional Council																																
119	Queanbeyan-Palerang Regional C																																
15	Eurobodalla Shire Council	1	3	8	34	-2,413	1,726	4,413	8,100	409	403	395	392	0	0	50	8	-1,657	0	112	1,923	144	122	133	149	235	254	221	556	-8	5	13	20
12	Fish River Water					3,721	4,631			0	0			0	0															40	45		
16	Wingecarribee Shire Council	5	8	15	>100	208	4,769	7,064	15,460	351	350	362	366	0	0	0	0	4,864	309	456	0	137	40	148	112	819	143	202	235	1	16	24	41
19	Orange City Council				>100	9,621	9,596	13,787	11,377	268	265	263	264	0	27,110	9,258	1,623	0	0	0	0	431	1,632	1,070	546	35	57	207	111	35	34	43	37
21	Bathurst Regional Council				>100	2,059	4,864	4,926	3,710	214	212	219	218	21	0	0	0	0	0	0	0	185	240	480	328	280	200	357	147	9	18	18	14
23	Bega Valley Shire Council	0	0		0	-3,341	-724	-494	-2,231	282	278	276	278	74	0		0	0	0		0	147	187	287	260	202	470	339	139	-13	-3	-2	-8
24	Ballina Shire Council	1	1	2	2	-2,846	-56	-10,280	2,754	323	312	309	314	48	0	0	0	0	0	0	0	121	153	218	108	2,008	644	369	207	-12	0	-63	9
22	Lismore City Council			14	>100	-552	-156	626	3,789	290	263	213	243	0	368	0	0	0	0	0	0	147	165	88	316	570	214	372	303	-3	-1	3	15
25	Kempsey Shire Council	0	0	1	1	-3,436	-4,738	-704	-1,008	270	261	262	262	112	825		0	0	0		0	378	417	434	321	257	155	168	258	-19	-27	-3	-5
27	Byron Shire Council	0	2	2	3	-3,364	2,099	2,794	6,398	165	159	158	169	0	0		0	0	0		0	93	39	31	243	150	149	81	112	-15	9	11	22
20	Goulburn Mulwaree Council	8	10	10	9	5,749	6,157	5,875	6,728	197	188	48	184	1,188	325	1,166	0	118	309	456	0	283	253	559	235	181	127	215	255	27	28	27	30
26	Essential Energy					3,082	433	685	106	265	368	461	450	0	0	0	0	0	0	0	0	342	304	355	1,218	213	106	273	166	13	2	3	0
28A	Goldenfields - Reticulation				>100	2,369	4,195	5,992	6,290	107	101	98	96	0	0	0	0							164	348					19	30	40	41
28B	Goldenfields - Bulk Water Supply	>100	>100	>100	>100	807	889	327	617	0	0	0	0	0	0	0	0													16	17	6	10
	LWU Range Max	13	>100	>100	>100	13,524	14,636	21,064	20,533	1,082	1,067	1,068	1,051	4,907	27,110	9,258	1,623	4,864	2,818	8,621	2,288	518	1,632	1,070	1,218	2,008	644	1,625	1,024	40	45	43	43
	LWU Range Min	0	0	1	0	-7,026	-5,517	-10,280	-5,165	0	0	0	0	-90	0	0	0	-1,657	0	0	0	93	39	31	48	35	57	79	82	-19	-27	-63	-8
	Median of NMU Indicators shown in Table	1	>100	>100	3	208	2,099	3,604	6,344	282	278	293	296	0	0	0	0	0	0	0	0	166	194	218	235	246	193	217	190	1	14	11	18

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	WATER UTILITY	FINANCIAL																									
		WS				SGE				WS & SGE				WS				SGE				WS & SGE				WS				SGE			
		Revenue per ML for WS - Bulk utility				Revenue per ML for Sge - Bulk utility				Income for Utility per ML WS & SGE - Bulk utility				Operating cost OMA WS - Bulk utility				Operating cost OMA SGE - Bulk utility				Operating cost OMA WS & SGE - Bulk utility				Capital Expenditure WS - Bulk utility				Capital Expenditure SGE - Bulk utility			
		F5.1				F6.1				F7.1				F11.1				F12.1				F13.1				F28.1				F29.1			
		($/ML)				($/ML)				($/ML)				($/ML)				($/ML)				($/ML)				($/ML)				($/ML)			
		2012/13	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2012/13*	*2013/14*	*2014/15*	*2015/16*
	Sydney Water Corporation																																
	Hunter Water Corporation																																
	Water NSW	391	384	399						398	391	401		165	192	196						165	192	196		35	60	27					
112	Central Coast Council																																
3	Shoalhaven City Council																																
4	Rous Water	1,898	2,015	2,087	2,494					1,870	1,987	2,071	3	1,018	995	1,002	1,003					1,018	995	1,002		1,934	496	1,099	1,060				
5	MidCoast Water																																
6	Tweed Shire Council																																
7	Port Macquarie Hastings Council																																
8	Riverina Water																																
9	Wagga Wagga Council																																
11	Albury City Council																																
10	Coffs Harbour City Council																																
13	Tamworth Regional Council																																
14	Clarence Valley Council																																
122	Dubbo Regional Council																																
119	Queanbeyan-Palerang Regional C																																
15	Eurobodalla Shire Council																																
12	Fish River Water	946	965							946	965			487	509							487	324			59	96						
16	Wingecarribee Shire Council																																
19	Orange City Council																																
21	Bathurst Regional Council																																
23	Bega Valley Shire Council																																
24	Ballina Shire Council																																
22	Lismore City Council																																
25	Kempsey Shire Council																																
27	Byron Shire Council																																
20	Goulburn Mulwaree Council																																
26	Essential Energy																																
28A	Goldenfields - Reticulation																																
28B	Goldenfields - Bulk Water Supply	550	546	592						552	546	592		324	318	315						324	318	315			0	0					
	LWU Range Max	1,898	2,015	2,087	2,494					1,870	1,987	2,071	3	1,018	995	1,002	1,003					1,018	995	1,002		1,934	496	1,099	1,060				
	LWU Range Min	550	546	592	2,494					552	546	592	3	324	318	315	1,003					324	318	315		59	0	0	1,060				
	Median of NMU Indicators shown in Table	946	965	1,340	2,494					946	965	1,332	3	487	509	659	1,003					487	324	659		997	96	550	1,060				

APPENDIX G: NSW GREENHOUSE GAS CALCULATOR

G1 Overview

Greenhouse gases are produced from the use of fossil fuel in a water utility's operations, including transport and office accommodation, and are also produced from the chemical reactions resulting from the processing of sewage in a sewage treatment works.

The mass of greenhouse gas emissions can be calculated by applying appropriate conversion factors to the quantities of fuel consumed and by using appropriate formulae to calculate emissions from sewage treatment works.

The Federal Government provides guidance in the calculation of emissions and has published supporting information including tables of conversion factors, formula for the calculation of emissions from sewage treatment works and a calculator. See National Greenhouse and Energy Reporting published by the Federal Department of Environment at the following web address:

http://www.environment.gov.au/climate-change/greenhouse-gas-measurement/nger

However, the calculation of emissions is relatively complicated and, for sewage treatment works, requires the measurement or estimation of a number of factors. It requires the utility to assess the relevance and suitability of the appropriate factors and to apply these factors to its situation.

In order to assist NSW utilities in estimating the greenhouse gas emissions resulting from their water and sewerage operations, DPI Water has developed this greenhouse gas calculator for use by NSW utilities. This will simplify and standardise the process.

The calculator is a spreadsheet based on the Federal Government factors and also includes some simplifying assumptions for sewage treatment.

Utilities should review these assumptions to assess whether they are appropriate for their situation.

Where a utility has specific data or different circumstances, the calculator may not apply.

To calculate greenhouse gas emissions, utilities should follow steps A to D in the Instructions worksheet (see pink tab **Instructions**). These steps comprise:

- **A** Emissions from water and sewerage operations - excluding STWs
- **B** Emissions from Sewage Treatment Works (STWs)
- **C** Carbon Offsets
- **D** Total Emissions

Calculation of emissions for an example utility is shown at the green tabs **Example** and **Example STW**.

G2 Instructions

Calculate the emissions from your water and sewerage operations and also from your sewage treatment works by following steps A to D below[46]. The resulting emissions should be entered in your Performance Monitoring Database. This Calculator Spreadsheet is for guidance only and should not be forwarded to DPI Water.

An example is provided showing the procedure for calculation of emissions (see worksheets "**Example**" and "**Example STW**" (**green tab**)).

A. Emissions from Water and Sewerage Operations - excluding Sewage Treatment Works (STWs)

To calculate emissions from water and sewerage operations, go to worksheet "**Emissions**" (**orange tab**).

[46] Examples of common emission sources are shown in worksheet "**Emission Source Examples**" (**yellow tab**).

Collect the relevant data (quantities of each fuel combusted including electricity) for your water, sewerage and other operations.

Insert the quantities of each fuel in the appropriate blue shaded cells.

B. Emissions from Sewage Treatment Works (STWs)

To calculate emissions from the sewage treatment works, go to worksheet "**STW 1**" (**orange tab**).

Insert the relevant data in the blue or green cells for your STW.

However, as an alternative to using the tables, you may use the graphs of emissions from typical sewage treatment works provided in the worksheet "**STW Graphs**" (**orange tab**).

Repeat as necessary for each of your STWs in worksheets "**STW 2**" to "**STW 10**" (**orange tabs**).

The emissions from each of your STWs are linked into the blue shaded cells for sewage treatment in the worksheet "**Emissions**" (**orange tab**).

If you elect to use the "**STW Graphs**" worksheet to determine the emissions from an STW, override the value shown in the "**Emissions**" worksheet with the estimate obtained from the "**STW Graphs**" worksheet.

C. Carbon Offsets

Go to the worksheet "**Emissions**" (**orange tab**).

Determine your utility's accredited sequestration (usually in the form of tonnes of carbon in tree plantations).

Enter the accredited sequestration in the blue shaded cell for sequestration (as a NEGATIVE NUMBER).

D. Total Emissions

Your utility's total greenhouse gas emissions will be shown at the bottom of worksheet "**Emissions**" (**orange tab**).

Note that the worksheet "**Emissions**" is based on Tables 1 to 4 of the Australian Government Department of Climate Change "National Greenhouse Accounts (NGA) Factors". DPI Water will update this worksheet as updates become available.

Calculation of Emissions from Water and Sewerage Operations

A. CALCULATION OF EMISSIONS FROM WATER AND SEWERAGE OPERATIONS BY NSW WATER UTILITIES

Based on the NATIONAL GREENHOUSE ACCOUNTS (NGA) FACTORS updated annually

Insert Council Name and Year

1. Enter the annual quantity of fuel used in water, sewerage or other operations in the appropriate blue cells below.
2. Enter the data for each of your utility's STWs on sheets STW 1 to STW 10 OR override the value shown in the table below using the estimated emissions from the STW Graphs worksheet.
3. Enter the carbon offset (if any) in the cell for sequestration (as a NEGATIVE number).
4. The TOTAL EMISSIONS (tonnes CO2-e) are shown at the bottom of the table.

FUEL or PROCESS UTILISED	UNITS	ANNUAL QUANTITY of FUEL USED				GREENHOUSE GAS EMISSIONS			
		WATER SUPPLY OPERATIONS	SEWERAGE OPERATIONS	OTHER*	TOTAL USED	WATER SUPPLY	SEWERAGE OPERATION	OTHER*	TOTAL EMISSIONS
		Water source, storage, treatment, transfer and distribution	Sewage collection, storage, treatment and discharge	Transport (vehicles), office buildings, sequestration		t CO2 -e	t CO2 -e	t CO2 -e	t CO2 -e
ELECTRICITY PURCHASED FROM GRID		Enter data into the blue cells only							
Electricity purchased from NSW or ACT Grid	kWh								
Electricity purchased from QLD Grid	kWh								
Electricity purchased from Vic Grid	kWh								
SUBTOTAL	t CO2-e					0.0	0.0	0.0	0.0
LIQUID FUELS (Transport)									
Gasoline for use in an aircraft (AVGAS)	kL								
Kerosene for use in an aircraft (AVTUR)	kL								
Fuel oil (General transport)	kL								
Biodiesel (General transport)	kL								
Gasoline (Vehicles)	kL								
Diesel oil (Vehicles)	kL								
Liquefied petroleum gas (Vehicles)	kL								
Ethanol (Vehicles)	kL								
SUBTOTAL	t CO2-e					0.0	0.0	0.0	0.0
LIQUID FUELS (Non Transport)									
Petroleum based oils (other than fuel, eg lubricants)	kL								
Gasoline (other than for use in an aircraft)	kL								
Kerosene (other than for use in an aircraft)	kL								
Heating oil	kL								
Diesel oil	kL								
Fuel oil	kL								
Liquefied petroleum gas	kL								
Biodiesel	kL								
Ethanol for use in an internal combustion engine	kL								
SUBTOTAL	t CO2-e					0.0	0.0	0.0	0.0
SOLID FUELS (Non Transport)									
Black coal	t								
Brown coal	t								
Coking coal	t								
Brown coal briquettes	t								
Industrial materials (eg. tyres) derived from fossil fuels	t								
Municipal materials (non-biomass)	t								
Municipal and industrial materials (Biomass)	t								
Wood (dry)	t								
Wood (Green and air dried)	t								
Bagasse	t								
Charcoal	t								
SUBTOTAL	t CO2-e					0.0	0.0	0.0	0.0
NATURAL GAS (Non Transport) (Adapted from Table 2 of NGA)									
Coal seam methane	m^3								
Coal mine waste gas	m^3								
Town gas	m^3								
Liquefied natural gas	kL								
Landfill or sludge biogas (methane only)	m^3								
SUBTOTAL	t CO2-e					0.0	0.0	0.0	0.0
SEWAGE TREATMENT (emissions from STW spreadsheets, OR override with estimated emissions from STW Graphs worksheet)									
STW 1	t						0.0		
STW 2	t						0.0		
STW 3	t						0.0		
STW 4	t						0.0		
STW 5	t						0.0		
STW 6	t						0.0		
STW 7	t						0.0		
STW 8	t						0.0		
STW 9	t						0.0		
STW 10	t						0.0		
SUBTOTAL	t CO2-e						0.0		0.0
SEQUESTRATION									
Carbon Offset	t								
SUBTOTAL	t CO2-e							0.0	0.0
TOTAL EMISSIONS									
TOTAL EMISSIONS	t CO2-e					0.0	0.0	0.0	0.0

* OTHER is the estimated water and sewerage component of the fuel used in Councils' office buildings and vehicles and can also include sequestration as an offset (ie. a negative value).

Calculation of Greenhouse Gas Emissions from Sewage Treatment Works

B. CALCULATION OF GREENHOUSE GAS EMISSIONS FROM SEWAGE TREATMENT WORKS (STWs) - 2016

STW 1 | NAME OF STW

Description of STW (eg. Trickling filter and oxidation pond)

INSTRUCTIONS

To obtain an approximate GHG emission value, insert data in blue cells steps 1 or 2 and 3 and 7. Green cells may be left blank.

However, if more detailed information is available, insert this data in the relevant green cell. This will provide a more accurate estimate.
Total emissions are shown at step 18. To calculate emissions for additional STWs, see worksheets STW 2 to STW 10 (orange tabs).

SEWAGE TREATMENT WORKS			Input	Result
1 Inflow to STW	Insert volume of sewage entering STW per year (if known)	Volume influent =		0 ML
	OR			
2 Population served	Insert actual population served by STW (if inflow is known, this may be left blank)	Pop served =		0 No.
	(If population is unknown, it is approximated by assuming ADWF for residential sewage is 200L/cap/d)			

EMISSIONS FROM TREATMENT OF WASTEWATER				
3 Type of Treatment	For wastewater treatment - select methane correction factor from Table G below	MCFww =		
4 COD in influent	Insert quantity of COD in influent wastewater (if unknown leave blank)	CODw =		tonnes
	(If BOD in influent is known, COD in influent can be calculated from BOD x 2.6)			
	OR If COD in influent is unknown, it is approximated by using a default of 0.0585 tonnes/capita	CODw =	0	tonnes
5 COD in effluent	Insert quantity of COD in effluent leaving the STW (if unknown leave blank)			
	(If BOD in effluent is known, COD can be calculated from BOD x 2.6)	CODeff =		tonnes
	If COD in effluent is unknown, a default will be used as follows			
	CODeff = 0.08 x CODw	CODeff =	0	tonnes
6 METHANE EMISSIONS FROM WASTEWATER	Emissions resulting from primary and secondary wastewater treatment (ie. from the "liquid train") are calculated as follows:			
	CH4genww = (CODw - CODsl - CODeff) x MCFww x EFw tonnes CO2-e	CH4genww =	0	t CO2-e
	where EFw = 5.3 tonnes CO2-e per tonne COD and MCFww is shown at step 3			
	and the quantity of COD removed as sludge (CODsl) from wastewater is obtained from step 8 below			

EMISSIONS FROM TREATMENT OF SLUDGE				
7 Sludge Treatment	For type of sludge treatment - select the methane correction factor from Table G	MCFsl =		
8 Volatile solids or COD in sludge treatment process	Insert the quantity of volatile solids removed as sludge from wastewater and undergoing sludge treatment (if unknown leave blank)			
	Volatile solids in the primary sludge (VSpsl). See Note d	VSpsl =		tonnes
	Volatile solids in the waste activated sludge VSwasl. See Note e	VSwasl =		tonnes
	OR If quantity of volatile solids is unknown, insert quantity of COD removed as sludge from wastewater and treated at the plant (if unknown leave blank)	CODsl =		tonnes
	OR If CODsl is unknown, insert fraction of CODw removed as sludge from wastewater (if unknown leave blank) Fraction COD removed as sludge (as a decimal eg. 1/3 is 0.33)	Fcodsl =		
	The fraction of COD removed as sludge from wastewater (Fcodsl) is calculated from the above. However, in the absence of other data, a default of 0.6 will be used for Fcodsl	Fcodsl =	0.60	
	Quantity of COD in sludge CODsl = (VSpsl x 1.99 + VSwasl x 1.48) OR Fcodsl x CODw	CODsl =	0	tonnes
9 Sludge transferred out to landfill or other than landfill	Insert the quantity of volatile solids in sludge transferred after treatment to landfill or other than landfill (if unknown leave blank)			
	Volatile solids in sludge transferred to landfill	VStrl =		tonnes
	Volatile solids in sludge transferred to other than landfill	VStro =		tonnes
	OR If the volatile solids are unknown, insert the quantity of COD in sludge transferred (if unknown leave blank)			
	COD in sludge transferred to landfill	CODtrl =		tonnes
	COD in sludge transferred to other than landfill	CODtro =		tonnes
	Quantity of COD in sludge transferred out (CODtr = [VStrl + Vstro] x 1.48 OR [CODtrl + CODtro])	CODtr =	0	tonnes

NOTE: The default CODtr is zero which results in a conservatively high emission value. If no sludge is transferred out in a particular year, but sludge is intermittently removed from a lagoon (eg once every 2 or 3 years), the quantity of COD in the sludge removed should be averaged over the cycle period as a quantity per year and inserted as CODtrl to obtain a more accurate emission value.

10 METHANE EMISSIONS from SLUDGE TREATMENT	Emissions resulting from sludge treatment (eg anaerobic digestors, lagoons, dewatering etc) are calculated as follows:			
	CH4gensl = (CODsl - CODtr) x MCFsl x EFsl in tonnes CO2-e	CH4gensl =	0	t CO2-e
	where EFsl = 5.3 tonnes CO2-e per tonne COD and MCFsl is shown at step 7			

TOTAL METHANE EMISSIONS

11 Methane generated	Total methane generated from wastewater and from sludge CH4gen = CH4genww + CH4gensl	CH4gen =	0	
12 Methane captured for combustion or flaring	Insert volume of methane combusted or flared if applicable	Q =		m3
	Insert methane recovered in digester if applicable (in tonnes CO2-e)			t CO2-e
	Methane captured R = 0.0142464 x Q OR tonnes recovered in digester	R =	0	t CO2-e
	Methane flared or recovered in a digester is subtracted from total emissions			
13 TOTAL METHANE EMISSIONS	Total methane emissions = CH4gen - R	Total Methane Emissions CH4gen - R =	0	t CO2-e

NITROUS OXIDE EMISSIONS

14 Nitrogen in wastewater (N)	Nitrogen entering STW (Nin) assumed to be = 0.036 x 0.16 x Population (tonnes N)	Nin =	0	t N
15 Nitrogen in sludge	Dry mass of sludge transferred to landfill (Mtrl)			
	Insert Mtrl (if known). Else leave blank	Mtrl =		tonnes
	Nitrogen in sludge transferred to landfill (Ntrl) = 0.05xMtrl, default = 0.05xCODsl)	Ntrl =	0.0	t N
	Nitrogen in sludge transferred to other than landfill (Ntro) assumed to be zero	Ntro =	0	t N
	Nitrogen in sludge Nsl = Ntrl + Ntro	Nsl =	0.0	t N
16 Nitrogen in effluent discharged to the environment (Nout = Nencw+Nestw+Ncw)				
	% effluent discharged to enclosed waters % Nencw=% x (Nin - Nsl)	Nencw =	0.0	t N
	(ie. all waters other than estuarine or open coastal waters. Default is 100%)			
	% effluent discharged to estuarine waters %	Nestw =	0.0	t N
	% effluent discharged to open coastal waters %	Ncw =	0.0	t N
	Note that for most NSW utilities 100% of effluent will be discharged to enclosed wa	Nout =	0.0	t N
17 TOTAL NITROUS OXIDE EMISSIONS	Ej = (Nin - Nsl - Nout) x 4.9 + Nencw x 4.9 + Nestw x 1.2 + Ncw x 0 tonnes CO2-e	Ej =	0	t CO2-e

18 TOTAL GREENHOUSE GAS EMISSIONS FROM STW

Total GHG Emissions = Methane emissions plus Nitrous oxide emissions — CH4gen - R + Ej = 0 t CO2-e

NOTES:

(a) Calculation of emissions from STWs requires estimation or measurement of various parameters including BOD or COD for inflow and outflow.

(b) The greenhouse gas emissions can be calculated using the NGER System Measurement Technical Guidelines (NGER Guidelines). The NGER Guidelines are available on the Department of the Environment website.

(c) The calculations above include a number of simplifying assumptions which have been based on typical STW operations shown at yellow tab STW Assumptions. However, where these assumptions are incorrect, they can be overridden as necessary.

(d) Primary sludge is from the first major treatment process in a STW that removes a substantial amount of suspended matter and no colloidal or dissolved matter.

(e) Waste activated sludge is from a secondary treatment process in a STW involving aeration and active biological material.

(f) Graphs have also been prepared based on typical STW operations for different inflows and populations. These are shown at orange tab STW Graphs.

(g) Table of default Methane Correction Factors for different types of treatment is shown below. See also yellow tab STW Assumptions

TABLE G - METHANE CORRECTION FACTORS (MCF)

TREATMENT METHOD	Type of STW for each treatment method	MCF Values
Managed aerobic treatment	• Preliminary treatment (i.e. screens and grit removal) • Primary sedimentation tanks (PST) • Activated sludge processes, including anaerobic fermentation zones and anoxic zones for biological nutrient removal (BNR) • Secondary sedimentation tanks or clarifiers • Intermittently decanted extended aeration (IDEA), intermittently decanted aerated lagoons (IDAL) and sequencing batch reactors (SBR) • Oxidation ditches and carrousels • Membrane bioreactors (MBR) • Mechanically aerated lagoons • Trickling filters • Dissolved air flotation • Aerobic digesters • Tertiary filtration • Disinfection processes (e.g. chlorination inc. contact tanks, ultraviolet, ozonation) • Mechanical dewatering (e.g. centrifuges, belt filter presses)	0
Unmanaged aerobic treatment	• Gravity thickeners • Imhoff Tanks	0.3
Anaerobic digester/reactor	• Anaerobic digester • High rate anaerobic reactors	0.8
Anaerobic shallow lagoon (<2m deep)	• Facultative lagoons • Maturation/polishing lagoons • Sludge drying pans	0.2
Anaerobic deep lagoon (>2m deep)	• Sludge lagoons • Covered anaerobic lagoons	0.8

Graphs of Emissions from different types of STW

Greenhouse gas emissions for typical types of treatment are graphed below against population and inflow.

The graphs have been developed on the assumption that average dry weather flow from residential sewage is 200 L per capita per day and that the types of treatment correspond to the default fractions anaerobic shown in yellow tab **STW Assumptions.**

Refer also to the other assumptions shown at yellow tab **STW Assumptions.**

Figure 1. Greenhouse Gases for Various STW Types - Based on Population

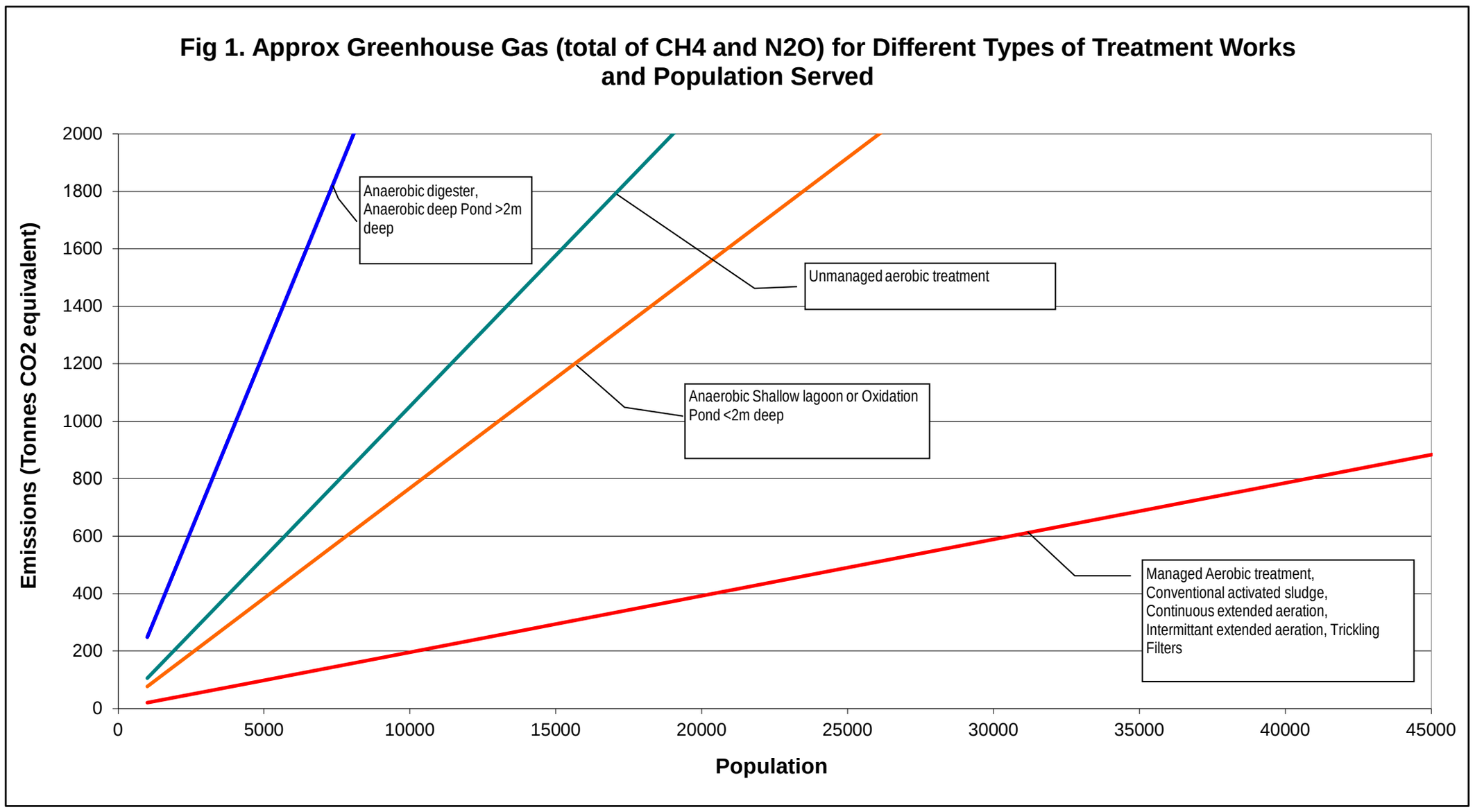
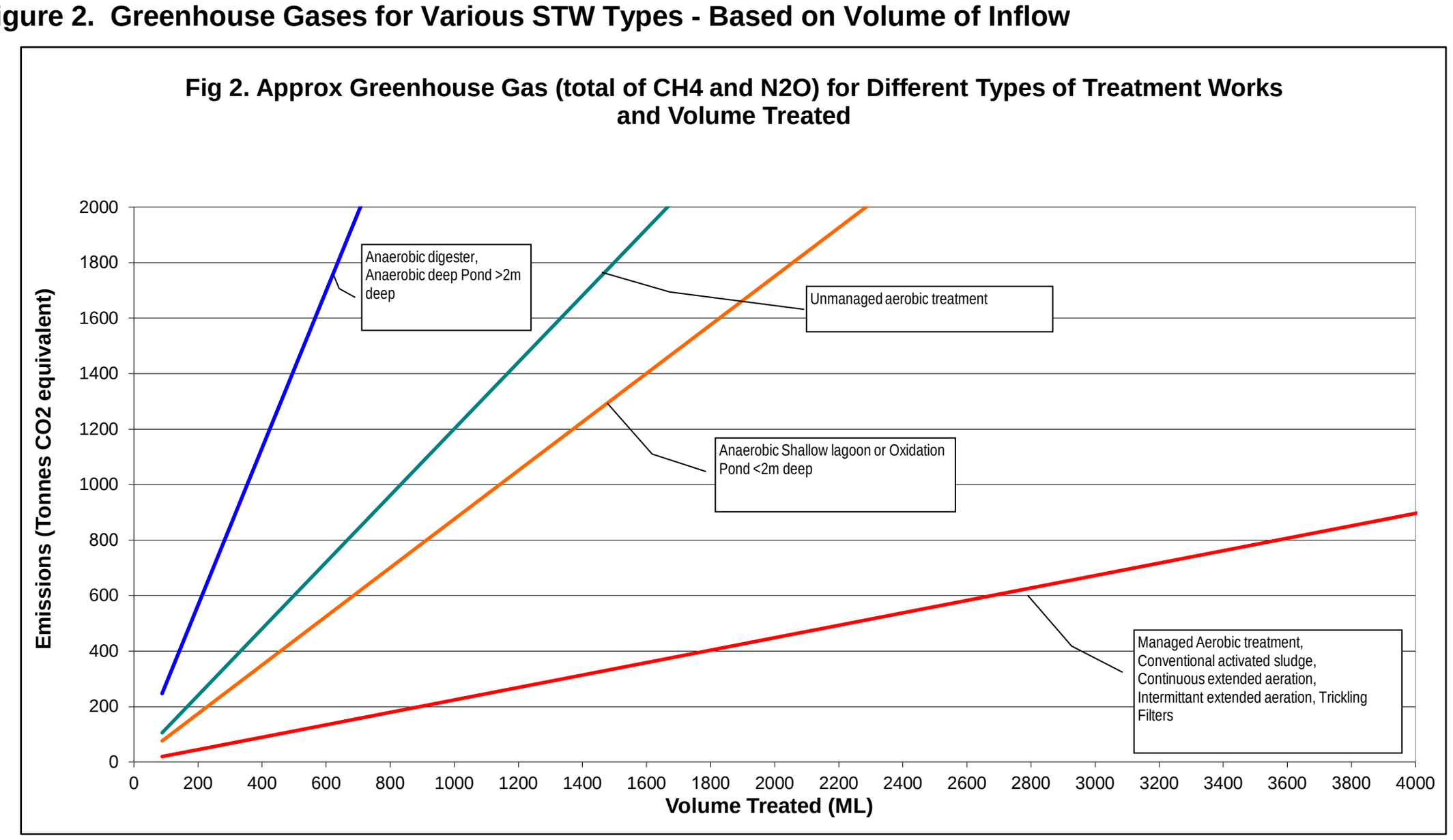


Figure 2. Greenhouse Gases for Various STW Types - Based on Volume of Inflow



Assumptions Adopted for the Calculation of Emissions from STWs

The following assumptions have been provided to assist in the calculation of emissions from STWs.
Using these assumptions will enable a first approximation of greenhouse gas emissions.
Where utilities have data available for quantities of BOD/COD in the treatment process, the assumptions below may not apply.
Waste water treatment is a multi stage process in which the emissions from each stage can be separately calculated . This calculator assumes two stages, a waste water treatment stage and a sludge treatment stage. The emissions from each stage must be added to determine the total emissions.
For example, treatment plants with sludge lagoons are calculated in two stages which are added together to determine the emissions.
In general, formulae and factors shown below have been adopted from the "National Greenhouse And Energy System Measurement Technical Guidelines"

(a) COD in influent to STW (CODw)

BOD from domestic sewage is assumed to be 2.25 tonnes per annum per 100 persons
COD is assumed to be 2.6 times BOD
COD = 2.6 x 2.25 / 100 = 0.0585 tonnes per capita

COD in influent to the STW (CODw) can therefore be calculated from
CODw = 0.0585 x population

(b) Population served

Where the inflow to the STW is known but the population served is unknown, an approximation for the population served can be calculated from the assumption that the average dry weather flow (ADWF) for residential sewage is 200 L per capita per day.

(c) Quantity of COD removed as sludge from wastewater and undergoing sludge treatment (CODsl)

CODsl = CODpsl + CODwasl
where CODpsl is the quantity of COD removed as primary sludge from wastewater and undergoing sludge treatment
and CODwasl is the quantity COD removed as waste activated sludge
CODpsl = VSpsl x 1.99
where VSpsl is the estimated volatile solids in the primary sludge
CODwasl = VSwasl x 1.48
where VSwasl is the estimated volatile solids in the waste activated sludge

The fraction of COD removed as sludge should be readily available from internal records of treatment plants.
In the absence of actual data, it is assumed that the COD removed as sludge (CODsl) is about 60% of COD influent to the STW
CODsl = 0.6 x CODw unless a better estimate is available from the estimated volatile solids.

(d) COD in effluent discharged from the STW (CODeff)

COD in effluent discharged from the STW is assumed to be
CODeff = 0.08 x CODw If CODeff is known, the actual value should be inserted to override this assumption

(e) Methane emission factor for wastewater (EFw) and for sludge (EFsl)

Default emission factor for wastewater and for sludge is
EFw = EFsl = 5.3 tonnes CO_2-e / tonne COD

(f) Methane Correction Factor (Fraction of COD anaerobically treated in wastewater (MCFww) and in sludge (MCFsl))

Methane correction factors (MCF) for different types of treatment are provided in the NGER Guidelines
and are shown in the table below.
The type of STWs corresponding to each type of treatment are also shown in the table below

(g) Methane captured for combustion or flaring

Methane captured = 0.0142464 x Q in tonnes CO_2-e (where Q is the volume in m3 of methane combusted, flared or transferred out)

(h) Methane emissions generated from wastewater treatment are calculated using the formula shown in the NGER Guidelines

CH4genww = (CODw - CODsl - CODeff) x MCFww x EFw in tonnes CO_2-e
Using default values, this results in:
CH4genww = (CODw x 0.63) x MCFww x 5.3 in tonnes CO_2-e

(i) Methane emissions generated from sludge treatment are calculated using the formula shown in the NGER Guidelines

CH4gensl = (CODsl - CODtrl - COD tro) x MCFsl x EFsl in tonnes CO_2-e
Where sludge is transferred to landfill or other than landfill on an intermittent basis (eg every 2 or 3 years), an approximation of the emissions can be obtained by assuming an average yearly transfer (otherwise in some years the calculated emissions would be negative).
The default CODtro and CODtrl is zero which results in a conservative (high) emissions value if the COD transferred out is not taken into account.

(j) The total methane emissions are the sum of the wastewater emissions plus sludge emissions less the methane captured

Total Methane Emissions = CH4genww + CH4gensl - methane captured in tonnes CO_2-e

(k) Nitrogen entering the plant is assumed to be

Nin = Protein x Fracpr x Population

where

Protein = 0.036 (default from NGER Guidelines)

Fracpr = 0.16 (default from NGER Guidelines)

(l) Nitrogen in sludge transferred to landfill is assumed to be 0.05 times the dry mass of sludge transferred to landfill

Ntrl = 0.05 x Mtrl

where Mtrl is the dry mass of sludge transferred to landfill (default assumed to be CODsl)

Nitrogen in sludge transferred to other than landfill is assumed to be zero

Ntro = 0

(m) Nitrogen in effluent is assumed to be that remaining in effluent after sludge has been removed

Nout = Nin - Ntrl - Ntro

(n) Nitrous oxide emissions (Ej) are calculated using the formula shown in the NGER Guidelines

Ej = (Nin - Ntrl - Ntro - Nout) x EFsecij + Nout x Efdisij

where EFsecij is the emission factor for wastewater treatment with default value of 4.9 tonnes N2O measured in CO2-e per tonne nitrogen and Efdisij is the emission factor for the discharge environments shown below in CO2-e per tonne nitrogen

	Efdisij
Discharge to enclosed waters (ie. all waters other than estuarine or open coastal waters)	4.9
Discharge to estuarine waters	1.2
Discharge to open coastal waters	0

For convenience, based on all of the above assumptions, graphs have been prepared for different types of STWs for different inflows or populations. These graphs are shown at the orange tab STW Graphs.

TYPE OF TREATMENT	STW assumed for each type of treatment	MCF Values	
Managed aerobic treatment	Preliminary treatment (i.e. screens and grit removal) Primary sedimentation tanks (PST) Activated sludge processes, including anaerobic fermentation zones and anoxic zones for biological nutrient removal (BNR) Secondary sedimentation tanks or clarifiers Intermittently decanted extended aeration (IDEA), intermittently decanted aerated lagoons (IDAL) and sequencing batch reactors (SBR) Oxidation ditches and carrousels Membrane bioreactors (MBR) Mechanically aerated lagoons Trickling filters Dissolved air flotation Aerobic digesters Tertiary filtration Disinfection processes (e.g. chlorination inc. contact tanks, ultraviolet, ozonation) Mechanical dewatering (e.g. centrifuges, belt filter presses)	0	0
Unmanaged aerobic treatment	Gravity thickeners Imhoff Tanks	0.3	0.3
Anaerobic digester/reactor	Anaerobic digester High rate anaerobic reactors	0.8	0.8
Anaerobic shallow lagoon (<2m deep)	Facultative lagoons Maturation/polishing lagoons Sludge drying pans	0.2	0.2
Anaerobic deep lagoon (>2m deep)	Sludge lagoons Covered anaerobic lagoons	0.8	0.8

Example Calculation of Emissions from Water and Sewerage Operations

Example Calculation of Emissions from Water and Sewerage Operations

Example Council

For an example council, fictitious fuel quantities have been assumed and are shown in the table at right.
These quantities have been entered into the appropriate blue shaded cells in the emissions table below.

The council also has an anaerobic lagoon <2m deep.
The STW has no biogas captured or flared.
Inflow to STW is 430ML serving 5,000 people
The total greenhouse gas generated from this STW is shown in the green tab Example STW and is 747 t CO2-e
This value is entered into the blue shaded cell for sewerage operations emissions below

Fuel Type	Water		Sewerage		Other*	
Electricity	200000	kwh	300000	kwh	100000	kwh
Fuel oil	10	kL	15	kL	15	kL
Diesel oil					10	kL
Ethanol					12	kL
Heating oil					5	kL
Diesel oil (non transport					2	kL
Fuel oil (non transport)					1	kL
Wood (dry)					55	t
Town gas	125	m3	335	m3	540	m3
Carbon offset					45	t

The total greenhouse gas emissions are shown below as 1262t CO2-e (202t for water supply, 1050t for sewerage and 11t for Other).

FUEL or PROCESS UTILISED	UNITS	ANNUAL QUANTITY USED				GREENHOUSE GAS EMISSIONS (t CO2-equivalent)			
		WATER SUPPLY OPERATIONS	SEWERAGE OPERATIONS	OTHER*	TOTAL USED	WATER SUPPLY OPERATIONS	SEWERAGE OPERATIONS	OTHER*	TOTAL EMISSIONS
		Water source, storage, treatment, transfer and distribution	Sewage collection, storage, treatment and discharge	Transport (vehicles), office buildings, sequestration		t CO2 -e	t CO2 -e	t CO2 -e	t CO2 -e
ELECTRICITY PURCHASED FROM GRID (Table 5 of NGA)		Enter data into the blue cells only							
Electricity purchased from NSW or ACT Grid	kWh	200,000	300,000	100,000	600,000	172.0	258.0	86.0	516.0
Electricity purchased from QLD Grid	kWh								
Electricity purchased from Vic Grid	kWh								
SUBTOTAL	t CO2-e					172.0	258.0	86.0	516.0
LIQUID FUELS (Transport) (Adapted from Table 4 of NGA)									
Gasoline for use in an aircraft (AVGAS)	kL								
Kerosene for use in an aircraft (AVTUR)	kL								
Fuel oil (General transport)	kL	10	15	15	40	29.2	43.8	43.8	116.8
Biodiesel (General transport)	kL								
Gasoline (Vehicles)	kL								
Diesel oil (Vehicles)	kL			10	10			27.0	27.0
Liquefied petroleum gas (Vehicles)	kL								
Ethanol (Vehicles)	kL			12	12			1.0	1.0
SUBTOTAL	t CO2-e					29.2	43.8	71.7	144.7
LIQUID FUELS (Non Transport) (Adapted from Table 3 of NGA)									
Petroleum based oils (other than fuel, eg lubricants)	kL								
Gasoline (other than for use in an aircraft)	kL								
Kerosene (other than for use in an aircraft)	kL								
Heating oil	kL			5	5			12.9	12.9
Diesel oil	kL			2	2			4.0	4.0
Fuel oil	kL								
Liquefied petroleum gas	kL								
Biodiesel	kL								
Ethanol for use in an internal combustion engine	kL								
SUBTOTAL	t CO2-e					0.0	0.0	16.9	16.9
SOLID FUELS (Non Transport) (Adapted from Table 1 of NGA)									
Black coal	t								
Brown coal	t								
Coking coal	t								
Brown coal briquettes	t								
Industrial materials (eg. tyres) derived from fossil fuels	t								
Municipal materials (non-biomass)	t								
Municipal and industrial materials (Biomass)	t								
Wood (dry)	t			55	55			1.1	1.1
Wood (Green and air dried)	t								
Bagasse	t								
Charcoal	t								
SUBTOTAL	t CO2-e					0.0	0.0	1.1	1.1
NATURAL GAS (Non Transport) (Adapted from Table 2 of NGA)									
Coal seam methane	m^3								
Coal mine waste gas	m^3								
Town gas	m^3	125	335	540	1000	0.3	0.8	1.3	2.3
Liquefied natural gas	kL								
Landfill or sludge biogas (methane only)	m^3								
SUBTOTAL	t CO2-e					0.3	0.8	1.3	2.3
SEWAGE TREATMENT (from STW spreadsheet)									
From emissions calculated in 'Example STW' spreadsheet	t						284.0		284.0
SUBTOTAL	t CO2-e						284.0		284.0
SEQUESTRATION									
Carbon Offset (enter as a negative value)	t			-45	-45			-165.2	-165.2
SUBTOTAL	t CO2-e							-165.2	-165.2
TOTAL EMISSIONS	t CO2-e					201.5	586.6	11.9	800.0

* OTHER is the estimated water and sewerage component of the fuel used in Councils' office buildings. It also includes sequestration as a carbon offset where appropriate (this is entered as a negative value).

Calculation of Greenhouse Gas Emissions from Sewage Treatment Works

B. CALCULATION OF GREENHOUSE GAS EMISSIONS FROM SEWAGE TREATMENT WORKS (STWs) - 2016

STW 1: Example STW (Anaerobic lagoon <2m deep) serving 5,000 people

Trickling filter and oxidation pond

INSTRUCTIONS

To obtain an approximate GHG emission value, insert data in blue cells steps 1 or 2 and 3 and 7. Green cells may be left blank.

However, if more detailed information is available, insert this data in the relevant green cell. This will provide a more accurate estimate. Total emissions are shown at step 18. To calculate emissions for additional STWs, see worksheets STW 2 to STW 10 (orange tabs).

SEWAGE TREATMENT WORKS			Input	Result	
1 Inflow to STW	Insert volume of sewage entering STW per year (if known)	Volume influent =		365	ML
	OR				
2 Population served	Insert actual population served by STW (if inflow is known, this may be left blank)	Pop served =	5,000	5,000	No.
	(If population is unknown, it is approximated by assuming ADWF for residential sewage is 200L/cap/d)				

EMISSIONS FROM TREATMENT OF WASTEWATER				
3 Type of Treatment	For wastewater treatment - select methane correction factor from Table G below	MCFww =	0.0	
4 COD in influent	Insert quantity of COD in influent wastewater (if unknown leave blank)	CODw =		tonnes
	(If BOD in influent is known, COD in influent can be calculated from BOD x 2.6)			
	OR If COD in influent is unknown, it is approximated by using a default of 0.0585 tonnes/capita	CODw =	293	tonnes
5 COD in effluent	Insert quantity of COD in effluent leaving the STW (if unknown leave blank)			
	(If BOD in effluent is known, COD can be calculated from BOD x 2.6)	CODeff =		tonnes
	If COD in effluent is unknown, a default will be used as follows			
	CODeff = 0.08 x CODw	CODeff =	23	tonnes
6 METHANE EMISSIONS FROM WASTEWATER	Emissions resulting from primary and secondary wastewater treatment (ie. from the "liquid train") are calculated as follows:			
	CH4genww = (CODw - CODsl - CODeff) x MCFww x EFw tonnes CO2-e	CH4genww =	0	t CO2-e
	where EFw = 5.3 tonnes CO2-e per tonne COD and MCFww is shown at step 3			
	and the quantity of COD removed as sludge (CODsl) from wastewater is obtained from step 8 below			

EMISSIONS FROM TREATMENT OF SLUDGE				
7 Sludge Treatment	For type of sludge treatment - select the methane correction factor from Table G	MCFsl =	0.2	
8 Volatile solids or COD in sludge treatment process	Insert the quantity of volatile solids removed as sludge from wastewater and undergoing sludge treatment (if unknown leave blank)			
	Volatile solids in the primary sludge (VSpsl). See Note d	VSpsl =		tonnes
	Volatile solids in the waste activated sludge VSwasl. See Note e	VSwasl =		tonnes
	OR If quantity of volatile solids is unknown, insert quantity of COD removed as sludge from wastewater and treated at the plant (if unknown leave blank)	CODsl =		tonnes
	OR If CODsl is unknown, insert fraction of CODw removed as sludge from wastewater (if unknown leave blank)			
	Fraction COD removed as sludge (as a decimal eg. 1/3 is 0.33)	Fcodsl =		
	The fraction of COD removed as sludge from wastewater (Fcodsl) is calculated from the above. However, in the absence of other data, a default of 0.6 will be used for Fcodsl	Fcodsl =	0.60	
	Quantity of COD in sludge CODsl = (VSpsl x 1.99 + VSwasl x 1.48) OR Fcodsl x CODw	CODsl =	176	tonnes
9 Sludge transferred out to landfill or other than landfill	Insert the quantity of volatile solids in sludge transferred after treatment to landfill or other than landfill (if unknown leave blank)			
	Volatile solids in sludge transferred to landfill	VStrl =		tonnes
	Volatile solids in sludge transferred to other than landfill	VStro =		tonnes
	OR If the volatile solids are unknown, insert the quantity of COD in sludge transferred (if unknown leave blank)			
	COD in sludge transferred to landfill	CODtrl =		tonnes
	COD in sludge transferred to other than landfill	CODtro =		tonnes
	Quantity of COD in sludge transferred out (CODtr = [VStrl + Vstro] x 1.48 OR [CODtrl + CODtro])	CODtr =	0	tonnes

NOTE: The default CODtr is zero which results in a conservatively high emission value. If no sludge is transferred out in a particular year, but sludge is intermittently removed from a lagoon (eg once every 2 or 3 years), the quantity of COD in the sludge removed should be averaged over the cycle period as a quantity per year and inserted as CODtrl to obtain a more accurate emission value.

10 METHANE EMISSIONS from SLUDGE TREATMENT	Emissions resulting from sludge treatment (eg anaerobic digestors, lagoons, dewatering etc) are calculated as follows:			
	CH4gensl = (CODsl - CODtr) x MCFsl x EFsl in tonnes CO2-e	CH4gensl =	186	t CO2-e
	where EFsl = 5.3 tonnes CO2-e per tonne COD and MCFsl is shown at step 7			

TOTAL METHANE EMISSIONS

11 Methane generated	Total methane generated from wastewater and from sludge CH4gen = CH4genww + CH4gensl	CH4gen =	186	
12 Methane captured for combustion or flaring	Insert volume of methane combusted or flared if applicable	Q =		m3
	Insert methane recovered in digester if applicable (in tonnes CO2-e)			t CO2-e
	Methane captured R = 0.0142464 x Q OR tonnes recovered in digester	R =	0	t CO2-e
	Methane flared or recovered in a digester is subtracted from total emissions			
13 TOTAL METHANE EMISSIONS	Total methane emissions = CH4gen - R	Total Methane Emissions CH4gen - R =	186	t CO2-e

NITROUS OXIDE EMISSIONS

14 Nitrogen in wastewater (N)	Nitrogen entering STW (Nin) assumed to be = 0.036 x 0.16 x Population (tonnes N)	Nin =	29	t N
15 Nitrogen in sludge	Dry mass of sludge transferred to landfill (Mtrl)			
	Insert Mtrl (if known). Else leave blank	Mtrl =		tonnes
	Nitrogen in sludge transferred to landfill (Ntrl) = 0.05xMtrl, default = 0.05xCODsl)	Ntrl =	8.8	t N
	Nitrogen in sludge transferred to other than landfill (Ntro) assumed to be zero	Ntro =	0	t N
	Nitrogen in sludge Nsl = Ntrl + Ntro	Nsl =	8.8	t N
16 Nitrogen in effluent discharged to the environment (Nout = Nencw+Nestw+Ncw)				
	% effluent discharged to enclosed waters % Nencw=% x (Nin - Nsl)	Nencw =	20.0	t N
	(ie. all waters other than estuarine or open coastal waters. Default is 100%)			
	% effluent discharged to estuarine waters %	Nestw =	0.0	t N
	% effluent discharged to open coastal waters %	Ncw =	0.0	t N
	Note that for most NSW utilities 100% of effluent will be discharged to enclosed wa	Nout =	20.0	t N
17 TOTAL NITROUS OXIDE EMISSIONS	Ej = (Nin - Nsl - Nout) x 4.9 + Nencw x 4.9 + Nestw x 1.2 + Ncw x 0 tonnes CO2-e	Ej =	98	t CO2-e

18 TOTAL GREENHOUSE GAS EMISSIONS FROM STW

Total GHG Emissions = Methane emissions plus Nitrous oxide emissions — CH4gen - R + Ej = 284 t CO2-e

NOTES:

(a) Calculation of emissions from STWs requires estimation or measurement of various parameters including BOD or COD for inflow and outflow.

(b) The greenhouse gas emissions can be calculated using the NGER System Measurement Technical Guidelines (NGER Guidelines). The NGER Guidelines are available on the Department of the Environment website.

(c) The calculations above include a number of simplifying assumptions which have been based on typical STW operations shown at yellow tab STW Assumptions. However, where these assumptions are incorrect, they can be overridden as necessary.

(d) Primary sludge is from the first major treatment process in a STW that removes a substantial amount of suspended matter and no colloidal or dissolved matter.

(e) Waste activated sludge is from a secondary treatment process in a STW involving aeration and active biological material.

(f) Graphs have also been prepared based on typical STW operations for different inflows and populations. These are shown at orange tab STW Graphs.

(g) Table of default Methane Correction Factors for different types of treatment is shown below. See also yellow tab STW Assumptions

TABLE G - METHANE CORRECTION FACTORS (MCF)

TREATMENT METHOD	Type of STW for each treatment method	MCF Values
Managed aerobic treatment	• Preliminary treatment (i.e. screens and grit removal) • Primary sedimentation tanks (PST) • Activated sludge processes, including anaerobic fermentation zones and anoxic zones for biological nutrient removal (BNR) • Secondary sedimentation tanks or clarifiers • Intermittently decanted extended aeration (IDEA), intermittently decanted aerated lagoons (IDAL) and sequencing batch reactors (SBR) • Oxidation ditches and carrousels • Membrane bioreactors (MBR) • Mechanically aerated lagoons • Trickling filters • Dissolved air flotation • Aerobic digesters • Tertiary filtration • Disinfection processes (e.g. chlorination inc. contact tanks, ultraviolet, ozonation) • Mechanical dewatering (e.g. centrifuges, belt filter presses)	0
Unmanaged aerobic treatment	• Gravity thickeners • Imhoff Tanks	0.3
Anaerobic digester/reactor	• Anaerobic digester • High rate anaerobic reactors	0.8
Anaerobic shallow lagoon (<2m deep)	• Facultative lagoons • Maturation/polishing lagoons • Sludge drying pans	0.2
Anaerobic deep lagoon (>2m deep)	• Sludge lagoons • Covered anaerobic lagoons	0.8

Examples of Common Emission Sources in Water Supply and Sewerage

Examples of Common Emission Sources in Water Supply and Sewerage			
SOURCE	WATER SUPPLY OPERATIONS	SEWERAGE OPERATIONS	OTHER*
ELECTRICITY PURCHASED FROM GRID (Table 5 of NGA)	Electricity used during water sourcing, treatment, distribution and transfer.	Electricity used during sewage collection, storage, treatment and discharge.	Electricity used in office buildings for both Water and Sewerage Operations.
LIQUID FUELS (Transport) (Table 4 of NGA)	N/A	N/A	Transport - vehicles owned & used by utility AND registered for road use.
LIQUID FUELS (Non Transport) (Table 3 of NGA)	Liquid fuels used for water supply operations other than transport vehicles	Liquid fuels used for sewerage operations other than transport vehicles	Fuels used for heating, hot water, etc in office buildings. Transport - vehicles owned by utility but NOT registered for road use.
SOLID FUELS (Non Transport) (Table 1 of NGA)	N/A	N/A	Wood/coals used for heating, etc in office buildings.
NATURAL GAS (Non Transport) (Table 2 of NGA)	Natural gas used for water supply operations other than in office buildings	Natural gas used for sewerage operations other than in office buildings	Natural gas used for heating, hot water, etc in office buildings.
WASTEWATER TREATMENT	N/A	Emissions from wastewater treatment (methane and nitrous oxide) See instructions sheet	N/A
SEQUESTRATION	N/A	N/A	Accredited Carbon offsets e.g. tree plantations
EXCLUDED (SCOPE 3)	Disposal of waste generated. Employee business travel. Employees commuting to/from work. Out-sourced activities (transport/vehicles not owned by utility). Transportation of products, materials and waste.		

APPENDIX H: DATA VALIDATION PROCESSES FOR THE NSW PERFORMANCE MONITORING SYSTEM

H1 Introduction

The *NSW Performance Monitoring System* (section 3) is a '**one stop shop**' that minimises red tape, avoids duplication in reporting, and enables DPI Water to annually provide the required regional NSW 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[47]. 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 Tables 3 to 18 (refer also section H3).

In addition to the extensive independent auditing of the reported NSW data (section 3 and footnote 48 of Appendix H3), 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 (section 4.2) to the utilities and is the primary regulator for the 92 regional LWUs.

H2 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

[47] Refer to section 3 of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report*, and to section 5.3, Table 4 and Appendix A of this report. Such performance comparisons may provide valuable insights on opportunities for continuing to improve performance and to provide better value for money to residents.

assessments which differs significantly from historical trends or from that reported in the utility's Annual Financial Statements).

- **Data that conflicts with data from other sources** - reported data that differs significantly from data available elsewhere (e.g. 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.

H3 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 H4. 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 Tables 3 to 18 of this Report.

It is noted that the 92 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 (Appendix C). 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 H4.

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 H4.
- 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 H4.
- 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 (e.g. 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 H4.
- 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 obtained 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[48] 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 (Appendix B5.5).

LWUs are required to annually report the fair value[49] and the current replacement cost depreciation of their water supply and sewerage assets in their audited annual financial statements.

H4 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 below.

H4.1 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 543 LWU water and sewerage treatment works is published in Appendices D1 and D2. Refer also to Section H4.6.

H4.2 Connected properties

Performance indicators are determined on a 'per connected property' basis for consistency with the National Performance Framework. A **connected property** is a **property 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). DPI Water has worked with LWUs to establish these ratios which do not change significantly from year to year.

[48] Independent audits of the auditable indicators in the *National Performance Framework 2013-14* for the 28 LWUs required to report nationally were undertaken in 2006-07, 2009-10, 2012-13 and 2015-16. Indicators which met the rigorous national auditing requirements have been published in the *National Performance Report 2015-16*. These LWUs serve 75% 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.

[49] 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*, DPI Water 2016 provides current unit rates and guidance on the valuation and depreciation of such assets. Available at www.water.nsw.gov.au.

H4.3 Charges and bills

Charges – water supply and sewerage charges (access charges and usage charges) are shown in Tables 6 and 7 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. The charges shown in Tables 6 and 7 include the charges for the current reporting year (2015-16) and also for the forthcoming year (2016-17) 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 5 of section 6.

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 Table 6 may differ from the corresponding TRB shown in the previous year's reports.

H4.4 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 – refer to column 10 of Table 8).

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. Refer also to section 4.5.2, note 10 of section 6 and to Figure 28.

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 firefighting)) – 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 (W10.1) and total potable urban water supplied (W11.1) are shown in italics bold in columns 9 and 10 of Table 8. Refer also to note 10 of section 6 and Figure 29. NRW for the last 3 years in L/c/d is shown in column 41f of Table 10.

H4.5 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.

However in Tables 5 and 11 and Figures 33 to 35, 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).

H4.6 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 2015 NHMRC/NRMMC Australian Drinking Water Guidelines (2015 ADWG) for microbiological water quality (i.e. it is shown as 'Yes' in column 9 of Table 5) if the required number of samples has been tested and at least 98%[50] of samples had no E.coli. 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: (http://www.health.nsw.gov.au/environment/water/Pages/nswhrp-microbiological.aspx).

Similarly, chemical water quality (health related[51]) is satisfactory (shown as 'Yes' in column 11 of Table 5) 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. Refer also to section 4.2.

As noted in section 5.4.1, annual review of your Drinking Water Management System (DWMS) is required and any required corrective action needs to be included in your annual action plan to council. Refer also to Circular LWU 18 (Appendix E).

The physical characteristics tested (aesthetic) are true colour, turbidity, total hardness as CaCO3, total dissolved solids (TDS) and pH.

The chemical characteristics tested (health related) are antimony, arsenic, barium, boron, cadmium, chromium, copper, fluoride, lead, manganese, mercury, molybdenum, nickel, nitrate, nitrite, selenium, silver and sulfate. Other chemical characteristics tested which are not health related are aluminium, calcium, chloride, iodine, iron, magnesium, sodium and zinc.

Columns 69, 70 and 71 of Table 12 show the percentage of samples which complied with the Physical, Chemical and Microbiological requirements of ADWG for each of the last 3 years. Columns 69a, 70a and 71a show whether the LWU has complied with the 2015 ADWG for physical, chemical and microbiological water quality respectively in the 2015-16 financial year.

Columns 42h, 42j and 42l of Appendix D1 show the percentage of the samples tested which complied with the 2015 ADWG for each water treatment works in 2015-16 for physical, chemical and microbiological water quality respectively.

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*

[50] This value (98%) has been determined by NSW Health in accordance with section 10.3.1 on page 10-11 of 2015 ADWG and is the same value as applied for the 2004 ADWG.

Where a LWU has not complied with 2015 ADWG, the percentage of samples which complied is shown in columns 9 and 11 of Table 5 for microbiological and chemical compliance respectively.

[51] The 2015 ADWG specify guideline limits for chemical water quality (health related). Aesthetic parameters such as iron, aluminium, sodium, total dissolved solids (TDS), chloride, iodine and zinc are excluded.

(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 (section H5).

The section 60 approval involves an independent and objective review which allows DPI Water to share its insights and expertise in overseeing the 543 LWU water and sewage treatment works and 104 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 Appendix H2 and Figure H5 of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au).

In addition, under section 61 of the *Local Government Act, 1993*, DPI Water carries out regular inspections of the 543 LWU water and sewage treatment works and provides feedback and mentoring to the LWU operators. Information for each LWU on the DPI Water section 61 reports on the LWU's water and sewage treatment works since 2015 is available in the NSW Performance Monitoring Database (login required). The detailed performance of each of these treatment works is disclosed annually in Appendices D1 and D2.

Each operator in charge of a water or sewage treatment works in regional NSW is required to have appropriate qualifications and experience. DPI Water conducts comprehensive operator training courses for LWU water and sewage treatment works operators (www.water.nsw.gov.au and urbanwater.ctw@dpi.nsw.gov.au (section 6.2 and Appendix I)). The detailed performance of each of these treatment works is publicly disclosed annually in Appendices D1 and D2.

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 62 discrete Aboriginal Communities in NSW. The 2015-16 drinking water quality results for these communities are disclosed in Appendix D3.

H4.7 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 which 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.

H5 Implementation of best-practice management framework

As noted in section 4.1, the NSW *Best-Practice Management (BPM) Framework* is a **locally based self-regulation regime**, with strategic oversight of LWU implementation of 19 outcomes required by the framework by DPI Water.

LWUs must implement the 19 planning, pricing and management outcomes required by the BPM framework in order to achieve appropriate, affordable, cost-effective and sustainable piped water supply and sewerage services and to comply with National Competition Policy and with the *National Water Initiative*. Meeting the outcomes required by the Framework is also 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 (section 4.1).

Each LWU reports its implementation of the outcomes required by the *Best-Practice Management Framework* in Notes 2 and 3 of the special purpose financial statements to its annual financial statements (Appendix B5.5). DPI Water assesses this reported implementation against the 19 required outcomes set out in Table 1 of the *Best-Practice Management Guidelines, 2007* (10 for water supply and 9 for sewerage – refer to section 4). The assessment procedure for each required outcome is shown below. Where a LWU has not reported its implementation against one or more of the required 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 required outcome. Each LWU's implementation results are shown in Table 3.

Further information on implementation of integrated water cycle management (IWCM), strategic business planning, water conservation, drought management and trade waste regulation is available on section 4, Appendix H2 and Figure H3 of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au).

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** (section 4.2).

Integrated water cycle management strategy and financial plan – 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 in accordance with the July 2014 IWCM check list (www.water.nsw.gov.au) and be made available on the utility's website. 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.

The required outcome is met if the LWU has commenced an integrated water cycle management (IWCM) study. Refer to column 6 of Table 3 (water supply) and to column 4 (sewerage).

Following the 2014 streamlining of the NSW BPM framework (Appendix H), 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) will meet 6 of the 19 BPM outcomes (IWCM (W, S), strategic business planning (W, S), water conservation and drought management).

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); and
- water pricing reform, community education, and cost-effective water loss (ie leakage) reduction programs.

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. The implemented schedule of triggers and management measures are reported as part of the IWCM and strategic business plan (July 2014 check list) (www.water.nsw.gov.au).

Strategic Business Plan and Financial Plan – 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[52] that discloses each of the growth, improved standards and renewals 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. 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 section 4 and Figures H1 and H6 of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au).

The strategic business plan must include the utility's proposed levels of service, 30-year TAMP, and a sound 30-year financial plan that identifies the resulting TRB (in current dollars) over this period.

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*. Appendix H2 of the *2015-16 Performance Monitoring Report* 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 in Appendix H2 and illustrated in figure H4 of Appendix H of the *2015-16 Performance Monitoring Report*.

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 TAMP (section 4.2) 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 required outcome, and is shown as Yes* in Table 3 (columns 1). As noted in Table 3, 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 in section 5.4.1 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 Appendix H2 and Figure H1 of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au).

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.

The 11 pricing outcomes required by the NSW best-practice management framework (section 4.1) are outlined below. These incorporate implementation of the NSW Framework for Regulation of Sewerage and Trade Waste[53], 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. 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 (section 4.1).

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 Table 6 and column 11a of

[52] I.e. fit for purpose and without wasteful 'gold plating'.

[53] 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 (section 4.1).

Table 7). As noted in Appendix H3, 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 Table 6 and column 11a of Table 7). Refer also to section 5.4.2 of this report and to Appendix G 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 Table 3. Refer also to columns 1, 5b and 5d of Table 6. All the NSW utilities have now met this required outcome.

Residential 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 required outcomes 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 required outcome and is shown as Yes*. Refer also to section 4.4, Figure 13, column 2c of Table 3, column 13 of Table 6 and section 4.1 of the *2015-16 NSW Water Supply and Sewerage Performance Monitoring Report* (www.water.nsw.gov.au).

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 Table 3.

Residential sewerage charges – Residential tariff is independent of land value. Refer to column 2b of Table 3 and to column 3 of Table 7.

Non-residential sewerage charges – This requires a two part tariff with an appropriate sewer usage charge per 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 Table 3, Figure 44, and to column 3a of Table 7.

Liquid trade waste fees and charges – This requires appropriate trade waste fees and charges to be applied to all liquid trade waste dischargers. These include non-compliance trade waste usage and excess mass charges (section 4.1). Refer to column 2d of Table 3 and to column 4 of Table 7. Refer also to Figure 45 and Table 7C.

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 Tables 3 and 7C.

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 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).

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/__data/assets/pdf_file/0008/549602/town-planning-water-utilities-liquid-trade-waste-guidelines.pdf)

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 Table 3, column 7 of Table 6 (water supply) and column 7 of Table 7 (sewerage).

The Minister for Regional Water has approved the *2016 Developer Charges Guidelines for Water Supply, Sewerage and Stormwater* pursuant to section 306 (3)(C) of the *Water Management Act 2000*. These guidelines modify and supersede the *Water Supply, Sewerage and Stormwater Developer Charges Guidelines, 2002* in accordance with the recommendations of the *IPART Review Report* and

stakeholder feedback on a consultation draft of the new guidelines (http://www.water.nsw.gov.au/__data/assets/pdf_file/0011/663698/2016-Developer-Charges-Guidelines.pdf).

These documents provide guidance for best-practice pricing and regulation by LWUs. Such pricing meets the key national requirements. The comprehensive software and guidance provided for LWUs are noted in section 4.2.

Complete performance report by due date – 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.

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 provided by DPI Water to prepare and implement a sound action plan to council, which addresses any emerging issues or areas of underperformance.

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.

A LWU meets the required outcome if it completes its performance reporting for water supply and/or sewerage by the due date (currently 15 September each year) and prepares and implements a sound annual action plan to Council. Refer to column 5 of Table 3 (water supply) and column 3 (sewerage).

APPENDIX I: CERTIFICATION OF TREATMENT WORKS OPERATORS IN REGIONAL NSW

LWU		WATER SUPPLY				SEWERAGE		
		Number of Water Treatment Operators* (1)	Number of Operators – Chemical Dosing+ (2)	Number of WTW Operators in Training (3)	Meet National Certification Framework?α (4)	Number of Sewage Treatment Operators (5)	Number of STW Operators in Training (6)	Meet NSW Certification Requirements?2 (7)
11	Albury	3	2	1	Yes	4	0	Yes
111	Armidale Regional	6	2	1	Yes	6	0	Yes
24	Ballina	3	0	2	Yes	7	2	Yes
100	Balranald	4	1	0	Yes	4	0	Yes
21	Bathurst Regional	4	0	0	Yes	4	0	Yes
23	Bega Valley	18	0	2	Yes	5	1	Yes
47	Bellingen	1	0	2	Yes	3	1	Yes
53	Berrigan	4	0	0	Yes	4	0	Yes
72	Bland (NO WS)					2	0	Yes
78	Blayney (NO WS)					3	1	Yes
89	Bogan	2	2	1	Yes	3	1	Yes
87	Bourke	2	1	1	Yes	0	5	
105	Brewarrina	5	0	0	Yes	6	0	Yes
27	Byron	5	0	1	Yes	6	1	Yes
91	Cabonne	4	0	1	Yes	4	2	Yes
92	Carrathool	0	5	1	Yes	1	1	Yes
112	Central Coast	7	0	1	Yes	21	2	Yes
103	Central Darling	0	0	3		2	2	Yes
40	Central Tablelands	3	0	2	Yes			
14	Clarence Valley	2	4	0	Yes	12	0	Yes
67	Cobar	1	0	1	Yes	0	2	
10	Coffs Harbour	3	0	0	Yes	5		Yes
99	Coolamon (NO WS)					2	0	Yes
75	Coonamble	1	0	2	Yes	5	2	Yes
115	Cootamundra-Gundagai (	2	0	0	Yes	6	0	Yes
39	Cowra	6	0	2	Yes	4	0	Yes
122	Dubbo Regional	9	0	1	Yes	7	1	Yes
54	Edward River	2	0	0	Yes	3	0	Yes
26	Essential Energy	8	0	4	Yes	7	0	Yes
15	Eurobodalla	3	2	2	Yes	7	0	Yes
114	Federation	5	0	2	Yes	9	0	Yes
12	Fish River (NO SGE)	1	0	1	Yes			
51	Forbes	2	1	0	Yes	3	1	Yes
84	Gilgandra	2	2	1	Yes	4	0	Yes
60	Glen Innes Severn	4	0	0	Yes	4	0	Yes
20	Goulburn Mulwaree	4	0	0	Yes	5	2	Yes
80	Greater Hume	2	0	1	Yes	4	1	Yes
30	Griffith	2	0	0	Yes	3	0	Yes
44	Gunnedah	2	0	0	Yes	3	0	Yes
28	Goldenfields (NO SGE)	3	5	1	Yes			
81	Gwydir	4	1	3	Yes	6	1	Yes
30A	Hawkesbury (NO WS)					3	2	Yes
86	Hay	3	0	0	Yes	3	0	Yes
116	Hilltops (Reticulator)	3	2	4	Yes	9	1	Yes
37	Inverell	3	0	1	Yes	4	1	Yes
77	Junee (NO WS)					2	0	Yes
25	Kempsey	6	1	2	Yes	9	0	Yes
70	Kyogle	7	0	0	Yes	7	0	Yes
59	Lachlan	5	0	2	Yes	2	0	Yes
48	Leeton	4	0	0	Yes	4	1	Yes
22	Lismore	0	0	0		3	0	Yes
31	Lithgow	2	0	0	Yes	7	0	Yes
61	Liverpool Plains	3	0	1	Yes	3	0	Yes
102	Lockhart (NO WS)					2	1	Yes
5	MidCoast	13	0	8	Yes	16	7	Yes
32	Mid Western Regional	4	4	3	Yes	4	7	Yes
38	Moree Plains	3	0	0	Yes	4	2	Yes
117	Murray River	9	2	1	Yes	11	0	Yes
118	Murrumbidgee	5	0	0	Yes	4	0	Yes
41	Muswellbrook	5	0	1	Yes	3	1	Yes

APPENDIX I: CERTIFICATION OF TREATMENT WORKS OPERATORS IN REGIONAL NSW

LWU		WATER SUPPLY				SEWERAGE		
		Number of Water Treatment Operators* (1)	Number of Operators – Chemical Dosing+ (2)	Number of WTW Operators in Training (3)	Meet National Certification Framework?α (4)	Number of Sewage Treatment Operators (5)	Number of STW Operators in Training (6)	Meet NSW Certification Requirements?2 (7)
34	Nambucca	0	2	1	Yes	4	0	Yes
46	Narrabri	4	0	0	Yes	4	3	Yes
63	Narrandera	2	0	1	Yes	4	0	Yes
62	Narromine	3	0	1	Yes	4	0	Yes
83	Oberon	3	0	1	Yes	2	1	Yes
19	Orange	3	0	1	Yes	4	3	Yes
36	Parkes	7	0	2	Yes	8	0	Yes
7	Port Macquarie-Hastings	7	1	4	Yes	14	0	Yes
119	Queanbeyan-Palerang (R	4	6	2	Yes	9	2	Yes
33	Richmond Valley	2	0	1	Yes	5		Yes
4	Rous (NO SGE)	5	0	1	Yes			
8	Riverina (NO SGE)	9	0	0	Yes			
3	Shoalhaven	10	10	1	Yes	13	26	Yes
35	Singleton	5	0	0	Yes	1	1	Yes
120	Snowy Monaro Regional	9	5	1	Yes	14	2	Yes
121	Snowy Valleys	6	4	2	Yes	6	7	Yes
13	Tamworth Regional	17	0	4	Yes	17	4	Yes
69	Temora (NO WS)					1	1	Yes
68	Tenterfield	6	0	2	Yes	6	2	Yes
6	Tweed	5	0	0	Yes	9	0	Yes
45	Upper Hunter	1	2	0	Yes	3	0	Yes
73	Upper Lachlan	6	0	1	Yes	4	1	Yes
85	Uralla	4	0	0	Yes	2	0	Yes
9	Wagga Wagga (NO WS)					8	1	Yes
98	Walcha	4	0	0	Yes	1	4	Yes
79	Walgett	0	3	3	Yes	0	3	
96	Warren	3	0	2	Yes	1	1	Yes
55	Warrumbungle	9	2	0	Yes	2	5	Yes
95	Weddin (NO WS)					2	0	Yes
74	Wentworth	2	0	2	Yes	2	0	Yes
16	Wingecarribee	4	0	1	Yes	9	0	Yes
56	Yass Valley	3	0	1	Yes	2	1	Yes
	TOTAL	**357**	**72**	**98**	**81**	**445**	**120**	**84**

Notes:

1. Columns 1 and 2 above show that each of the 81# NSW LWUs responsible for providing water treatment for a drinking water supply has at least one fully qualified water treatment operator who meets the requirements of the National Certification Framework for water treatment operators (column 4). A total of 429 operators meet the National Certification Framework, including 357 operators qualified to operate a water treatment works or a chlorinator/aerator (column 1) and 72 operators qualified to operate a chlorinator/aerator (column 2). A further 98 operators are currently undertaking training in water treatment operation (column 3).

2. Column 5 above shows that the LWUs have 445 fully qualified wastewater treatment operators who met the NSW Certification requirements (column 7), involving a Certificate III in Water Operations (Wastewater Treatment) or equivalent and are employed in operating a LWU sewage treatment works. A further 120 operators are currently undergoing training, including 14 operators at Bourke, Cobar, Walcha and Walgett (column 6).

\# Excludes the 8 LWUs responsible for sewerage only, reticulators Cootamundra-Gundagai, Hilltops and Queanbeyan-Palerang, and Cobar Water Board, which provides a bulk raw water supply.

* Such operators have a Certificate III in Water Operations (Water Treatment) or equivalent and are employed in operating a LWU treatment works or a chlorinator/aerator (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)).

\+ Such operators have a DPI Water Part 1 Certificate (Chemical Dosing Systems) or equivalent, have also completed chlorine safety training and are employed in operating a LWU chlorinator/aerator (refer to page 23 of NSW Guidelines for drinking water management systems).

α http://nwc.gov.au/__data/assets/pdf_file/0019/25345/Proposed-National-Certification-Framework.pdf

APPENDIX J: LIVEABILITY INDICATORS FOR REGIONAL NSW

LWU		Number of Residential Rainwater Tanks (1)	Typical Rainwater Tank Volume (kL) (2)	WSUD Residential Lots Released (3)		Development Control Plan? (4)	Stormwater Channels Managed Under WSUD Principles (km) (5)
				2014-15	2015-16		
11	Albury	449	4	332	371	Yes	0
111	Armidale Regional	2,115	4.7	0	0	No	5.5
24	Ballina			142	181	Yes	0
100	Balranald			0	0	No	0
21	Bathurst Regional			124	0	No	1.5
23	Bega Valley	1,800	5	167	68	Yes	0
47	Bellingen			0	0	Yes	0
53	Berrigan	110	5	0	0	No	0
89	Bogan						
87	Bourke	150	10	0	0	No	0
105	Brewarrina	256	5		0	No	0
27	Byron	690	3			Yes	
91	Cabonne			0	0	No	0
92	Carrathool					No	
112	Central Coast	20,396	2.5	450	330	Yes	28
103	Central Darling			0			
40	Central Tablelands						
14	Clarence Valley	478	14			Yes	
67	Cobar						
10	Coffs Harbour	2,160	4.8			Yes	
75	Coonamble			0	0		0
115	Cootamundra-Gundagai			0			
39	Cowra			0	0	No	0
122	Dubbo Regional	507	5	0	0	Yes	
54	Edward River			0	0	No	0
26	Essential Energy						
15	Eurobodalla						
114	Federation			0	0	No	0
12	Fish River						
51	Forbes	1,007	1		0	No	0
84	Gilgandra	339	1	0	0	No	0
60	Glen Innes Severn			0	0	No	0
20	Goulburn Mulwaree	677	10	137	124	Yes	8
80	Greater Hume			0	0	No	0
30	Griffith						
28	Goldenfields						
44	Gunnedah		20	0			
81	Gwydir	1,500	4	0	0	No	0
86	Hay			0	0	No	0
116	Hilltops	860	5	0	0	No	1
37	Inverell			0	0	No	0
25	Kempsey			0	0	Yes	5
70	Kyogle	1	4.5		0	Yes	5
59	Lachlan				0	No	0
48	Leeton			0	0	No	0
22	Lismore			3	6	Yes	89
31	Lithgow					No	
61	Liverpool Plains			0	0	No	0
5	MidCoast		10				
32	Mid Western Regional	1,721	3	38	56	Yes	0.6
38	Moree Plains						
117	Murray River			0	0	No	0
118	Murrumbidgee	360		0	0		0
41	Muswellbrook				0	No	0
34	Nambucca		5	0	0	No	0
46	Narrabri			0	0	No	0
63	Narrandera				0	Yes	0
62	Narromine			0	0	No	0
83	Oberon			0	0	No	0
19	Orange		5	56	0	Yes	0

APPENDIX J: LIVEABILITY INDICATORS FOR REGIONAL NSW

	LWU	Number of Residential Rainwater Tanks (1)	Typical Rainwater Tank Volume (kL) (2)	WSUD Residential Lots Released (3)		Development Control Plan? (4)	Stormwater Channels Managed Under WSUD Principles (km) (5)
				2014-15	2015-16		
36	Parkes			0	0	Yes	0
7	Port Macquarie-Hastings					Yes	
119	Queanbeyan-Palerang	752	1	233	310	No	0
33	Richmond Valley						
4	Rous						
8	Riverina			0	0	No	0
3	Shoalhaven					No	
35	Singleton	2,187	10	4	38	Yes	19
120	Snowy Monaro			7	8		0.5
121	Snowy Valleys			0			
13	Tamworth Regional						
68	Tenterfield			0	0	No	0
6	Tweed	2,135	5	272	116	No	1.4
45	Upper Hunter			0	0	No	0
73	Upper Lachlan				0	No	0
85	Uralla	251	5	0	0	No	0
9	Wagga Wagga						52
98	Walcha				0	No	0
79	Walgett			0	0	No	0
96	Warren	200	5	0	0	No	0
55	Warrumbungle			0	0	No	0.2
74	Wentworth						
16	Wingecarribee	913	5	257	209	Yes	18
56	Yass Valley	610	4.5	0	0	No	0
	TOTAL	**42,600 (for 26 LWUs)**	**4 to 5 kL (typical for 29 LWUs)**	**2,200**	**1,800**	**20 LWUs have a Development Control Plan**	**236 km (for 15 LWUs)**

Notes:

1. The results shown above have been reported by a total of 71 LWUs in the 2015-16 data collection for the above performance indicators. More utilities are expected to be able to report in future data collections.
2. In 2015-16, 12 LWUs released a total of 1,800 water sensitive urban design (WSUD) residential lots, compared to a total of 2,200 in 2014-15.

APPENDIX K: CHARACTERISTICS OF THE AUSTRALIAN URBAN WATER SECTOR - 2015-16

NWI ID	Indicator Name	Regional NSW[3] (1)	Regional Victoria (2)	Regional QLD[4] (3)	Sydney[2] (4)	Hunter (5)	NSW Total (6)	Victoria Total[9] (7)	QLD Total[5] (8)	South Australia (9)	Western Australia[7] (10)	Tasmania[8] (11)	ACT (12)	Northern Territory[6] (13)	Australian Total[1] (14)	Regional NSW (% of NSW Total) (15)	NSW Total (% of Australia Total) (16)
C1	Population receiving WS services (millions)	1.85	1.44	2.82	4.99	0.56	7.41	5.97	4.22	1.68	2.30	0.43	0.39	0.16	22.6	25%	33%
C5	Population receiving SGE services (millions)	1.75	1.30	2.54	4.80	0.54	7.09	5.67	3.88	1.32	2.11	0.38	0.39	0.15	21.0	25%	34%
C4	Total connected properties - WS (millions)	0.84	0.69	1.21	1.90	0.24	2.98	2.61	1.78	0.77	0.96	0.20	0.17	0.07	9.55	28%	31%
C8	Total connected properties - SGE (millions)	0.76	0.61	1.07	1.85	0.23	2.84	2.46	1.61	0.60	0.86	0.18	0.17	0.07	8.78	27%	32%
W11	Total urban water supplied (GL)	300	212	382	539	72	911	642	527	237	312	72[8]	46	47	2,790	33%	33%
W11.1	Total urban potable water supplied (GL)	270	207	338	525	68	863	633	479	228	273[7]	72[8]	46	47	2,640	31%	33%
W11.3	Total volume of potable water produced (GL)	262	194	219	529	68	859	595	519	228	274[7]	72[8]	50	52	2,650	30%	32%
W8.1+W9.1	Volume of potable water supplied - residential and non-residential (GL)	235	191	296	474	56	765	568	721	204	242[7]	51	42	46	2,640	31%	29%
W10.1	Non revenue water (NRW) (GL)	34.9	16.1	42.4	52	12.2	99	64.6	57.6	24.0	31.2[7]		3.9	0.7	281	35%	35%
W26	Total recycled water supplied (GL)	35.5	42.7	36.8	43.3	5.4	84	77.6	45.6	26.6	14.3		4.1	0.5	253	42%	33%
W18	Total sewage collected (GL)	177	147	220	548	70	794	505	330	107	152	50[8]	33.9	21	1,990	22%	40%
W18.5	Volume of sewage treated effluent (GL)	173	128	217	535	70	778	467	329	96	136[7]	50[8]	31	21	1,910	22%	41%
W17	Volume of sewage collected - trade waste (GL)	6.6	36.7	15.4	19.0	4.9	31	87.2	26.2	13.2	8.4			1.1	167	22%	18%
F1+F2	Total revenue - WSS ($M)	1,490	1,022	2,610	2,745	325	4,560	5,130	4,670	1,430	1,810	293	346	209	18,400	33%	25%
IF11+IF12	Operating cost - WSS ($M)	677	609	1,159	1,294	138	2,110	3,284	1,813	497	613	178	155	87	8,700	32%	24%
F20	Dividend ($M)	4.9	0.0	162.8	389.2	37.3	431	73.8	288.9	204.9	547.7	20.3	80.0	0.0	1,650	1%	26%
F9+F10	Written-down value of fixed WSS assets ($M)	17,790	10,640	14,800	45,100	7,080	70,000	33,200	19,700	13,200	14,300	2,630	3,810	675	158,000	25%	44%
F16	Total capital expenditure for WSS ($M)	440	265	448	648	88	1,180	992	731	275	335	129	84	54	3,800	37%	31%
F25	Community Service Obligations ($M)	15.2	47.5	16.1	165.9	14.4	196	168.1	39.1	130.4	115.2	8.4	11.3	9.5	678	8%	29%
F26+F27	Capital works grants - WSS ($M)	49.1	4.0	13.6	0.0	0.4	50	8.5	25.0	8.7	0.0	0.0	0.0	0.0	92	99%	54%
A2	Length of water mains (1,000 km)	30.6	22.6	28.0	22.5	5.0	58	48.7	38.1	26.9	17.8	6.2	3.3	1.9	201	53%	29%
A5	Length of SGE mains and channels (1,000 km)	20.1	15.1	21.9	25.4	5.0	50	38.4	31.3	8.9	14.8	4.7[8]	3.3	1.0	153	40%	33%
A1	Number of water treatment plants providing full treatment (no.)	164	169	73	9	6	179	175	99	42	23	43	2	2[6]	565	92%	32%
A4	Number of sewage treatment plants (no.)	300	193	118	26	19	345	214	147	24	23	112[8]	6	7	878	87%	39%

Notes

1 Based on data reported in the Part B National Performance Report 2015-16 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 9 below. As there remain a small number of missing values for Tasmania and Western Australia, 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 205.

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 The number of water treatment works was obtained from the Power and Water website (www.powerwater.com.au).

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, A5 and A4 are taken from the TasWater Annual Report 2015-16 (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.

WS Water Supply

WSS Water Supply and Sewerage

SGE Sewerage

Regional NSW vs NSW Totals

Appendix K shows that the populations receiving water supply and sewerage services in regional NSW are each 25% of the NSW totals of 7.41 million and 7.09 million respectively. The volume of urban water supplied in regional NSW is 33% of the NSW total of 911 GL and the recycled water supplied is 42% of the NSW total of 84 GL.

The water and sewerage revenue for regional NSW is 33% of the NSW total of $4.56 billion, the operating cost is 32% of the NSW total of $2.11 billion and capital expenditure is 37% of the NSW total of $1.18 billion.

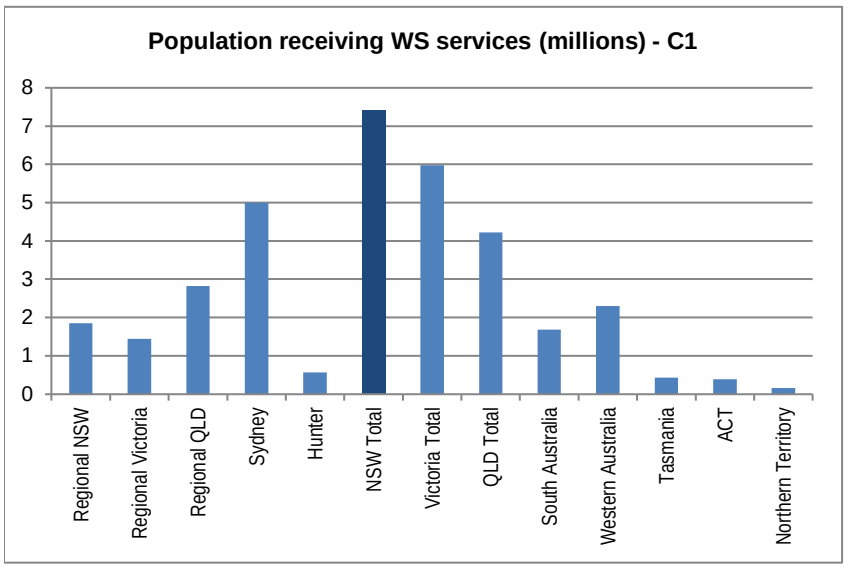
Regional NSW has 53% of the 58,000 km of NSW water mains, 40% of the 50,000 km of NSW sewerage mains and channels, 92% of the 179 NSW water treatment works and 87% of the 345 NSW sewage treatment works.

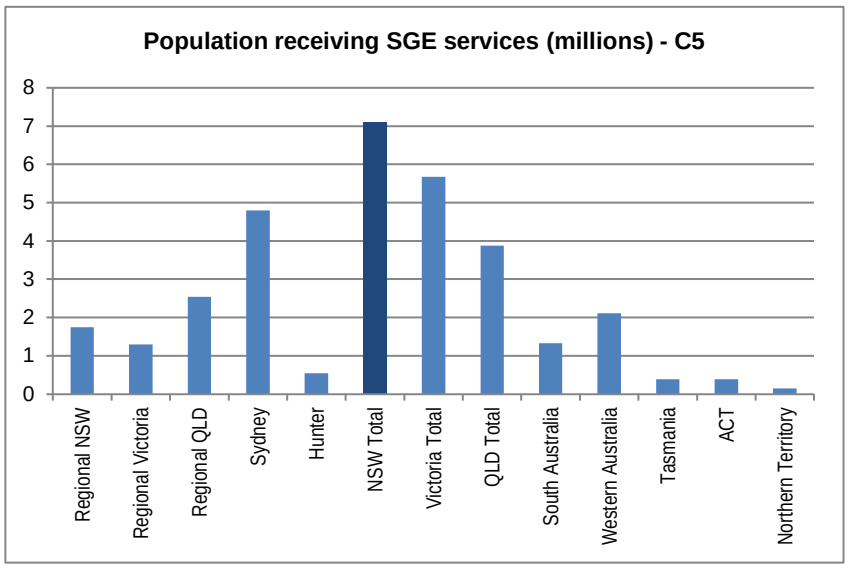
NSW vs Australian Totals

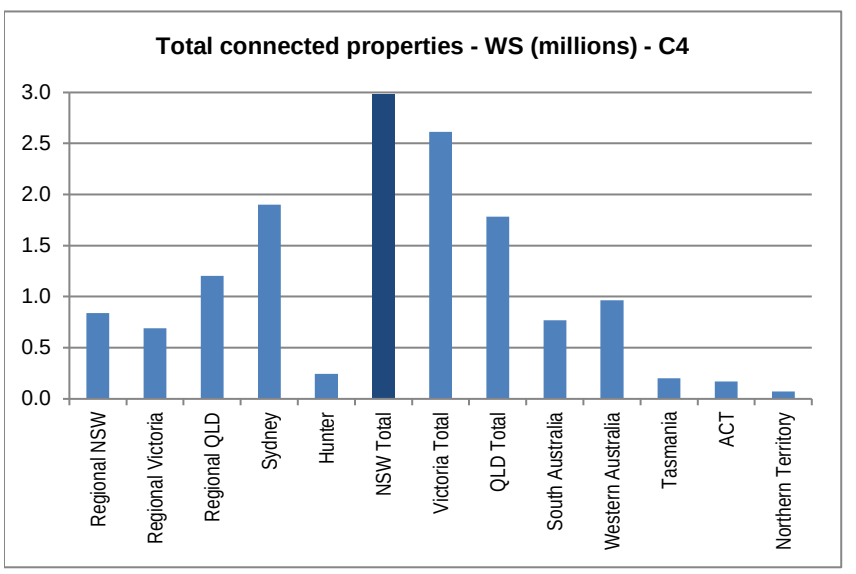
Appendix K shows that the total populations receiving water supply and sewerage services in NSW are 33% and 34% respectively of the Australian totals of 22.6 million and 21 million. The volume of urban water supplied in NSW is 33% of the Australian total of 2,790 GL, and the recycled water supplied in NSW is 33% of the Australian total of 253 GL.

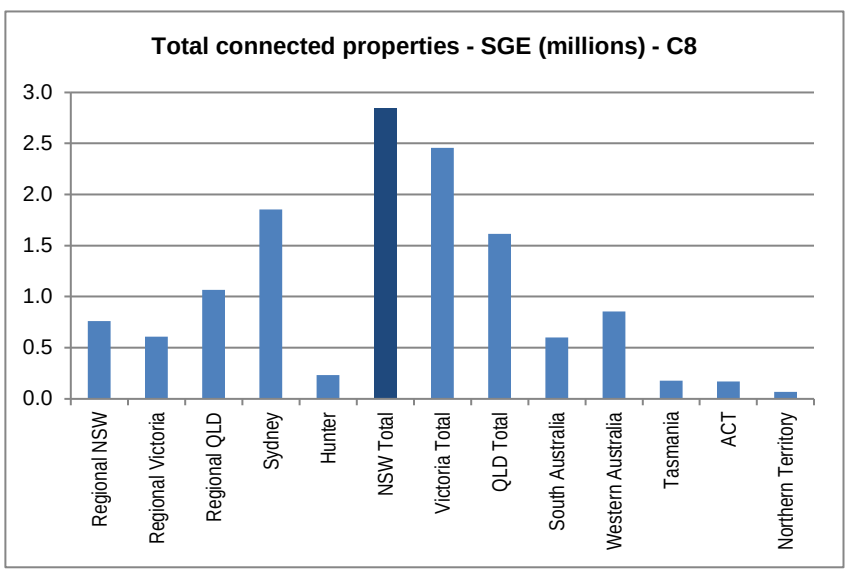
The water and sewerage revenue for NSW is 25% of the Australian total of $18.4 billion, the operating cost is 24% of the Australian total of $8.7 billion and capital expenditure is 31% of the Australian total of $3.8 billion.

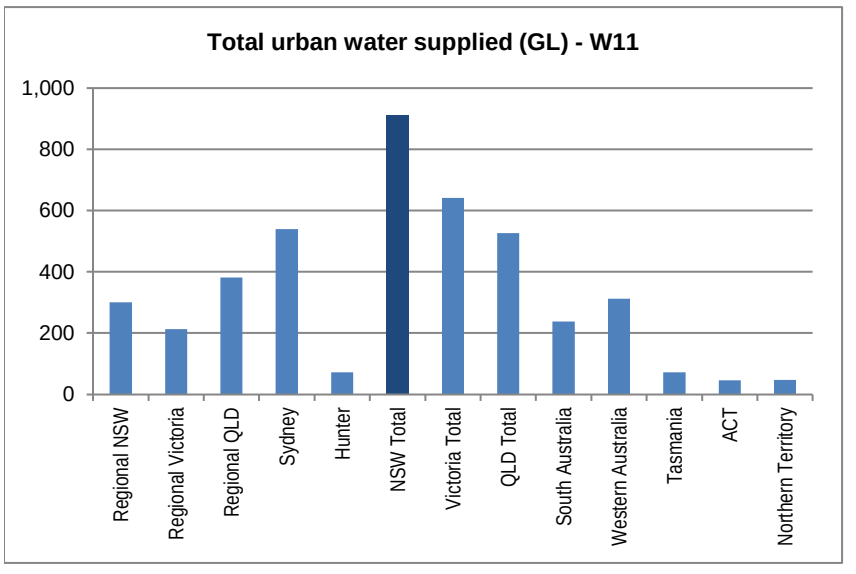
NSW has 29% of the 201,000 km of Australian water mains, 33% of the 153,000 km of Australian sewerage mains and channels, 32% of the 565 Australian water treatment works and 39% of the 878 Australian sewage treatment works.

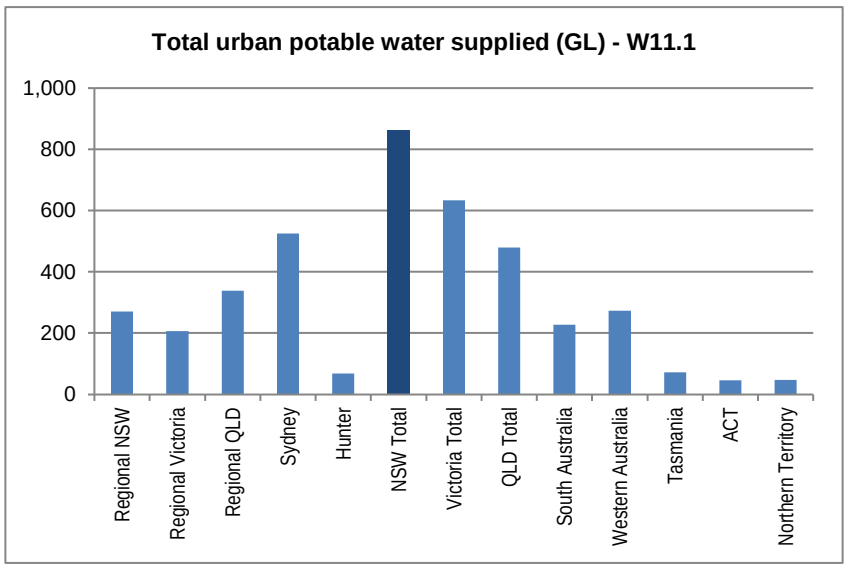

Population receiving WS services (millions) - C1
8
7
6
5
4
3
2
1
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

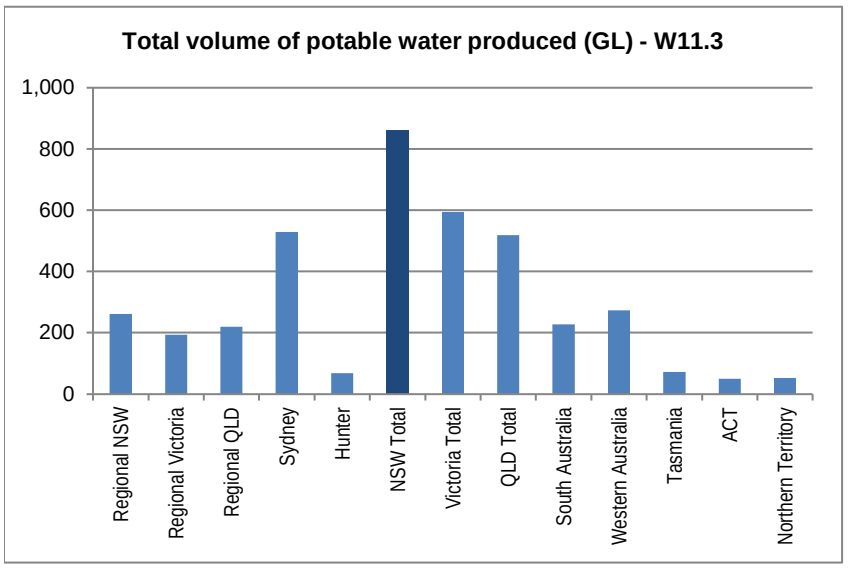

Population receiving SGE services (millions) - C5
8
7
6
5
4
3
2
1
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

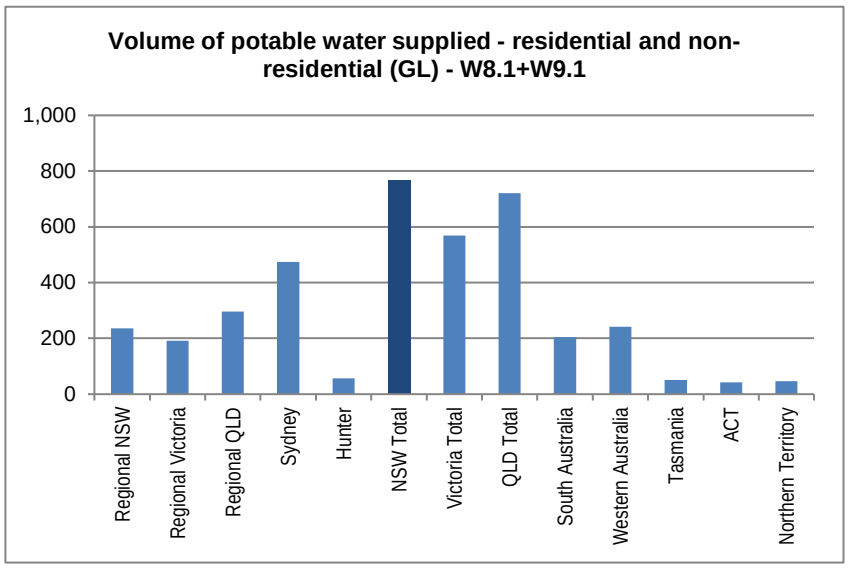

Total connected properties - WS (millions) - C4
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

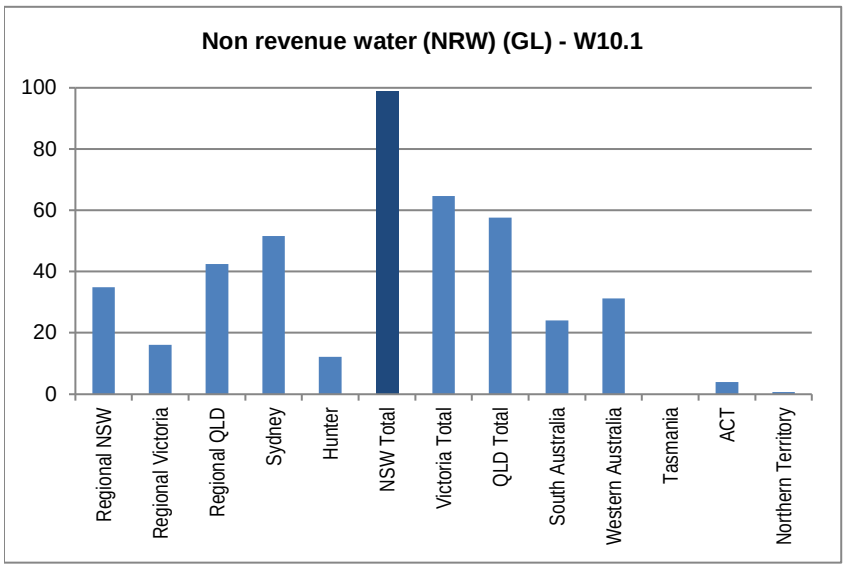

Total connected properties - SGE (millions) - C8
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

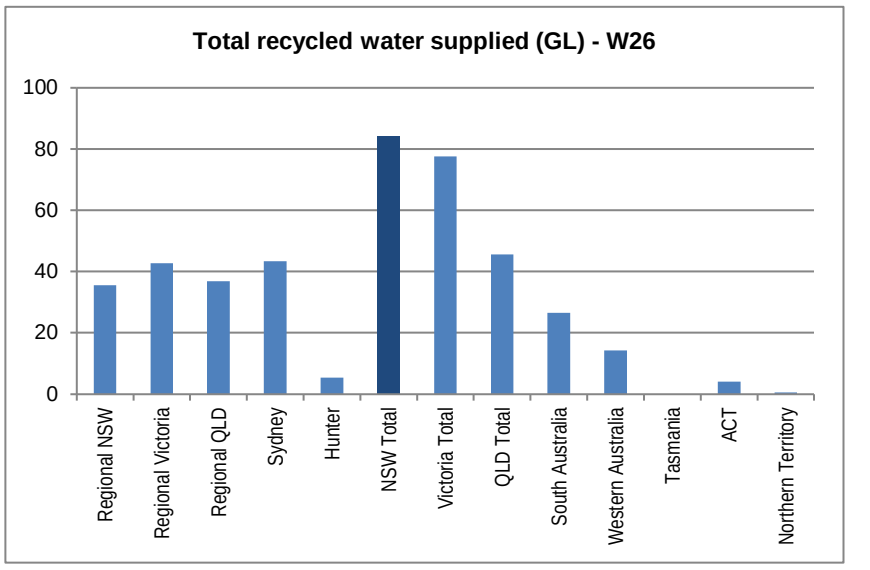

Total urban water supplied (GL) - W11
1,000
800
600
400
200
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

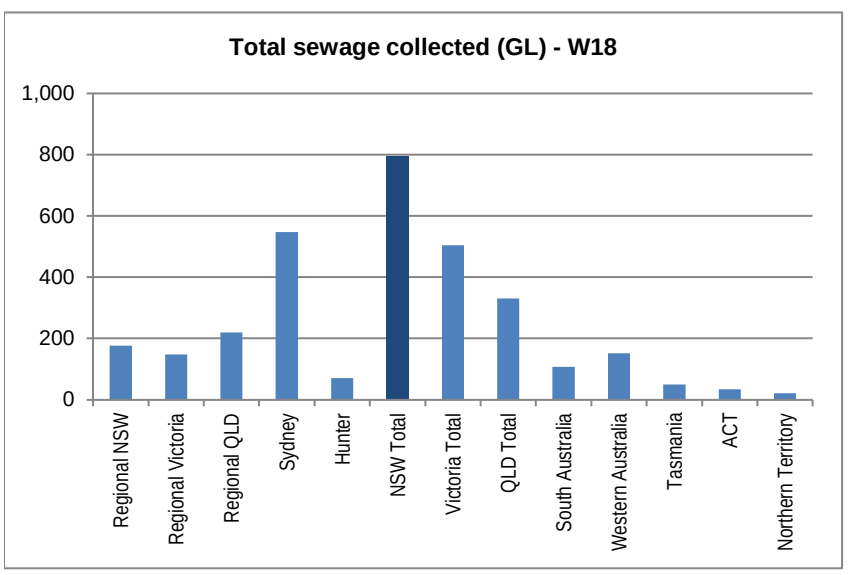

Total urban potable water supplied (GL) - W11.1
1,000
800
600
400
200
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

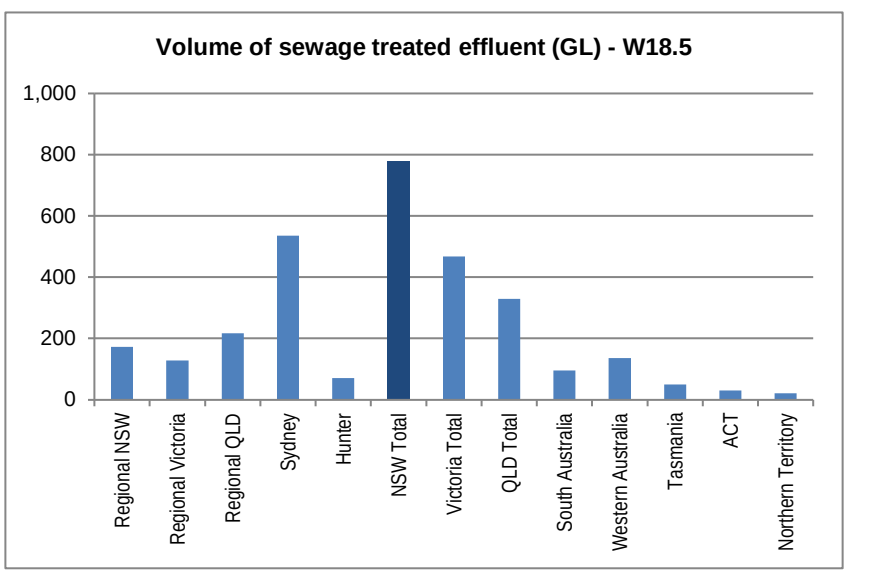

Total volume of potable water produced (GL) - W11.3
1,000
800
600
400
200
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

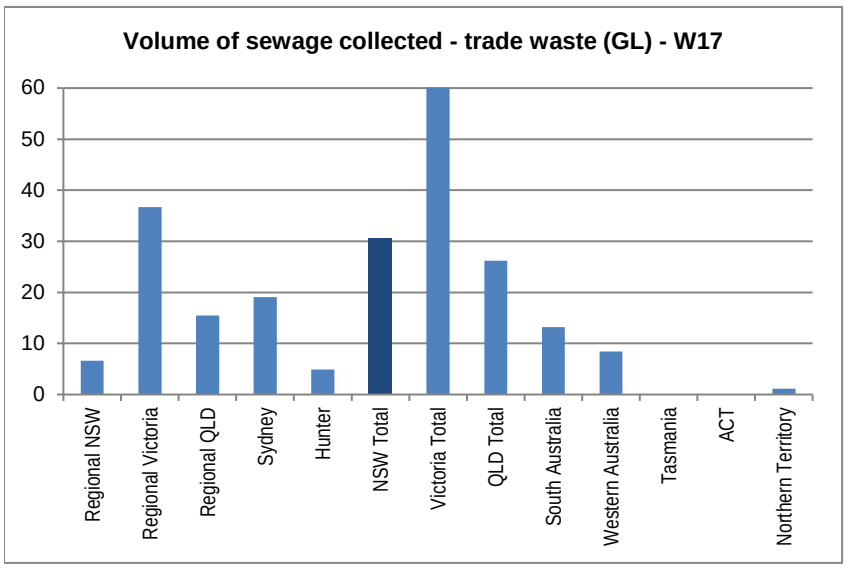

Volume of potable water supplied - residential and non-residential (GL) - W8.1+W9.1
1,000
800
600
400
200
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

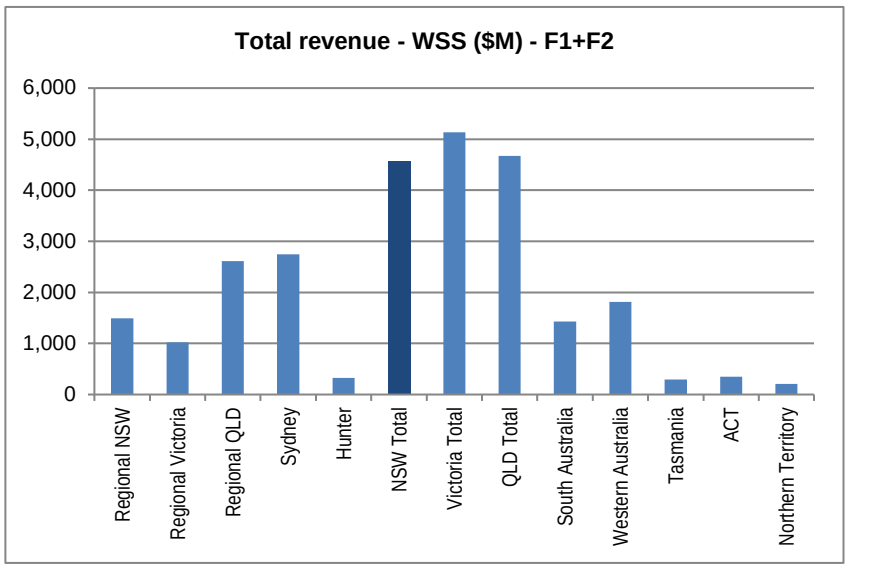

Non revenue water (NRW) (GL) - W10.1
100
80
60
40
20
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

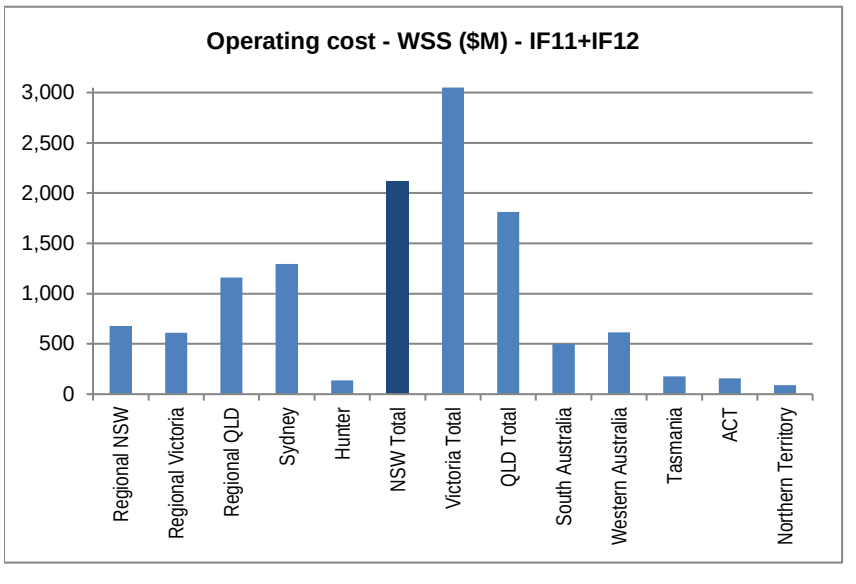

Total recycled water supplied (GL) - W26
100
80
60
40
20
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

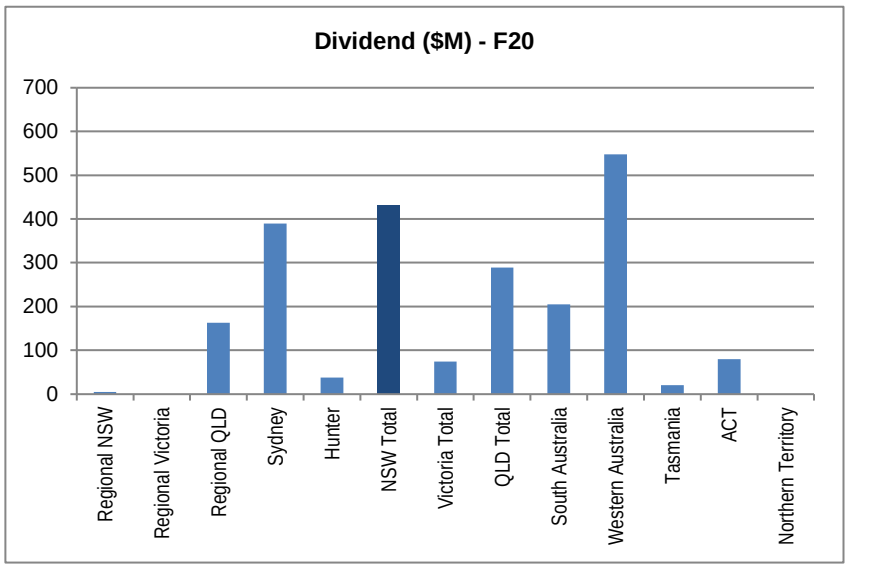

Total sewage collected (GL) - W18
1,000
800
600
400
200
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

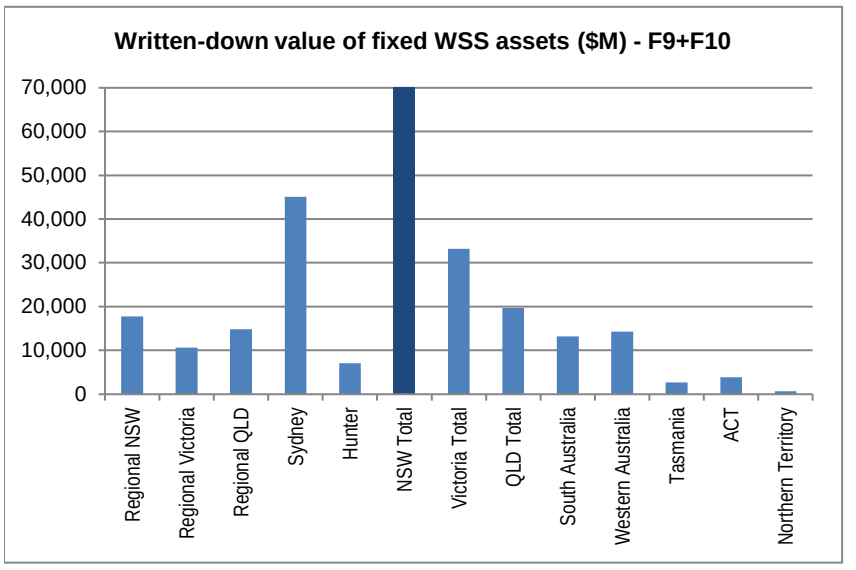

Volume of sewage treated effluent (GL) - W18.5
1,000
800
600
400
200
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

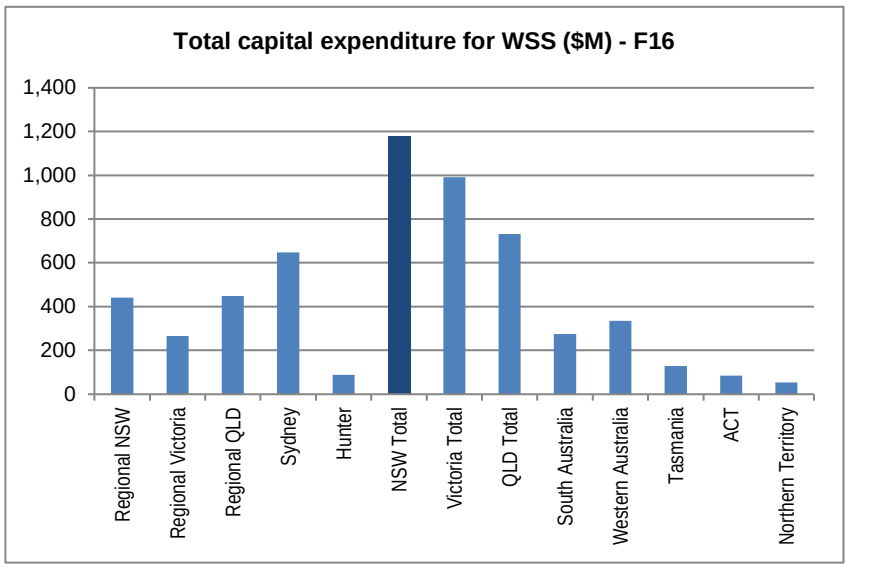

Volume of sewage collected - trade waste (GL) - W17
60
50
40
30
20
10
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

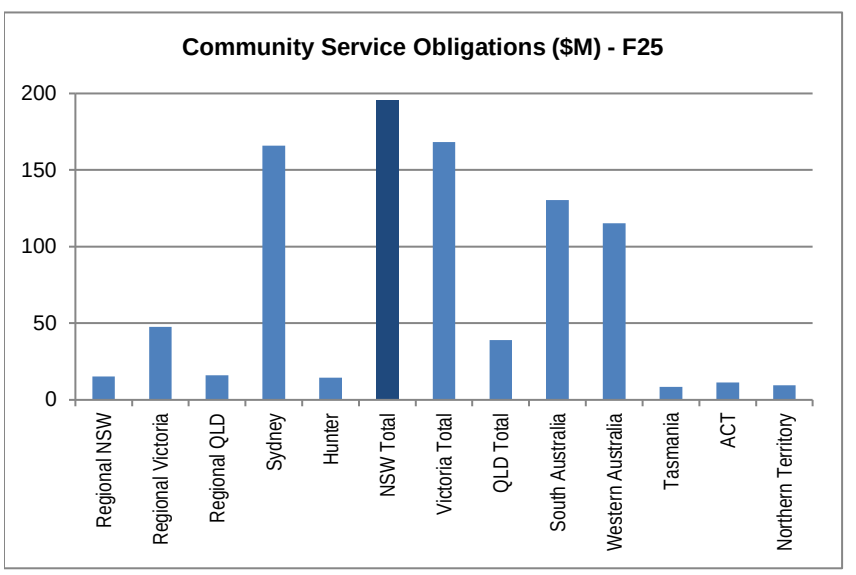

Total revenue - WSS ($M) - F1+F2
6,000
5,000
4,000
3,000
2,000
1,000
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

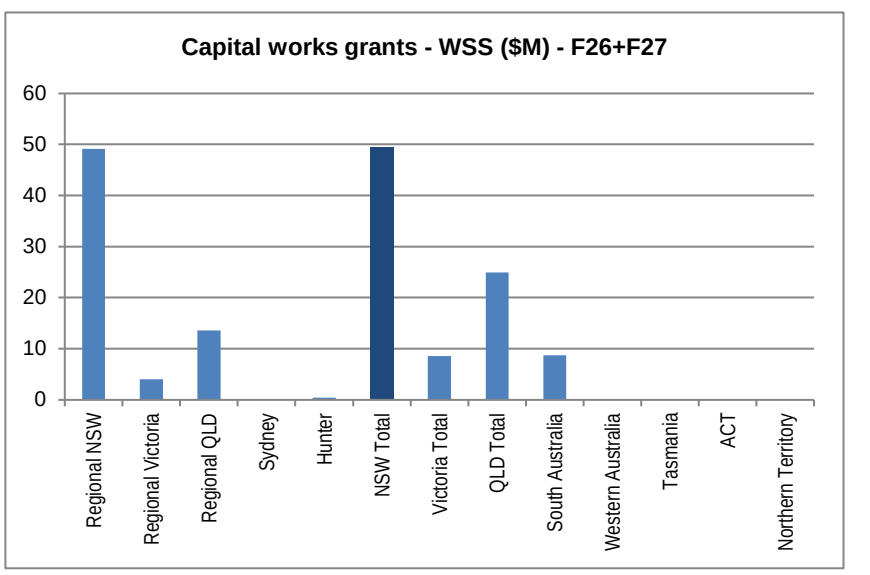

Operating cost - WSS ($M) - IF11+IF12
3,000
2,500
2,000
1,500
1,000
500
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

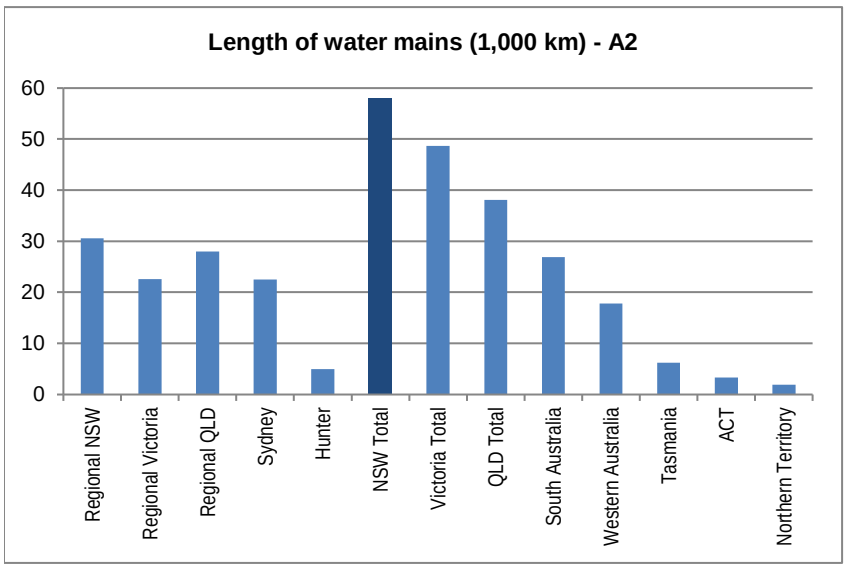

Dividend ($M) - F20
700
600
500
400
300
200
100
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

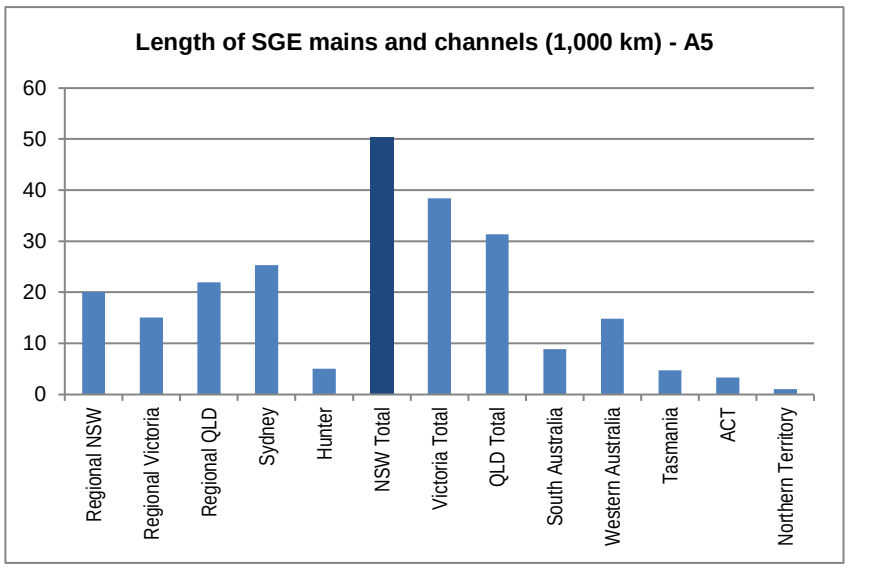

Written-down value of fixed WSS assets ($M) - F9+F10
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

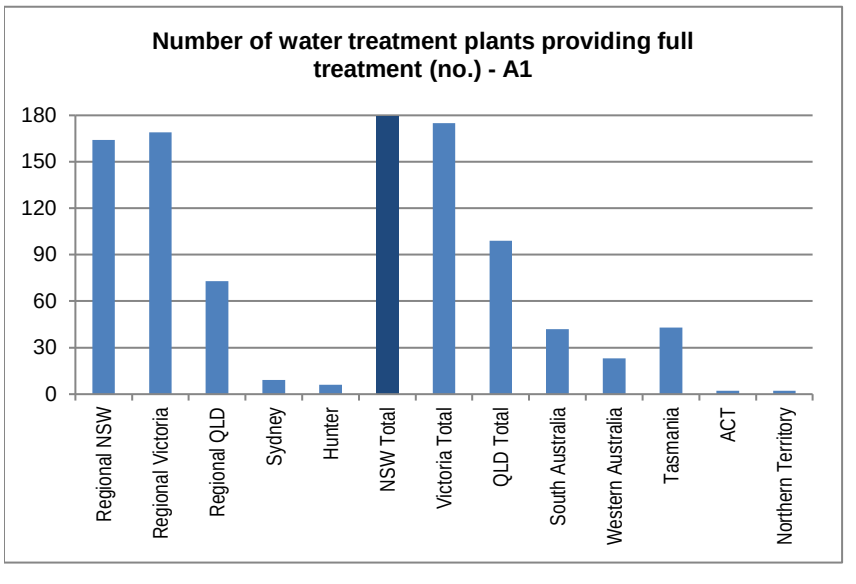

Total capital expenditure for WSS ($M) - F16
1,400
1,200
1,000
800
600
400
200
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

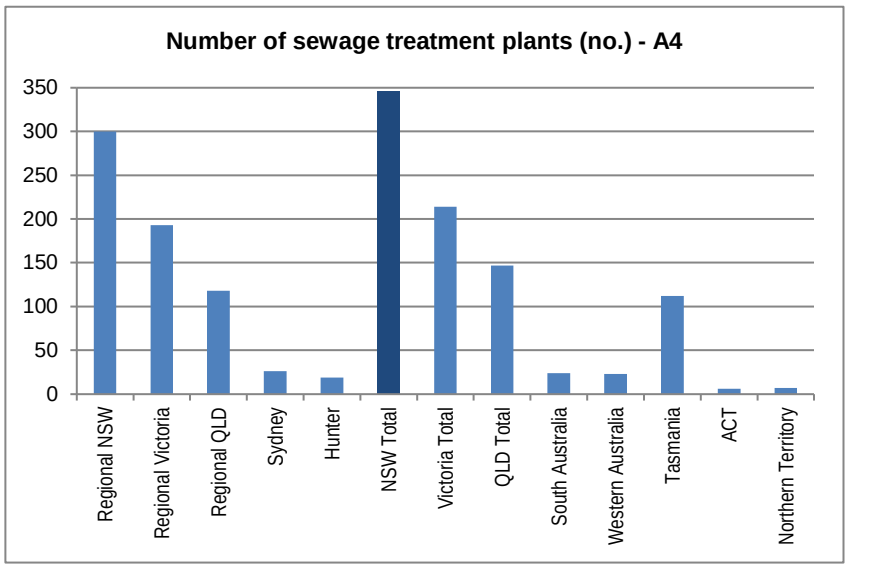

Community Service Obligations ($M) - F25
200
150
100
50
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory


Capital works grants - WSS ($M) - F26+F27
60
50
40
30
20
10
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory


Length of water mains (1,000 km) - A2
60
50
40
30
20
10
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory


Length of SGE mains and channels (1,000 km) - A5
60
50
40
30
20
10
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory


Number of water treatment plants providing full treatment (no.) - A1
180
150
120
90
60
30
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory


Number of sewage treatment plants (no.) - A4
350
300
250
200
150
100
50
0
Regional NSW
Regional Victoria
Regional QLD
Sydney
Hunter
NSW Total
Victoria Total
QLD Total
South Australia
Western Australia
Tasmania
ACT
Northern Territory

APPENDIX L: COUNCIL AMALGAMATIONS – BASIS FOR CALCULATION OF PERFORMANCE INDICATORS

In July 2015 there were 105 regional NSW local water utilities (LWUs) providing water supply and sewerage services. However, on 12 May, 2016 there were a number of amalgamations resulting in a reduction in the number of LWUs to 92 in June 2016. These amalgamations are listed in the table below.

There were 12 amalgamations in total, 11 of these where LWUs were combined or where alterations to boundaries significantly altered the number of assessments. Edward River Council involved no additional water supply or sewerage assessments as Conargo Shire Council was not a local water utility.

Data for the 12 amalgamated LWUs is shown in Appendices C to F and also in Figures 1 to 36. The performance of these amalgamated LWUs has been calculated by aggregating the reported data from their constituent LWUs. Financial data reported for 2015/16 for the constituent Councils has been reported for the period 1 July 2015 to 12 May 2016. This financial data has not been included in the calculation of statewide medians or percentiles.

Table 4 - Amalgamated LWUs

New LWU	Old LWU
Armidale Regional Council	Armidale Dumaresq Council, Guyra Shire Council
Central Coast Council	Gosford City Council, Wyong Shire Council
Cootamundra-Gundagai Regional Council	Cootamundra Shire Council, Gundagai Shire Council
Dubbo Regional Council	Dubbo City Council, Wellington Council
Edward River Council	Deniliquin Council, Conargo Shire Council
Federation Council	Corowa Shire Council, Urana Shire Council
Hilltops Council	Young Shire Council, Harden Shire Council, Boorowa Council
Murray River Council	Murray Shire Council, Wakool Shire Council
Murrumbidgee Council	Murrumbidgee Shire Council, Jerilderie Shire Council
Queanbeyan-Palerang Regional Council	Queanbeyan City Council, Palerang Council
Snowy Monaro Regional Council	Snowy River Shire Council, Cooma-Monaro Shire Council,
Snowy Valleys Council	Tumut Shire Council, Tumbarumba Shire Council

The basis for aggregating the results of amalgamated LWUs is generally on the percentage of connected properties in each constituent LWU included in the new LWU. This percentage is used to determine the ratio to be applied to each constituent LWU to determine the appropriate performance indicator.

The percentage of the water supply connected properties of each constituent LWU in the amalgamated LWU is shown in column (2) of table 3 on the following page. Eg. column (1) shows that Armidale Regional Council involves 8,870 connected properties from Armidale Dumaresq Council (87.5%) and 1,270 connected properties from Guyra Shire Council (12.5%).

Water supply performance indicators for Armidale Regional involving connected properties may be computed by summing 87.5% of the indicator for the former Armidale Dumaresq Council and 12.5% of the indicator for the former Guyra Shire Council.

Corresponding results for indicators based on water mains length are shown in columns (3) and (4), with sewerage connected properties in columns (5) and (6) and sewer mains length in columns (7) and (8).

For water supply and sewerage charges, those of the largest constituent LWU have been adopted for the amalgamated LWU.

Table L1 - Council amalgamations - basis for calculation of performance indicators

AMALGAMATED LWU		CONSTITUENT LWUs	WATER SUPPLY				SEWERAGE			
			Connected Properties (No.) (1)	Connected Properties (%) (2)	Mains Length (km) (3)	Mains Length (%) (4)	Connected Properties (No.) (5)	Connected Properties (%) (6)	Mains Length (km) (7)	Mains Length (%) (8)
111	**Armidale Regional Council**	Armidale Dumaresq	8,870	87.5%	291	83.0%	8,620	87.7%	245	81.1%
		Guyra Shire	1,270	12.5%	60	17.0%	1,210	12.3%	57	18.9%
112	**Central Coast Council**	Gosford City	72,330	52.5%	989	45.7%	70,460	52.5%	1,335	52.4%
		Wyong Shire	65,470	47.5%	1,174	54.3%	63,700	47.5%	1,212	47.6%
115	**Cootamundra-Gundagai Regional Council**	Cootamundra Shire	3,020	74.8%	70	66.0%	2,840	76.8%	63	46.3%
		Gundagai Shire	1,020	25.2%	36	34.0%	860	23.2%	73	53.7%
122	**Dubbo Regional Council**	Dubbo City	17,970	86.8%	516	81.3%	16,830	86.7%	418	82.4%
		Wellington	2,730	13.2%	118	18.7%	2,590	13.3%	89	17.6%
54	**Edward River Council**	Deniliquin	3,630	100%	149	100%	3,250	100%	109	100%
		Conargo Shire*		0%		0%		0%		0%
114	**Federation Council**	Corowa Shire	5,630	100%	182	100%	5,170	94.2%	154	91.1%
		Urana Shire (Sge only)	0	0%	0	0%	320	5.8%	15	8.9%
116	**Hilltops Council**	Young Shire	4,780	65.4%	151	40.8%	3,810	71.1%	93	56.0%
		Harden Shire	1,880	25.7%	171	46.2%	940	17.5%	42	25.3%
		Boorowa	650	8.9%	48	13.0%	610	11.4%	31	18.7%
117	**Murray River Council**	Murray Shire	3,160	68.5%	175	51.3%	3,160	75.1%	100	68.0%
		Wakool Shire	1,450	31.5%	166	48.7%	1,050	24.9%	47	32.0%
118	**Murrumbidgee Council**	Murrumbidgee Shire	790	61.7%	32	42.7%	790	64.8%	23	65.7%
		Jerilderie Shire	490	38.3%	43	57.3%	430	35.2%	12	34.3%
119	**Queanbeyan-Palerang Regional Council**	Queanbeyan City	18,500	88.9%	327	79.6%	17,620	89.0%	374	84.0%
		Palerang	2,320	11.1%	84	20.4%	2,180	11.0%	71	16.0%
120	**Snowy Monaro Regional Council**	Snowy River Shire	5,380	54.2%	129	42.6%	4,700	53.8%	93	39.1%
		Cooma-Monaro Shire	3,660	36.9%	134	44.4%	3,270	37.4%	110	46.2%
		Bombala	890	9.0%	39	13.0%	770	8.8%	35	14.7%
121	**Snowy Valleys Council**	Tumut Shire	4,520	79.9%	187	74.0%	4,240	81.4%	148	75.9%
		Tumbarumba Shire	1,140	20.1%	66	26.0%	970	18.6%	47	24.1%

Notes

* Conargo Shire had not previously been reported as they were not a local water utility.

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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**
- **green bold** refer to tables of data comparing the performance of the **NSW utilities**